

A Guide to the Russian Academy of Sciences

Part I

by

Jack L. Cross





Radio telescope

Dedication

It is with a deep appreciation and love that I dedicate this volume to my wife, Dorothy, without whose support and encouragement I should never have got this far with this project. "Got this far" is chosen particularly because this is the kind of work that will never end--as long as the Russian Academy of Sciences lasts, for it will always be changing in its own inimitable manner. The Academy has become one of the world's great bureaucracies--a collection of men and women organized around the seeking of knowledge and an understanding of themselves and their world and the universe which surrounds it.

In January 1997, Valentin Koptuyug, chairman of the Siberian Department of the Russian Academy of Sciences, and a Vice President of the RAS passed on unexpectedly. I would also like to dedicate this work to the memory of that scholarly and gentle man.

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Preface

There are a number of people whose help and encouragement I must acknowledge in the creation of this *Guide to the Russian Academy of Sciences*. I began working on this study about twelve years ago toward the end of my academic career. Richard Thomas headed the Center for Strategic Technology at Texas A&M University then and it was through him that I met and got to admire and know John Erickson and Dick Woff. Both of these men are excellent scholars of Russian affairs. It was at that time that I first encountered the Soviet Academy of Sciences. I was confused by its scope and organization and my curiosity was awakened by it. During my researches of the Soviet Academy--which at that time included the scientific academies of the 15 republics of the Soviet Union--and about the time that I had finished my first draft of a much larger study--*perestroika* and *glasnost* and Gorbachev appeared, the Berlin wall came down, and Russia was reborn.

For some three years I watched in dismay as various republics became independent and my manuscript was coming apart at the seams just as the Soviet Union was doing. In desperation I cut back on the work, concentrating only on the reconstituted Russian Academy itself. Some of my correspondence with various institute directors and officials in the Presidium led to an invitation to visit Russia to bring my information on the Siberian Department up to date, and an invitation to attend a conference on the history of science in the Ukraine followed. I accepted both, and I spent almost two weeks in Novosibirsk at the invitation of one of the Vice Presidents of the Academy--Valentin Koptug, who was, at that time, also the Chairman of the Siberian Department. I was able to visit with various persons in the Presidium in Moscow who grew interested in my efforts. President Iuri Osipov of the Academy designated me head of a project, along with Valerii Sokolov, Head of the Scientific Management Department of the Presidium, to develop a guide to the academy. At that time, we were hopeful about finding some funds from private sources to help defray the costs incurred in the collection of materials about the academy, and for their translation into four languages, and its publication for international sale and distribution. Proceeds from the sale were to be plowed back into the continuing updating of the guide in future.

We failed to find any money. Valerii and I have limped along, greatly slowed down, but we have kept updating the materials, and while this present volume lacks information which both of us would like to have, it represents the best available material on the academy available to me at the present time. I want to express the deepest thanks to Professors Koptug and to all those subordinates of his in Akademgorodok-Novosibirsk who provided me with much vital information. I need also to express my gratitude to the directors of the individual institutes who responded to my questions about their institutes with results which are uneven from institute to institute but which provide a clearer picture of the kind and extent of scientific research going on in those laboratories and departments. I have coordinated the material used from that correspondence with each of them and can vouch for the accuracy of most of the entries.

Western knowledge about the engineering and hard sciences in the Soviet Union has always been greater than that about the humanities and the social sciences--a situation that was corrected with the publication of the *Scholars' Guide to the Humanities and Social Sciences* (1994). I have included much of that material in this study. Blair Ruble, a pioneer in this kind of research, has been supportive of my efforts. It is good to know someone who understands what you are trying to do

and who is not afraid to tell you. I can only express my thanks to him for his understanding.

Fred Giessler, Bill Manthorpe, and James Westwood have encouraged me along the way and have often provided me with insights that have proved to be valuable. Perhaps none of this could have been done without the encouragement and support of Andrew Marshall: my work on *The Soviet Higher Military Educational System* (February 1982) 198 pp. and Occasional Paper No. 4, *The Academies of Sciences in the Soviet Union: An Overview of Soviet Research and Development* (July 1982) 226 pp. Both were printed by the Center for Strategic Technology under Dick Thomas at Texas A&M University. The present guide to the Russian Academy is larger in size and scope with much of its contents updated. The cooperation received from the Russian Academy itself accounts for this.

I believe that while the Russian Academy of Sciences is suffering greatly during this time of troubles in Russia, it will survive. It will keep its unique system of scientific research organization and the training of its scientists--Russian scientists will remain institute-based, rather than university-based. I would expect the quality of graduate research training to improve in the freer economy of the mind that is transpiring before our eyes in Russia. These men and women will be pioneers in these changes.

In late December of 1992, in the *Rossiyskaia (aya) gazeta* (29 December), Iurii Osipov, President of the Academy, described the difficult situation the Academy was facing in the coming year: financing had dropped precipitously while inflation had wreaked havoc with finances of all the research institutes of the Academy; young scientists were leaving the system for greener fields abroad in growing numbers, creating great concern; and the publishing situation for scientific works was in a disastrous state. Yet, as he pointed out, the Academy was surviving, and cooperation among most of the former Republic Academies was beginning to be develop under a suggestion from Ye. Paton, President of the Ukrainian Academy of Sciences, and joint research project development among these academies Osipov believed to be a responsibility. Additionally, the Academy and its institutes were experimentally developing closer ties with many of the higher educational institutions in the country--not however transferring the postgraduate training of its scientists over to the Universities along the American model. As some of the former major State Industrial Research Institutes were being reorganized, he felt that some of these, particularly the former TRsAGI Ministry of Aviation's institute might well be absorbed in the Academic Institute System and a Nuclear Energy Institute might also be created. Meanwhile, he believed that Russian researchers could contribute greatly in providing ideas and data need for the reorganization of the economy and the Russian society. He urged a continuation of the democratization within the Academy saying that "The central figure must be the scientist, with his right to scientific research and a scientific result. . . . But the Academy itself must seek solutions for immediate problems. [It must strive] to retain scientific collectives and capable young people. We must support people who think unusually and freely." Osipov closed his article by observing that in an ". . . atmosphere of scientific freedom and tolerance, new interesting ideas and programs are the best guarantee that people who come to science will stay in institutes in spite of difficulties [so] that we, together with Russia, will survive."

This guide will give the interested reader a better idea of the scope of scientific activity in Russia and some notion of how important this system is and may prove to be for the future survival of Russia itself.

In closing this preface, I remind myself that this guide is only a small beginning. Hopefully, others will pick it up, expand and continue it.

Jack L. Cross
Austin, Texas 1995

Note to the 1997 revised edition: In these trying times in Russia, changes are afoot in the scientific research institutes, in the departments of the academy, and in the personnel who make up the Russian intelligentsia. Russian scientists and Russian scientific research institutes are appearing in greater numbers on the internet. Internally, computer servers and networks are being developed at a dizzying pace, and the outreach of those networks to the rest of the world is making it possible to keep up with those changes that are posted on the internet. This revised edition is the second of an bi-annual update and it takes advantage of the latest information posted by individuals, where useful, and by institutes and departments when available. A much greater number of e-mail addresses for both institutes and individual scientist is now included in this edition. As greater accuracy is achieved in the Guide, the location of research institutes and of scientists in the context of Russian Science may prove to be most useful to all of us. I have tried to make the spelling of Russian names and place names machine searchable by offering alternatives of transliterations. These spellings are primarily for English speaking readers. I am certain that I have not succeeded in accomplishing this, and any suggestions for improvement are welcomed. Materials downloaded from the internet are considered by me, as a historian, to be "primary" sources and, like all primary sources must be submitted to internal and external critical analysis. Research of this kind on the net is in its infancy and citation standards remain to be worked out.

Note: I add here a role and scope statement about the Academy itself which summarizes and emphasizes the continuing importance of this great institution.

The Russian Academy of Science (RAS)

A Role and Scope Statement:

The Russian Academy of Sciences is the major center of the fundamental scientific research and is an all-Russia self-governed body.

The Academy of Sciences is a community of prominent scientists-its members and corresponding members, other scholars and specialists working in the Academy's organizations, thus being the leading center of fundamental research in fields of the natural and social sciences in the Russian Federation. The Academy's structure incorporates a wide network of the research institutes and laboratories involved in the studies in the basic fields of modern science. It employs the best scientific forces of the country including world renowned scientists and talented youth.

In its activity the Russian Academy of Sciences follows the Federal Law and the Statutes adopted by the RAS general assembly without interference from any state or other structures. The Academy exercises control over the activity of the scientific research

institutes, their laboratories and other bodies engaged in fundamental research and in the training of specialists.

The primary objectives of the Russian Academy of Sciences are:

fundamental research in the field of natural and social sciences, engineering and humanities that facilitates the economical, social and spiritual development of the society;

all possible assistance to the development of science in Russia;

investigations aimed at preservation and development of the national cultures;

realization of national and regional applied science programs;

integration of the academic, university and industrial science of Russia to promote the all-round development and efficient interaction between science, education and culture, and to pursue a unified scientific and technical policy in the country;

participation in elaborating state decisions on the problems of the scientific and technical progress, development and examination of vital projects, programs of the economical and social development of the entire Russia and of its republics, administrative territories and regions, the programs of the environmental improvement;

strengthening and development of the science-intensive branches of the national economy;

providing possibilities for all Russian scientists to reveal their creative potential on the basis of contest and competition;

selection and support of gifted researchers, advancing young scientists;

enhancing the prestige of knowledge and science, the status and social protection of scientists.

The Russian Academy of Sciences coordinates and supervises the fundamental research on the major problems of natural and social sciences, technology and humanities carried out by the scientific establishments and higher education schools of Russia financed from the state budget.

To accomplish its mission the Russian Academy of Sciences:

determines the basic directions of the fundamental research in the field of natural and social sciences, technology and humanities;

specifies the directions of the fundamental research in which it is necessary to combine the efforts of the academic, higher education and industrial scientific institutions in order to quickly gain the principal progress in the field of science, engineering and technology;

organizes provisional joint groups of researchers and allocates the required resources;

participates (along with the higher education institutions of Russia) in the creation of the scientific and educational complexes based on the RAS institutes and the educational establishments;

select and supports (via the system of grants, in particular) high-efficiency scientific groups and individuals;

announces and carries out competitions on solution of vital state economic problems and, when necessary, organizes relevant task-oriented groups of researchers;

develops (jointly with the state authorities) the recommendations on the efficient usage of the scientific and technical achievements in the economical and social development of Russia;

puts forward for superior state authorities of the country the proposals on the improvement of the material and social basis and the development of the staff potential of the academic, higher educational and industrial science of Russia;

participates in the development of the strategy and tactics of the environment protection policy of Russia;

promotes wider international cooperation of Russian scientists by making agreements with foreign academies of sciences and other research organizations, sets up international research centers in Russia, carries out international congresses, conferences and seminars;

calls scientific sessions, conferences and meetings to discuss scientific and applied problems, the problems of coordination of the scientific research and design aspects of works, the prospects of the development of the production forces, culture and the environmental protection activity in the territory of Russia;

is involved in publishing activity, is the founder of and publishes the academic scientific journals and the works of the scientific institutions to cover the results of research carried out by the RAS and other establishments; discusses in the above or special publications the RAS activity, the problems of the scientific, technical and cultural development of Russia;

provides for and facilitates the development of the informational support of the research in Russia via a network of the academic libraries;

assists in the promotion and development of the scientific knowledge;

awards the medals and prizes for the outstanding scientific and technical achievements, including those named after prominent scientists.

The fundamental research in Russia is conducted in the academic establishments, higher educational institutions, and in some industrial branch institutes.

Throughout its history, since the beginning of the 18th century, the Academy's activity has been closely connected with the development of education, economy and culture of Russia and has contributed greatly to the world of science. It has been always maintaining the scientific contacts with both the institutions and scholars of other countries and actively participated in the development of global problems.

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I want to thank the people at InterTec for their permission to use this "role and scope" statement.



The Academy of Sciences in Moscow--where the Presidium of the academy meets.

Part I

Brief history of the Academy of Sciences: The forerunner of the Academy of Sciences of the USSR, founded by Peter the Great in 1724, opened its doors in 1725 as the Academy of Arts and Sciences, and during its early years foreign scientists dominated its activities. In 1803 it was the Imperial Academy of Sciences and, in 1836, the Imperial St. Petersburg Academy of Sciences. From 1917 to 1925 it was the AN SSSR, and from 1925 until 1991, it was the Academy of Sciences of the USSR or the Academy of Sciences of the Soviet Union. It is now the Russian Academy of Sciences.¹

The Academy after Lenin: In the early years the academy controlled few scientific research institutes and did not select its own president until 1917. Lenin established the principal directions of scientific research. The academy became an appendage of the new government. Soviet scientists investigated the resources of the state, and as time went by, assisted in the development of the economy and the industrial base of the new socialist state. In 1925, the Central Executive Committee and the Council of the Peoples' Commissariat officially recognized the Academy of Sciences of the USSR as the nation's supreme scholarly institution. In 1927, a new charter for the academy declared its activities vital for the development of the national economy and the culture of the country. Academy membership spread to persons outside Leningrad.

¹ Vucinich, Alexander. The Academy of Sciences of the Soviet Union. Stanford, California; Stanford University Press. Series E: Institutions, No. 3. January 1956. 170 PP.

Early Growth: In 1928, the academy included nine scientific research institutes and in 1934, it had 25. In 1929 the academy began postgraduate study. By 1931 it controlled the planning for all scientific research in the country. In 1933, the Council of Peoples' Commissariat of the USSR took control of the academy and in 1934 moved it from Leningrad to Moscow. In 1936, the Communist Academy merged with the academy of sciences, thus bringing the social sciences into the academy. In 1938, the academy took over the management as well as the planning of all scientific research in the country and reorganized itself into eight scientific divisions.²

Science, a Post-World War II Phenomenon: Change and adaptation characterized Soviet science. Science developed later in the USSR than in other European and western societies and along different lines. Of all Russian scientists who ever lived, a majority live today. The growth of Soviet science since 1945 is exceptional. Almost 80 percent of all scientific research institutes in Russia date their creation after 1945.

Internal Structure of the academy: Initially, the academy structured itself into four major scientific sections or scientific groupings: the physical, technical and mathematical sciences, the chemo-technical and biological sciences, the earth sciences, and the social sciences. These sections provide an organizational structure for the scientific research institutes under the 18 subject-matter Departments, the geographic Departments, the affiliates and scientific centers of the academy. From the 1950 to 1970, One of the best short historical sketches of the development of the academy of sciences of the USSR appeared in Pravda on December 9th in 1982. It was an address by A. P. Aleksandrov, then president of the academy on the occasion of the 60th anniversary of the establishment of the USSR itself. "Soviet Science on the March: Jubilee Session of USSR Academy of Sciences General Meeting," Pravda, 9 Dec. 1982, p. 2. Another important brief history of the AN SSSR is the work by Aleksandr Vucinich. Although published by the Hoover Institute and Library on War, Revolution, and Peace in January 1956, The Academy of Sciences of the Soviet Union remains a seminal study on that academy. Much has changed about the academy in its structure, personnel, and particularly in its accomplishments since he wrote, but his work provides a framework for any analysis of the academy since WWII. It is after the period dealt with in his book that the academy grew into its present form dwarfing the eight Department institute he described. The greatest numbers of scientific research institutes (SRIs) developed and the largest numbers of scientists joined them. The Siberian Department, the Far Eastern Department, the Urals Department and other "Scientific Centers" and branches also grew during this period.³

The Soviet Scientific Management Nomenklatura: The academicians and the corresponding members of the former Soviet Academy of Sciences and of the present Russian Academy constitute a scientific management bureaucracy unlike anything else in the world. The Soviet academy became a model for countries under Soviet influence for their own academies. A close relationship existed between the

² See the article on the Academy of Sciences of the USSR in The Great Soviet Encyclopedia, New York: Macmillan, Vol. 1, 1973.

³ "Academy of Sciences, USSR," The Great Soviet Encyclopedia, Macmillan, 1973, Vol. 1, pp. 56-7. A growing appreciation of Russian science and scientists after 1957 with the founding of the Siberian Department and Akademgorodok, may be found in Albert Parry's The Russian Scientist. New York: The Macmillan Company, 1973. His slender volume contains a series of short biographies of some selected famous Russian scientists from Lomonosov to Kapitsa and a discussion of the old versus the new academy. The bibliography in his book reflects the paucity of western books on this most important institution.

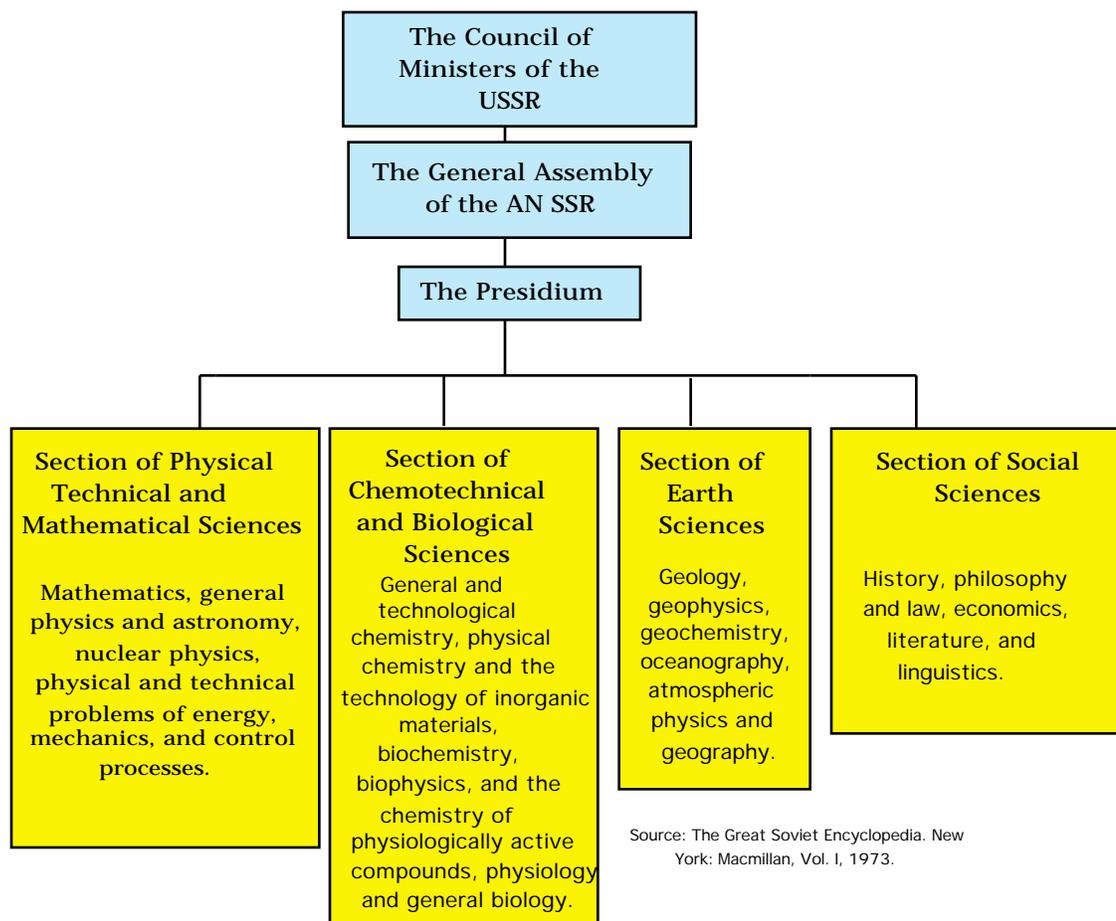
party, the government and the scientific community in the Soviet Union. Despite the political changes in Russia and in the former Soviet Republics, the structure of the scientific academies remains virtually unchanged today.⁴

The Inclusiveness of Russian Science: The Russian Academy of Sciences includes more disciplines in its structure than do other scientific academies in the world. It makes no distinction between science and engineering. It has Economics, History, Literature and Language, and Philosophy and Law Departments and they are coequal to the other Departments. Two other Departments: the Physical Technical Problems of Power Engineering Department and the Problems of Machine Building, Mechanics and Control Processes Department--primarily engineering in nature--are also coequal. Chart 1 gives The basic organizational schema of the sciences in Russia. The equality of the different disciplines is a legacy of the former Soviet Academy of Sciences.⁵

⁴ Directory of Soviet Officials, Volume IV: Science and Education, (CR 80-13202), Washington D. C.: National Foreign Assessment Center, July 1980. See pages 115-429 for information on the republic academies and the Scientific Research Institutes subordinate to their Departments used in this guide. See also for materials used in updating this basic information, Directory of Soviet Officials: Science and Education, (LDA 87-11012), Washington D. C.: Directorate of Intelligence, May 1987, pages 69-270; and, Directory of Soviet Officials: Science and Education, (LDA 89-11378), May 1989, pp. 77-116.

⁵ See the article on the Academy of Sciences of the USSR in The Great Soviet Encyclopedia, New York: Macmillan, Vol. 1, 1973.

Chart 1
Sections of the USSR Academy in 1969



The Academy Today:

With the elevation of the Far Eastern and Urals Scientific Centers to Department status in the mid-1980s and with the establishment of the subject-matter Departments of Information Science, Computer Technology, and Automation (1984) and Problems of World Economics and International Relations (1988), the academy reached its present stage of development. In 1989, scientific research institutes numbered 558 in the Soviet academic science system. In 1991, the annual statistical publication of the AN SSSR listed a total of 365 institutes under control of the Presidium of the AN SSSR, excluding institutes under the Agricultural, Medical, and Pedagogical Academies and the institutes under the other 14 former republic academies of science. When those are added to the 365 institutes under the Moscow Academy, total numbers of institutes within the academic science system range from 577 to 607. The differences in these figures may be accounted for by institutes in previously closed cities and those working in classified military research. Such numbers, despite the differences shown in this range, show the magnitude of the basic research effort in the former Soviet Union and in Russia today. The Chemotechnical and Biological Sciences sector boasts of the greatest longevity in Russian science, though only 36 percent of their 184 institutes saw birth before 1946; 64 percent of their institutes developed after that date. The Social Sciences sector

created 28 percent of their 124 institutes before 1946; and 72 percent after. The Earth Sciences sector established 18 percent of their 85 institutes before the end of W.W.II; and 82 percent afterwards. The Physical Technical and Mathematical Sciences sector built only 16 percent of their 165 research institutes before 1946; and, 84 percent afterwards.⁶

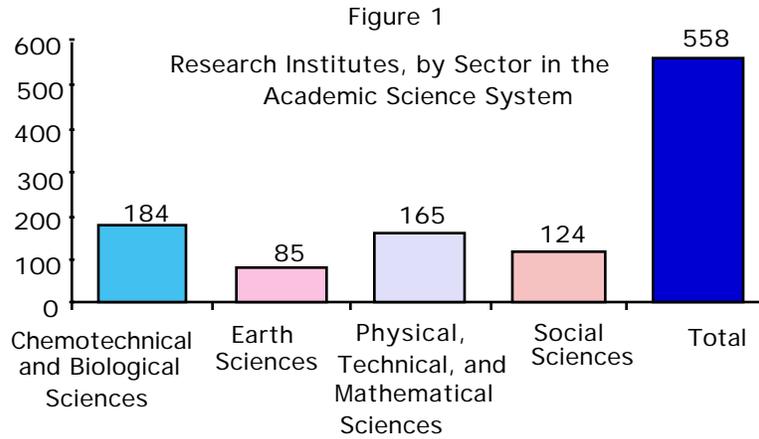
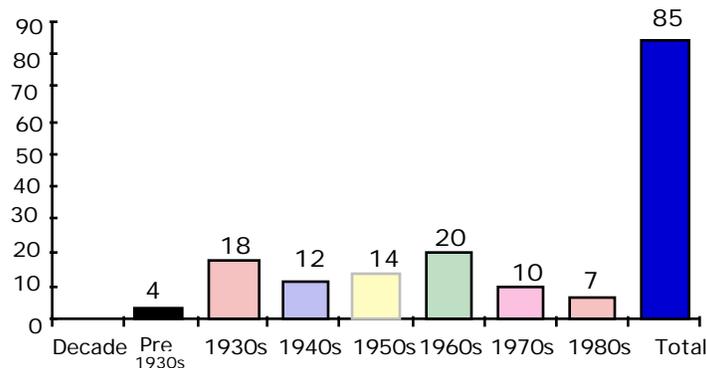


Figure 2
Establishment of SRI's in Moscow Under the Direct Control of Departments of the AN SSR Academy, by Decade



Academy SRIs outside Moscow: As Map 3 shows, the AN SSSR controlled and the RAS now controls more than the SRIs located in Moscow and in its immediate environs. It managed and manages these other SRIs through the Siberian Department and the Urals and Far Eastern Departments, and the other geographic affiliates of the academy. Because of the great geographic distances in Russia, duplication of scientific institutions, personnel assignments, research, and equipment occurs. Much of this apparent duplication is necessary.

Leadership Role of the Academy: The AN SSSR led in the scientific and technical development of the former Soviet Union. The academy structure includes the other

⁶ Compiled from data given in Directory of Soviet Officials: Science and Education, CR 80-134202, July 1980, pp. 115-429 and LDA 87-11012, May 1987, pp. 73-76 and pp. 103-147, and LDA 89-11378, May 1989, pp. 77-116 and LDA 89-11378, May 1989.

scientific research centers, the geographic Departments, and the scientific affiliates located outside Moscow.

Geographic Expansion: These scientific affiliates, centers, and Departments are independent with their own management, budgets, and research personnel. This process of scientific expansion began in 1957 with the creation of the Siberian Department from a branch of the Moscow academy located in Novosibirsk. The Urals and Far Eastern Departments gained independence, too, with their elevation to full Department status in the mid-1980s. In the future, other centers will become Departments. The Russian Academy of Sciences system is flexible providing a means for promoting scientists to larger administrative and research responsibilities as well as for developing regional scientific potential.

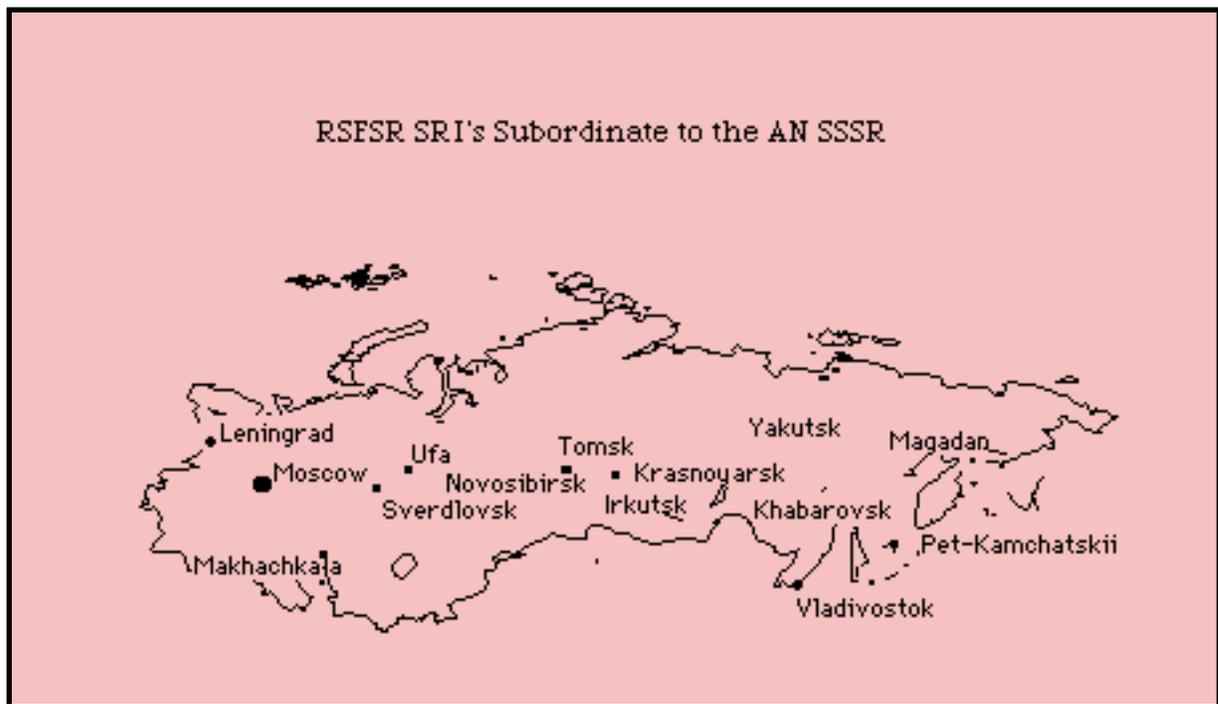
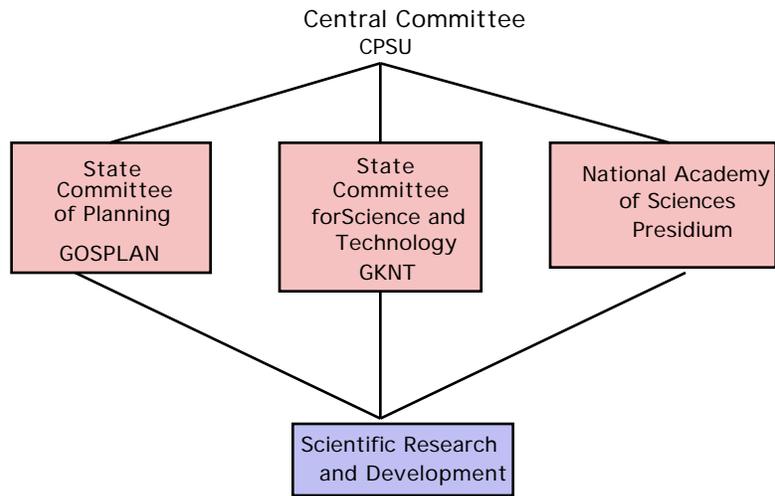


Chart 2
 Research and Development Planning in the USSR

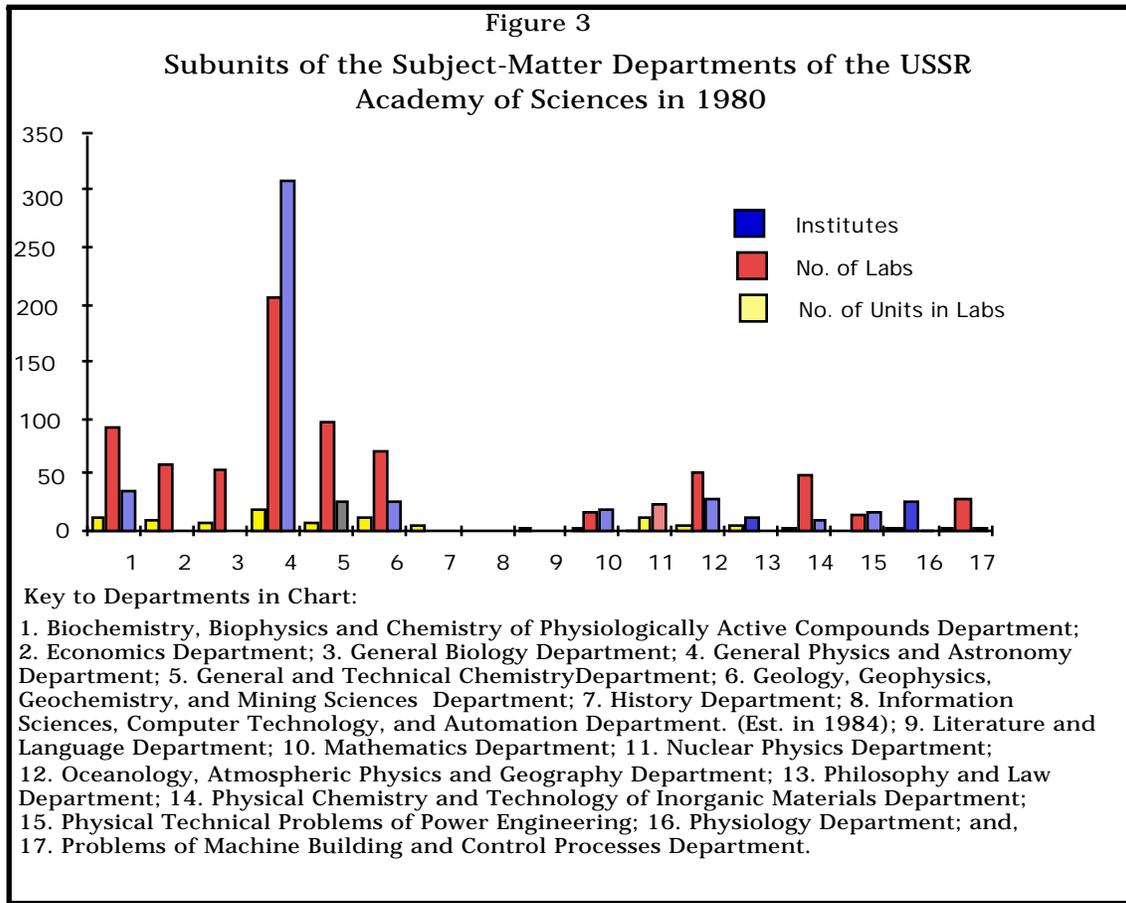


Research and Development:

Research and development were a joint responsibility of three organizations. Chart 2 illustrates how the Academy of Sciences of the former USSR served as one of the three organizations involved in planning scientific research and technological development. From the mid-1980s until the AN SSSR became the Russian Academy of Sciences (RAS), a major problem confronted by the Government Planning Organization (GOSPLAN), the State Committee for Science and Technology (GKNT), and the AN SSSR Presidium was finding a way to translate the results of basic scientific research into speedy industrial production. During the 1980s, officials of all three organizations worked to achieve this objective. Such cooperation among governmental groups remains and the search continues for ways to speed discovery into production. Undoubtedly new governmental structures will perform the functions of the former CC CPSU in research and development in Russia.⁷

The Subject-Matter Departments: The weight given to certain kinds of research, particularly in the "hard sciences," is seen in Figure 3. By 1980, the Departments of the AN SSSR in Moscow had developed many scientific research institutes that, in turn, had established a great number of laboratories, and/or Departments and other sub-units within the research system. This rate of growth began slowing in the 1980s.

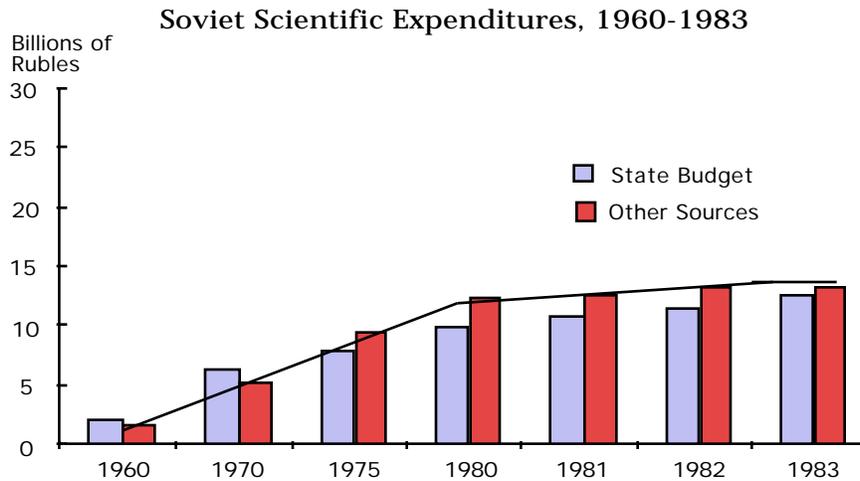
⁷ For an explanation of the Academic, Ministerial and "Plant" Sciences, see G. Lakhtin, "Scientific and Technical Progress and Science: Academic, Sectorial, Plant," *Sotsialisticheskii trud*, No.3, March 1985, 24-33.



Scientific Research Funding: Funding for scientific development in the USSR grew rapidly from 1960 to 1983 with the source of funding shifting from government appropriations to an almost even mix between government and private contract sources of funding, as figure 4 illustrates. The greatest difficulty facing the Russian Academy in the next few decades will be the funding its basic research programs.⁸

⁸ Skriabin, G., "The March of Technical Programs: The Joint Preparatory Commission for Science and Technology Meets," *Izvestiya*, 4 June 1986, 2. Varshavskii, A. E., "Problems of the Analysis and Prediction of the Development of Basic Science," *Izvestiya Akademii Nauk SSSR: Seriya Ekonomicheskaya*, No. 6, November-December 1984, 12-26. The author estimates that 10 percent of all national expenditures on research in the USSR are on "Basic Research."

Figure 4



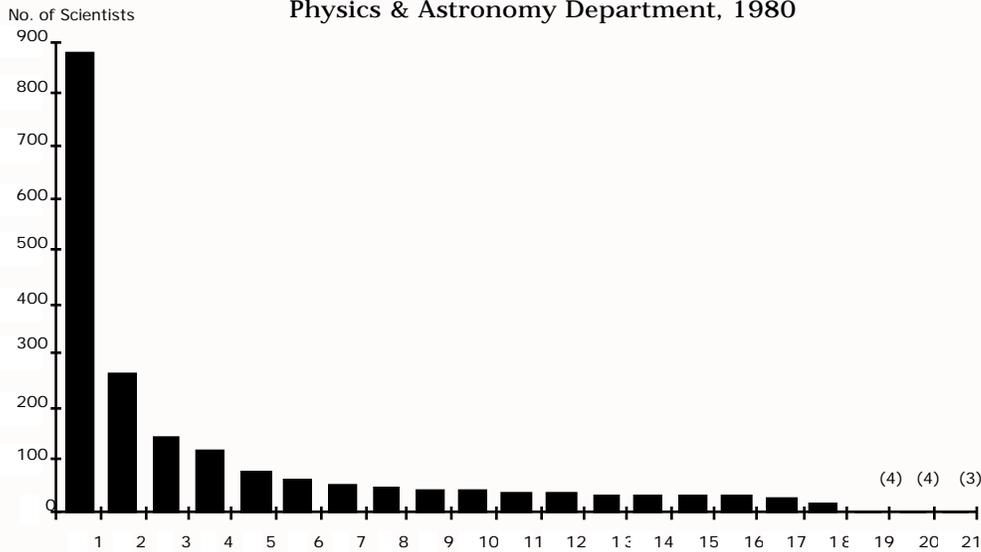
Distribution of Scientists as a Measure of Research Investment:

While the number of scientific research institutes showed a slight increase, research priorities in Russia did not begin to change noticeably until 1990. Within the institutes subordinate to a single subject matter Department, similar priorities of investment in Personnel, facilities, and investment existed. When plotted against the number of scientists assigned to the Lebedev Institute, for example, the numbers of scientists assigned to the other 20 institutes under the General Physics and Astronomy Department fall dramatically. Such a personnel distribution pattern illustrates research priorities within one important academy Department. These numbers deal only with personnel assigned to the Department, not to the funding for research or operating expenses. If such numbers were to be added to the personnel assignment figures, the discrepancies between the individual scientific research institutes would be even greater.⁹

⁹ The data used in the Rand study was abstracted from Narodnoye khozyaystvo SSSR v 1975 g. (National Economy of the USSR, 1975), Statistika Publishing House, 1976,167.

Figure 5

Distribution of Personnel in Laboratories Under the General Physics & Astronomy Department, 1980



Key to Numbered Bars in Chart: 1. P. V. Lebedev Physics Inst. 2. A. F. Ioffe Physical Technical Inst., 3. Space Research Institute 4. Radio Engineering & Electronic Inst. 5. Radiophysics Inst., 6. Spectroscopy Inst., 7. Acoustics Inst., 8. A. V. Shubnikov Crystallography Inst., 9. L. D. Landau Theoretical Physics Inst. 10. Astronomical Observatory, 11. Optical Physical Measurements Inst., 12. S. I. Vavilov Physical Problems Inst., 13. D. I. Mendeleev Metrology Inst. 14. High Pressure Physics Inst., 15. Applied Physics Inst., 16. Terrestrial Magnetism, Ionosphere Research Inst. 17. Solid State Physics Inst. 18. Theoretical Astronomy Inst. 19. Radio Engineering Inst. 20. Crimean Astrophysical Obs. 21. S. A. Lebedev Precision Mechanics Inst.

Compiled from: Directory of Soviet Officials, Volume IV: Science and Education. National Foreign Assessment Center: Washington, D. C., CR 80-134202, July 1980, pp. 171-417. Hereafter: CR 80-13202.

Research Emphasis: In 1980, the P.V. Lebedev Institute had almost 900 scientists assigned to it; the A. F. Ioffe Institute less than 300; and the Solid State Physics Institute fewer than 25. The General Physics and Astronomy Department was the most heavily supported of the present 18 subject-matter Departments of the academy. In 1987, the distribution of SRI's among the (then) 17 subject-matter Departments is shown in Figure 6. Measured by these numbers, the weight given this kind of research by the CC CPSU, the Council of Ministers, GKNT, GOSPLAN, and the Presidium of the academy is clear.

Figure 6

Number of SRI'S Subordinate to Subject Matter Departments of the Academy of Sciences of the USSR in 1987

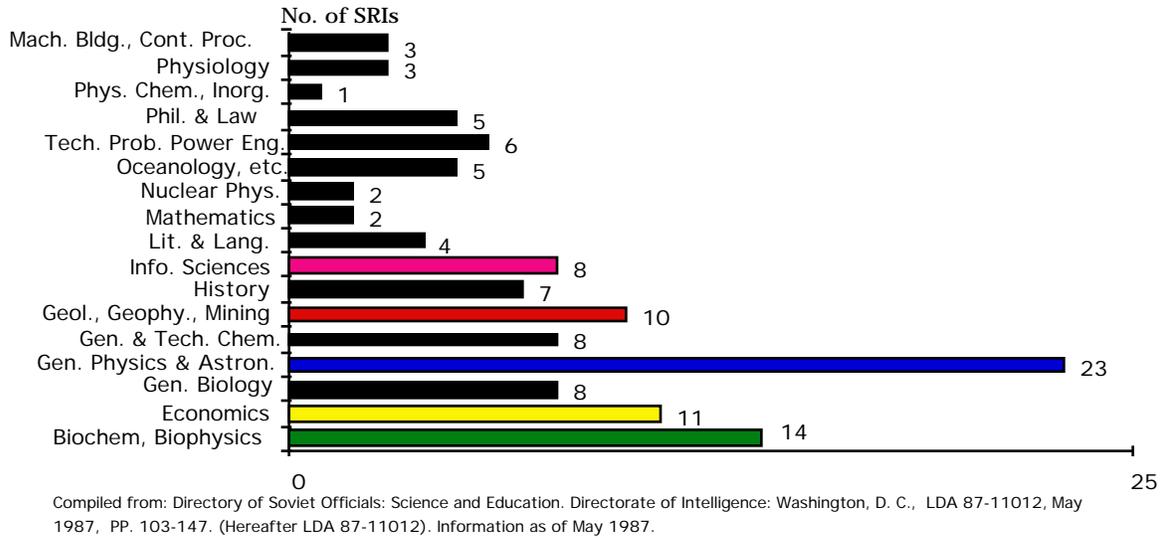
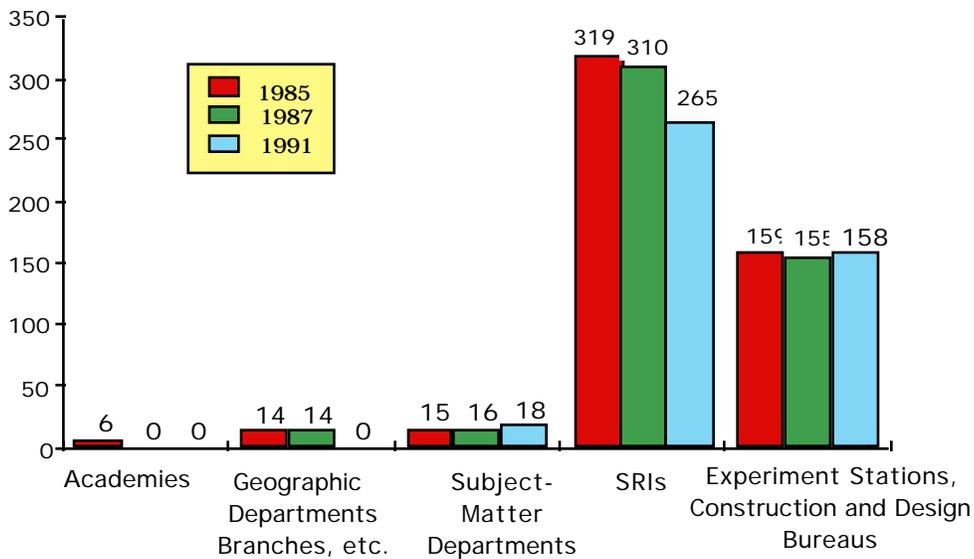


Figure 7

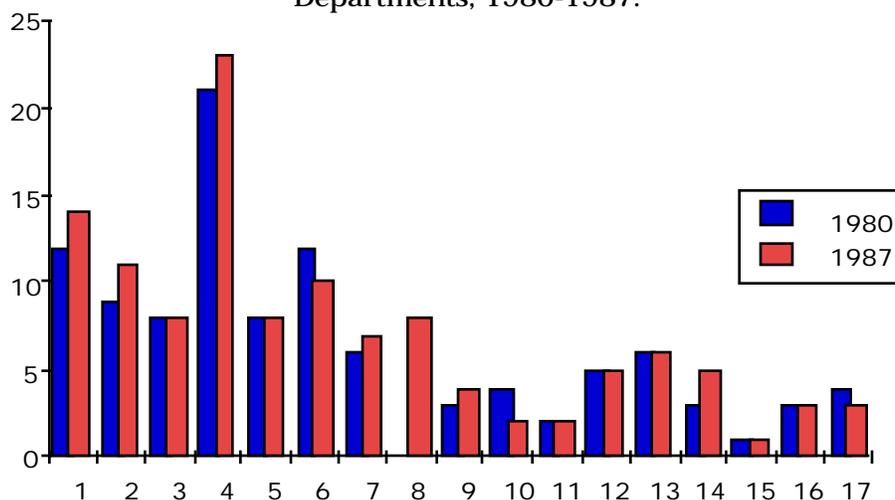
The Academic Science System in 1985, 1987, and 1991



The growth and decline of the numbers of SRI's subordinate to the subject-matter Departments of the academy from 1980 to 1987, may be seen in Figures 7 and 8.

Figure 8

Growth and Decline of SRIs of Subject Matter Departments, 1980-1987.



Key to the Academy Departments above:

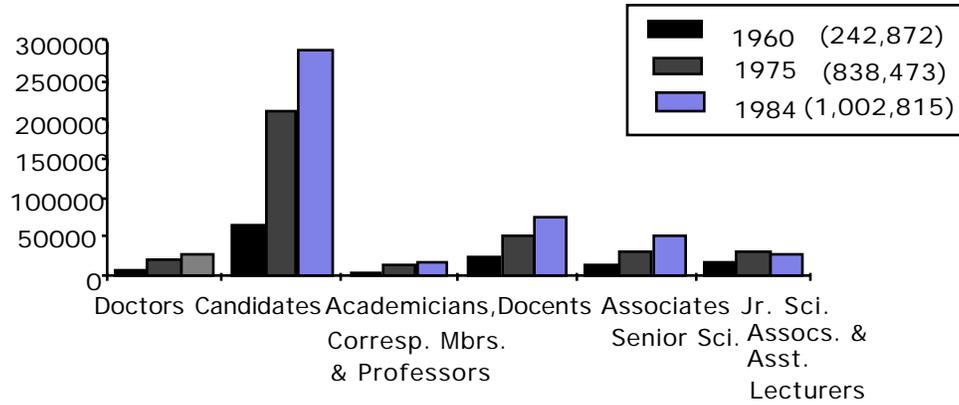
1. Biochemistry, Biophysics and Chemistry of Physiologically Active Compounds Department, 2. Economics Department, 3. General Biology Department, 4. General Physics and Astronomy Department, 5. General and Technical Chemistry Department, 6. Geology, Geophysics, Geochemistry, and Mining Sciences Department, 7. History Department, 8. Information Sciences, Computer Technology, and Automation Department. (Est. in 1984), 9. Literature and Language Department, 10. Mathematics Department, 11. Nuclear Physics Department, 12. Oceanology, Atmospheric Physics and Geography Department, 13. Philosophy and Law Department, 14. Physical Chemistry and Technology of Inorganic Materials Department, 15. Physical Technical Problems of Power Engineering, 16. Physiology Department, 17. Problems of Machine Building and Control Processes Department.

Compiled from: CR80-13202, pp. 171-417, and LDA 87-11012, pp. 103-147.



Growth Since 1969: In 1969, the institutes under the Departments of the academy had some 2,000 doctors of science and 12,000 candidates of science researching, assisted by some 30,000 "scientific workers." At that time, the institutes had 170 research libraries.

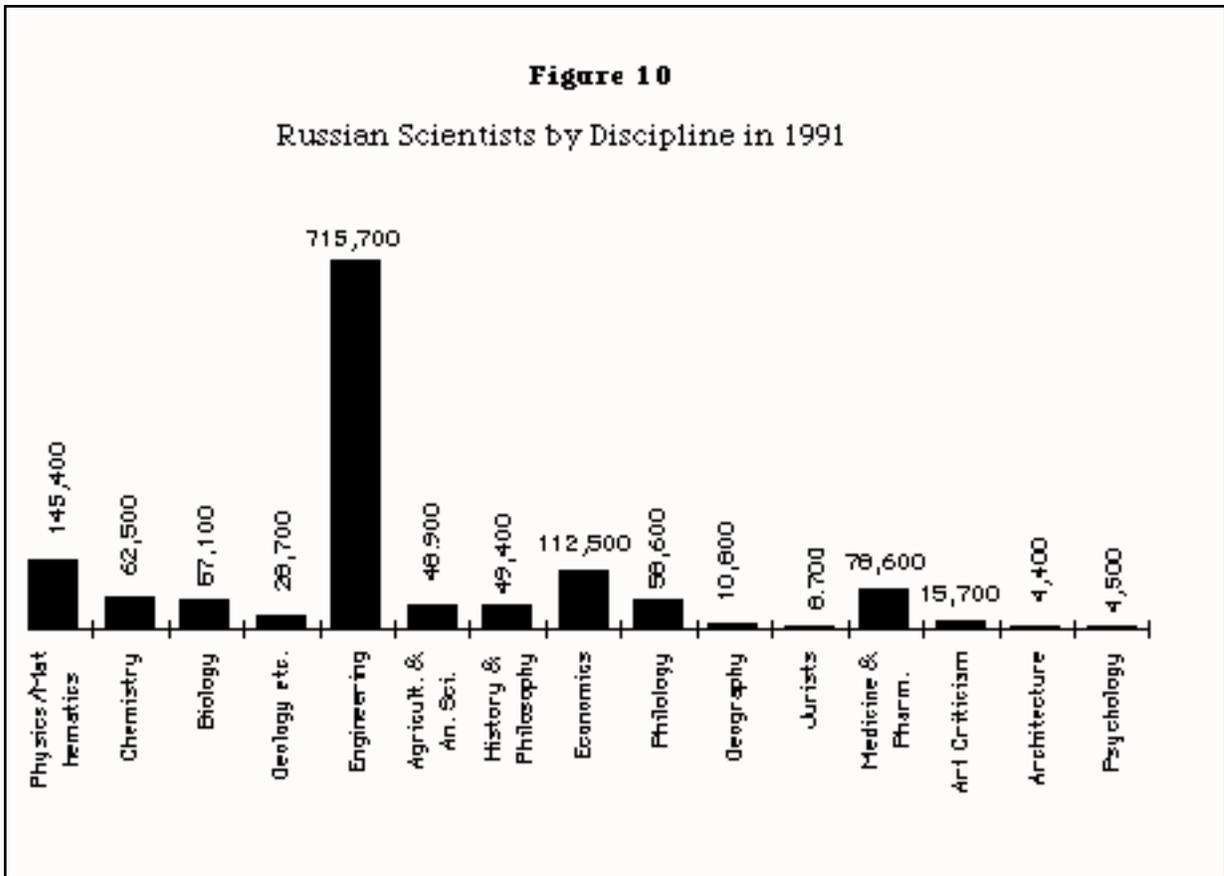
Figure 9
 Scientists in the RSFSR, 1960-1984



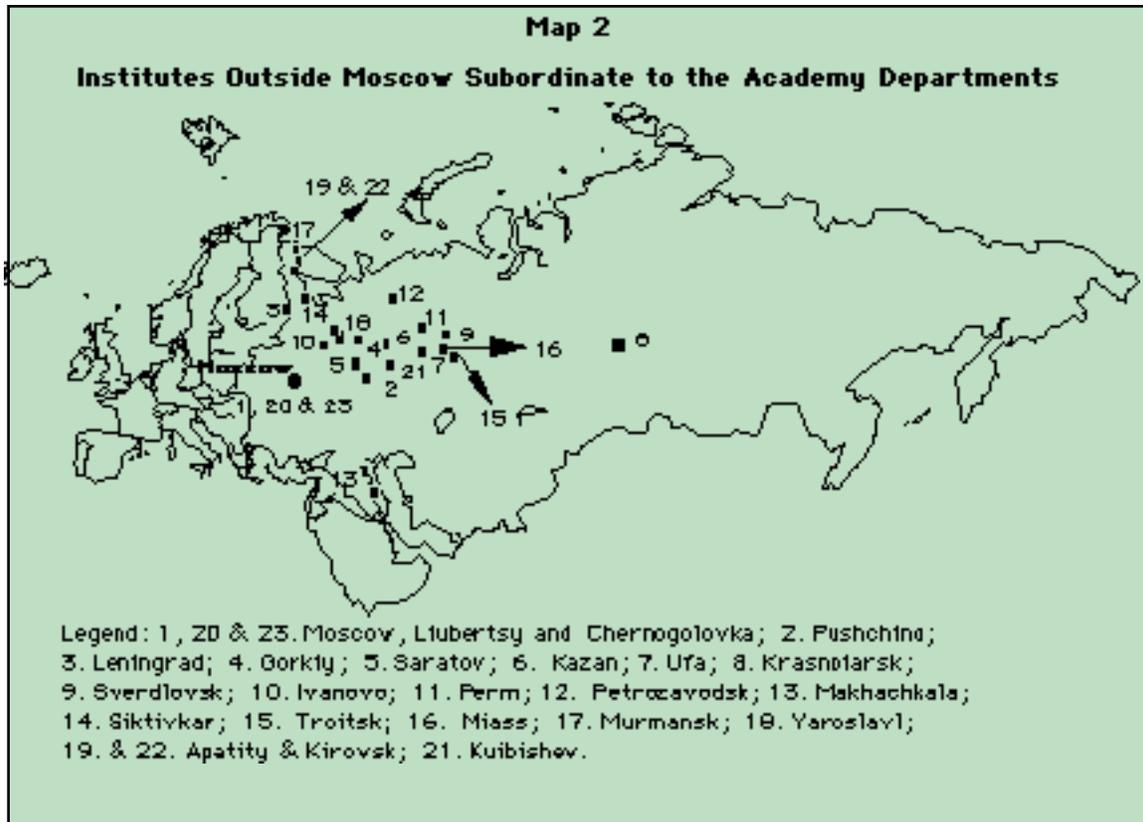
No's in parenthesis in legend box = total scientists in RSFSR.

Source: Vestnik statistiki , Moscow, No. 12. Dec. 1985. pp. 69-72.

By 1991, the number of scientists had changed dramatically, engineering accounting for the greatest number of scientists as Figure 10 illustrates, followed by physicists and mathematicians and by economists in that order.



Scientific Research Institutes in Russia: The Russian Academy of Sciences not only controls the scientific research institutes under the subject-matter Departments within the Moscow environs, but also a large number of research institutes scattered throughout Russia as Map 2 illustrates.



The Academy and the other Former Republic Academies: In addition to these scientific research institutes under academy jurisdiction, AN SSSR scientists developed relationships with the scientists of the academies of sciences of the other republics. Some of these contacts continue under the Russian Academy of Sciences.

The Scientific Nomenclatura: Without question, the best known scientists in the Russia include the academicians and corresponding members of the Moscow academy's subject-matter and geographic Departments. They numbered some 984 scientists in 1989. To them must be added, however, the scientists in the other elements included in the former Republic Academies--1672--totaling some 2656 scientists. These scientists constitute a scientific management hierarchy. A preponderance of them were members of the communist party and a large number, if not a majority of them, were directors, associate or assistant directors of research institutes under the jurisdiction of the Presidia of the various academies and under governmental committees and ministries. They constituted the top level of the scientific managers within the USSR Under the reorganized Russian Academy of Sciences most of these scientists remain in place.

Change: In the mid-1980s, several major changes began to occur. Several of the older scientists were retired to the status of advisers to the Presidium of the Russian, and, as Vice President Khalatnikov observed in an interview given in Rome in October of 1988, a restructuring of the size of some of the larger scientific research institutes would increase efficiency and improve the availability of support equipment such as computers, copying machines, and other such items. These institutes included the Lebedev Physics Institute, the Semenov Physical Chemistry Institute, both of which employ hundreds of scientists. In future, he believed, these institutes and others would contain no more than 200 people. In his interview he observed that academic science was underfunded in the USSR because of its concentration upon basic research. Ministerial (Sectorial) science--the industrial laboratories received some 80 percent of research funding because they include the institutes responsible for turning scientific discoveries into technological realities. The SRIs of the AN SSSR received five percent and higher educational institutions received some 15 percent of funds appropriated for research. In an effort to mitigate stagnation, the academy's Presidium had earlier decided that in future supervisory personnel in the various research institutes would serve in such capacities for a limit of 10 years. While change of assignment may be observed in the laboratories and departments of the academy historically, stability of assignment has been the general rule.



Institutional Linkages of Members of the Academy: The officers, the Presidium of the AN SSSR, and the members of the 18 subject-matter departments of the academy were linked by membership to the geographic departments of the academy, to the institutes of the Ministries of the Soviet Union, to the institutes of the State Committees, to universities, and to the other republic academies.¹⁰

Connections with Subordinate Geographic Departments: The effort to expand scientific research throughout the former Soviet Union resulted in the kind of leapfrogging development of centers established long distances from Moscow, that, in turn, as the critical mass of scientists, laboratories, and equipment became available, moved them into a different category more on a level of equality with their parent body and often they received more support and autonomy in this process of evolution.¹¹

¹⁰ V. G. Shubin, "Problems of the Development of Regional Organizational Forms of the Intersectorial Management of Scientific and Technical Progress," *Izvestiya Akademii Nauk SSSR. Seriya Ekonomicheskaya*, No. 1, 1986, 73-81. JPRS-UST-86-021, 12 September 1986, pp.56-69.

¹¹ Kushlin, V., "The Unified Scientific and Technical Policy of the Party," *Politicheskoye samoobeayo-vaniye*, No.4, April 1984, 33-40. This is an important article dealing with the

The Educational Institutional Linkage: In 1989, 28 members of the academy had served or were serving as Rectors of institutes and universities in the USSR. Four had been Prorectors. The Problems of Machine Building, Mechanics and Control Processes Department alone produced five Rectors; the Information Science, Computer Technology, and Automation Department three Rectors. The institutions that had been headed by these Rectors were: Leningrad State University, Kuban State University in Krasnodar, the Ordzhonikidze Moscow Aviation Institute, the V. I. Lenin Kazakh Polytechnic Institute, the Physical Technical Institute in Moscow, the Radio Engineering, Electronics and Automation Institute in Moscow, the V. D. Kalnikov Radio Engineering Institute in Taganrog, and the Electronic Engineering Institute in Zelenograd. Two other institutions had Prorectors from these two departments. The Philosophy and Law Department produced four Rectors and one Prorector who served in the following institutes: the Academy of Social Sciences of the Central Committee of the Communist Party in Moscow (2), the Dushanbe Polytechnic Institute in Dushanbe, the Higher Party School the CC CPSU, and Leningrad State University (a Prorector). The three Rectors belonging to the Physical Chemistry and Technology of Inorganic Materials served at the Lensovet Leningrad Technological Institute, the Moscow Institute of Chemical Engineering, at the D. I. Mendeleev Chemical Technical Institute, and at the N. E. Bauman Higher Technical School in Moscow. Members of the General and Technical Chemistry Department have been Rectors at the Mendeleev Chemical Engineering Institute (2), at the S. M. Kirov Kazan' Chemical Technical Institute, and at the M. A. Suslov Rostov State University. Mathematics Department members have been or are Rectors at the University of Novosibirsk, and Leningrad State University (2). Nuclear Physics Department members have been Rectors at Leningrad State University, and at the Moscow State University. The Oceanology, Atmospheric Physics, and Geography Department members have been Rectors at Leningrad State University and at the Leningrad Hydrometeorology Institute. The History Department has had one Rector at the Novosibirsk University. The Geology, Geophysics, Geochemistry, and Mining Sciences Department has produced one Rector at the Moscow Mining Institute and one Prorector serving at the Moscow State University.



Universities and Research Institutes:

These linkages at the top level of institutional administration between the universities and institutes acted in both directions, establishing opportunities for personnel exchanges, the trading of research results, and the development of joint educational and research experiences. Many of these universities were also tied to the subject-matter departments of the academy through their professors who were and are academicians and corresponding members of the departments of the academy. Thus, while most of the universities and institutes listed here concentrate on the production of candidate degree holders--the exceptions of doctoral work at Moscow State University and Leningrad State University being duly noted--the closeness of the institutional personnel and the academy departments provided and provide an opportunity for the recruitment of outstanding students for the postgraduate programs at the major scientific research institutes in the Academic Science System in the Soviet Union. In like manner, these contacts make it possible for graduates from the SRIs to be moved into professorial appointments and research positions in the institutions.

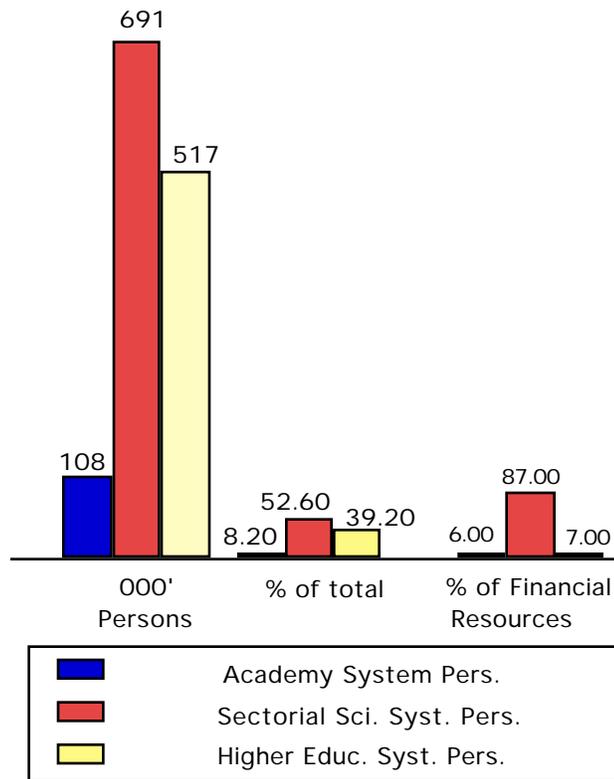
development of a new and important unified policy for science and technology.



Linkage with Former Ministry Scientific Research Institutes: The Academic Science System, while extremely important in basic research and in the production of research scientists, was smaller in the numbers of scientific researchers working within its institutes. As in the relationships between the AN SSSR academic departments with the Universities and other institutes in the former Soviet Union, the academy also maintained and maintains close relationships with a large number of Soviet and now Russian governmental and industrial research institutes and organizations. Figure 11 illustrates the disparity that existed in the distribution of scientists within the three major scientific sectors in the Soviet Union in 1985. The Academic Science System had only 8.2% of research scientists or 108,000 scientists in 1985.

Figure 11

Personnel & Resource Comparison of the Three Scientific Sectors in the Soviet Union in 1985



Academy Scientists and Industrial Research Establishments: Academy scientists maintained relationships with the Sectorial Science System by memberships in the departments of the academy.¹² Eight ministries of the Soviet Union had 15 members in the AN SSSR. The Problems of Machine Building, Mechanics and Control Processes Department counted the largest number of members heading All -Union Scientific Research Institutes directly subordinate to their respective ministries. The

¹² Yakovets, Yu, "The Economic Mechanism of the Acceleration of Scientific and Technical Progress," *Sotsialisticheskii trud*, No. 3, March 1985, 7-16.

Ministry of Machine Tool and Tool Building Industry, the Ministry of Education, the Ministry of the Aviation Industry (2), the Ministry of the Radio Industry, and the Ministry of Instrument Making, Automation, and Control Systems--all had scientists who were members of the academy. The Geology, Geophysics, Geochemistry, and Mining Sciences Department had three members who headed up institutes subordinate to the Ministry of Geology. The Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) had a member from the Ministry of Education. One member of the General and Technical Chemistry Department directed the research of an institute of the Ministry of the Chemical Industry. A Physiology Department member who directed a Ministry of Health institute, and a second member headed an institute subordinate to the Ministry of the Medical aid Micro biological Industry. One of the members of the Physical Technical Problems of Power Engineering Department had a member who was also a member of the General Physics and Astronomy Department and headed an institute under the Ministry of Instrument Building. Such connections between subject-matter departments of the academy and the ministerial institutes provide opportunities for the exchange of technological and scientific problems and solutions between scientists and engineers.

The Connection with the Former Soviet State Committees: Twenty-two members of ten subject-matter departments of the AN SSSR headed seven major research institutes subordinate to six of the State Committees of the Soviet Union. The State Committee on the Utilization of Atomic Energy provided the largest number of academy members. It had two members of the General Physics and Astronomy Department; two of the Information Science, Computer Technology, and Automation Department; one of the General and Technical Chemistry Department; four of the Oceanology, Atmospheric Physics, and Geography Department; and four of the Physical Technical Problems of Power Engineering Department. The Committee for Hydrometeorology and Environmental Control had two members in the Problems of Machine Building, Control Processes, and Automation Department and one member of the Oceanology, Atmospheric Physics, and Geography Department. The State Planning Committee (GOSPLAN) had a member of the Philosophy and Law Department, of the Economics Department, and of the Problems of Machine Building, Control Processes, and Geography Department. The State Committee for Construction Affairs had one member in the Physical Chemistry and Technology of Inorganic Materials Department. The Committee for Television and Radio had one member who was also a member of the World Economics and International Relations Department.¹³

Governmental SRIs Represented by Membership in the Academy Subject-matter Departments: Or, to put it another way, twenty-four institutes subordinate to either Government Ministries or State Committees had directors who were members of AN SSSR departments. These institutes were important because of their national impact on planning, environmental concerns, construction, power generation and distribution, oil and gas production and distribution, and other matters of such significance. These research institutes are listed below:

Former Soviet Ministries' and Former State Committees' Research Institutes Linkages with Director Members of the Academy

¹³ Marchuk, G., "The Basis of the Intensification of the Economy," *Partiyanaya Zhizn'*, No. 1, January 1985, 30-36. This is a critical article by the Chairman of the State Committee for Science and Technology who, in 1986, replaced Aleksandrov as President of the Academy of Sciences of the USSR. This appointment underlines the close relationship between science and technology in the Soviet Union.

The N. E. Zhukovskii Aerohydrodynamics Institute in Moscow. Established in 1918 to coordinate research on aviation technology.

The Aviation Technology and Organization of Production SRI in Moscow. The institute followed scientific and technical progress in the aviation industry.

The Light Alloys Institute in Moscow. The institute was responsible for metallurgy and the processing of light alloys into semi-fabricated products.

The L. Ia. Karpov Physical Chemistry SRI in Moscow. Established in 1918. It specialized in electrochemistry, chemical kinetics, corrosion of metals and all polymerization processes, aerosols research, and radiation chemistry.

The S. I. Vavilov Optics Institute in St. Petersburg. The institute developed and tested lenses, lasers, and other optical instruments.

The Electrical Machine Building SRI in St. Petersburg. Established in 1956. It was the center of Russian research and development of electric machine manufacturing.

The Electro-mechanical SRI in Moscow. Its scientists researched electrical drive systems and remote control devices.

The Radio Engineering, Electronics, and Automation Institute in Moscow. It did research in electro-optics, laser technology, semiconductor electronics, reliefography, and automated control systems.

The I. P. Bardin Ferrous Metallurgy SRI in Moscow. Founded in 1944. It worked to develop precision alloys.

The Geology and Mineral Resources of the World Oceans Institute in St. Petersburg. Established about 1947, and subordinate to the Northern Marine Geological-Geophysical Scientific Production Association, it studied terrestrial geology and geophysics of the Arctic and Antarctic.

The Geology, Geophysics, and Mineral Raw Materials SRI in Novosibirsk. This institute worked on location of petroleum and gas deposits in the Krasnoyarsk region.

The Geology SRI in St. Petersburg. Established in 1932, the institute specialized in regional geology and prospecting methods.

The Automation SRI in Kiev. Founded in 1957. Created to do research on automation and mechanization of industrial enterprises throughout Russia.

The Introscopy SRI in Moscow. Established in 1964 to do research in nondestructive testing of all types of physical fields and radiation.

The A. A. Blagonravov Machine Science SRI in Moscow. Established in the 1930s, it researched the dynamics and kinetics of machinery friction and wear, mechanical engineering, and strength considerations.

The Biological Testing of Chemical Compounds SRI in Kupavna. Established in 1973 for screening all new synthetic chemical compounds beneficial to man and the environment.

The Electronic Computers SRI in Minsk. The institute designed and produced computer systems.

The Water Supply, Sewerage, Hydraulic Structures, and Engineering Hydrogeology SRI in Moscow. The institute researched water treatment, purification plants, waste water, sewage systems, and hydraulic projects for industry and municipalities.

The Alpine Geophysics Institute in Nalchik. Established in 1934, the institute researched dangerous atmospheric and hydrologic phenomena and searches for methods of controlling them.

The Central High Altitude Hydrometeorological Observatory in Moscow. Established in 1970, it was the hub of the national meteorological observation network.

The Hydrometeorology SRI (Transcaucasus) in Tbilisi. Founded in 1953, the institute developed methods for modifying harmful Hydrometeorological phenomena, regulated rainfall, and studied the utilization of the natural resources of the region.

The I. V. Kurchatov Atomic Energy Institute in Moscow. Established in 1943 to develop nuclear weapons. It was the largest institute in the Russia devoted to atomic research.

The D. V. Efremov Electro-physical Apparatus SRI in St. Petersburg. Established in 1946, the institute designed and built particle accelerators and did fundamental research in plasma physics.

The Inorganic Materials SRI in Moscow. This institute was an offshoot of the I. V. Kurchatov Atomic Energy Institute. It was a center for research on Tokamak design. It also developed fast breeder reactor fuels and materials.



Connections Between the AN SSSR and Former Republic Academies: In almost every instance, the presidents of the other academies were also members of one of the departments of the AN SSSR. In total in 1989, there were 57 members of the other academies of the former Soviet Republics who also held membership in the national academy. The Georgian academy had two members who headed research institutes located in Georgia subordinate to a national ministry and a state committee. The closest ties between academies existed between the AN SSSR and the Ukrainian academy with 15 members in common; the Armenian academy boasted of seven corresponding-members; the Azerbaiian academy of five; and the Uzbek and Byelorussian academies of four joint members. The three Baltic academies had six members jointly with the AN SSSR. The Moldavian academy had one, and the Georgian academy had three.



A New Day:

Armed with this brief introduction to the Academic Science System in the former Soviet Union, the material that follows, while providing much additional detail, may also clarify the Academy of Sciences System in Russia. In 1991 and 1992, the Academic Science System underwent several changes in membership and organization. What follows brings up to date information on the structure of the system, its major scientists, and a more detailed description of each of the research institutes than has hitherto been available in one place. With the advent of the Internet, the Russian Academy, some of its Branches, Centers, and special units have established Homepages which provides up-to-date information about particular departments, laboratories, and research direction. The information at present is uneven from institute to institute or from laboratory to laboratory, but that data has been included in this edition of the *Guide to the Russian Academy*.

The Presidium

President

Osipov, Iurii S., D. PM. S. Born in 1936. He has been a corresponding member since 1984; and academician of the Machine Building, Mechanics and Control Processes Department and of the Urals Department since 1987. From 1972 to 1981, he was Head of an unidentified laboratory of the Mathematics and Mechanics Institute located in Ekaterinburg (Sverdlovsk) that was established in 1962 to develop the theory of function and control, and study algebra and the problems of mathematical

physics. He was Director of that institute succeeding V. D. Batkhtin. From 1987 to 1990, Dr. Osipov was Director of the Mathematics and Mechanics Institute in Ekaterinburg. In 1990, he succeeded Marchuk as President of the Russian Academy of Sciences, a position which he continues to hold.

Vice Presidents

Frolov, Konstantin V. Born in 1932 in Kirov, Kalugo Oblast. Russian authority on machine vibrations. Corresponding member of the AN SSSR and the AN SSSR from 1976. Since 1984, he has been an academician and since 1985, he has been academic secretary of the Problems of Machine Building, Mechanics and Control Processes Department of the academy. Since 1985, he has been a Vice President of the AN SSSR. In March of 1986, he became a candidate member of the Central Committee of the CPSU. He graduated from the Briansk Institute of Transportation Machine Building in 1956 and joined the staff of the Institute of Machine Science (now the A. A. Blagonravov State Scientific Research Institute of Machine Science in Moscow). Since 1975, he has served as the Director of this institute that was established in the 1930s and that does research in the dynamics and kinetics of machinery friction and wear, mechanical engineering, and strength considerations. It was jointly subordinate to the Ministry of the Machine Tool and Tool Building Industry and to the Problems of Machine Building, Mechanics, and Control Processes Department of the AN SSSR. He founded the branch of bio-mechanics dealing with the effects of exposure to machine vibrations and formulated the scientific principles underlying the theory of systems used to protect human operators from such vibrations. (GSE 28, p. 390.)

Il'ichev, (Ilichev) Viktor I. Born in 1932 in the village of Tikhonovo, Vladimir Oblast. Vice President of the Academy for the Far Eastern Department since 1987. Russian hydrologist and hydro-acoustics specialist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1976 and, academician since 1981. He graduated from the University of Gorkiy in 1955. Between 1955 and 1974 he was on the Acoustics Institute staff. In 1974, he became Director of the Pacific Ocean Oceanology Institute in Vladivostok established in 1973 to study the complex hydro-physics of water masses, sea swell, energy exchange, and the interactions of the ocean. It is subordinate to the Academy's Far Eastern Scientific Department. Since March 1986, he has been Chairman of the Far Eastern Department of the Academy. His works deal with acoustic and hydrodynamic cavitation, the resistance of liquids to cavitation, and marine hydrology. (GSE 30, p. 440.)

Kudriavtsev, Vladimir N., D. Iur. S. Born in 1923 in Moscow. Russian iurist. Vice President of the Academy for the Social Sciences since 1988. Corresponding member of the Philosophy and Law Department of the Academy since 1974; and, academician since 1984. From 1952 to 1960 he taught and researched at the V. I. Lenin Military Political Academy. From 1960-63 he was Deputy Chief and Chief of organizational inspection division of the Military Collegium of the Supreme Court of the former Soviet Union. In 1963 he joined the All-Union Institute for the Study of the Causes of Crime and the Development of Crime Prevention Measures. From 1969 to 1973 he was Director of that institute. Since 1973, he has served as Director of the State and Law Institute in Moscow that was established in 1938 and is Russia's most prestigious and important facility for conducting research on governmental, legal and political affairs. Its research directly affects Russian legislation. His principal works are on criminal law and criminology. Since 1975, he has been Deputy Chairman of Soviet Sociological Association, Moscow. Since 1983, he has served as a member of the Presidium of the Soviet Committee for the Defense of Peace. Since 1985, he has been member of the Presidium of the

Academy. Since 1988, he has been the Academician Secretary of the Philosophy and Law Department of the Academy. (GSE 30, p. 536.)

Laverov, Nikolai P. Born in 1930. President of the Kirghiz Academy of Sciences since 1987. Vice President of the Russian Academy for the Earth Sciences since 1988. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department of the Academy since 1979; academician since 1987. Since 1990, he has been the Director of the Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry Institute in Moscow. The new institute does ore and mineral analyses and develops new methods and tools for analysis.

Logunov, Anatolii A., D. PM. S. Born in 1926 in a village in Kuibishev Oblast. Russian theoretical physicist. Vice President of the Academy since 1974. He has been a corresponding member of the Academy since 1968. Since 1972, he has been an academician of the Nuclear Physics Department of the Academy. Since 1974, he has served as a board member of the GKNT General Assembly. He graduated from Moscow State University in 1951 and began to teach there immediately. From 1956-63, he was Deputy Director of the Laboratory of Theoretical Physics of the Joint Institute for Nuclear Research in Dubna. From 1963 to 1975, he was Director of the Institute of High Energy Physics at Serpukhov when he was replaced by Lev D. Soloviev. Since 1977, Logunov has been Rector of M. V. Lomonosov Moscow State University. His principal studies are in quantum field theory and the physics of elementary particles. He developed a method of dispersion relations and established the relationship between different physical processes at high energies. In 1967-68, he proposed and developed a new approach to the problem of the multiple production of particles at high energies (inclusion processes). The scientific center of the Institute of High-energy Physics was created under his direction and a 70 GeV proton accelerator was put in operation there in 1967, for which a Lenin Prize in Science and Technology was awarded. In 1984, he was the recipient of the former Soviet Union State Prize in Science and Technology for co-authoring papers published in 1955-56 entitled, "The Renormalization Group Method in Field Theory." In 1980, he received the A. M. Liapunov Gold Medal named after the applied mathematician for his work in scientific research. (GSE 14, p. 650 and 20, p. 394.)

Mesiats, Gennadii A., D. GM. S. Born in 1936. Corresponding member since 1979; and an academician of the General Physics and Astronomy Department since 1984. Vice President of the Academy for the Urals Department since 1987. He is a specialist in the fields of electronics and electro-physics. He received the Lenin Komsomol Prize in 1968, and the Laureate State Prize in 1978. Since 1986, as Chairman of the Urals Department, he has served as a member of the Presidium of the Academy of Sciences of the former Soviet Union. From 1977 to 1986, he served as Director of the High Current Electronics Institute in Tomsk, which was subordinate to the Urals Department. The institute researches thermonuclear and accelerator physics and laser technology and was created in 1977 from the High Current Electronics Laboratory of the Atmospheric Optics Institute. From November of 1986 to 1988, he served as Director of the Electro-physics Institute in Ekaterinburg (Sverdlovsk), established in 1986. Since 1986, he has been Chairman of the Urals Department of the Academy.

Nefedov, Oleg M., D. Chem. S. Born in 1931. Vice President of the Academy for the Chemical Sciences. Corresponding member of the General and Technical Chemistry Department of the Academy since 1979; and, academician since 1987. Academician Secretary to the department since June 1988. Since 1970, he has been Head of the Carbene Chemistry and Small-sized Cyclic Compounds Laboratory of the N. D. Zelenskii Organic Chemistry Institute in Moscow. In 1987, he shared the N. D. Zelinskii Prize in organic chemistry with Kh. M. Minachev, and V. V. Kharlamov.

Osip'ian, (Osipian) Iurii A., D. PM. S. Born in 1931 in Moscow. Russian physicist. Vice President of the Academy since 1988. He has been a corresponding member of the General Physics and Astronomy Department of the Academy since 1972; and, an academician since 1981. He graduated from Moscow Institute of Steel in 1955. From 1955 to 1962 he was on the staff of the Institute of metal physics of the Central Scientific Research Institute of Ferrous Metallurgy. From 1962-63 he was Deputy Director of the Crystallography Institute of the Academy. In 1970 he was appointed professor at the Moscow Physico-Technical Institute. His main work has been in solid state physics. He has investigated the interaction of dislocations and electrons in solids and discovered new phenomena in solids, for example: the photo plastic effect, electron paramagnetic resonance in dislocations, and dislocation conductivity. His work forms the basis of a new field--"dislocation solid state physics." Since 1973, he has been Director of the Solid State Physics Institute in Moscow that was created in 1962 and whose main branch is in Chernogolovka. It does research in the fields of crystallography, high pressure physics, metallurgy, semiconductors, superconductors, and magnetic fields. He was co-winner of the 1978 Lenin Prize for studies on "New Means of Synthesis and Study of the Structure of Organic Phosphorus Compounds" (1954-75.) In 1984, he was given the P. N. Lebedev Gold Medal by the Presidium of the Academy for his contributions to physics. (GSE 30, p. 600.)

Petrov, Rem V., D. Chem. S. Born in 1930. Vice President of the Academy for the Biological Sciences since 1988. Academician of the Biochemistry, Biophysics, and Chemistry of Physiologically y Active Compounds Department since 1984. Also academician of the Academy of Medical Sciences. In 1978, he was awarded the I. I. Mechnikov Prize in biology. In 1987, he received the I. I. Mechnikov Gold Medal in recognition of his contributions to the chemical and biological sciences. He heads the Immunology Division of the M. M. Shmiakin Bioorganic Chemistry Institute in Moscow, which has 18 laboratories. He also heads up the Science-Educational Center of the Institute.

Velikhov, Evgenii P., D. PM. S. Born in 1935 in Moscow. Russian theoretical physicist. Since 1974, he has been an academician of the General Physics and Astronomy Department of the Academy and since 1984, he has acted as Academician Secretary of the Information Science, Computer Technology, and Automation Department of the Academy. He graduated from Moscow State University in 1958 and began working in the Institute of Atomic Energy becoming Head of one of its departments in 1962. He has been a professor at Moscow State University since 1968. From 1971 to 1988, he served as Deputy Director of the I. V. Kurchatov Atomic Energy Institute in Moscow. In 1988, he was named Director of this important institute that was created in 1943 to develop nuclear weapons. It is the largest institute in Russia that concentrates on nuclear research that includes all aspects of atomic energy, including plasma and solid state physics, fission and fusion reactors, and lasers. The institute was directly subordinate to the State Committee for Utilization of Atomic Energy. Since 1977, he has served as Vice President for the Physical and Mathematical Sciences Section of the Academy. Since 1978, he has headed the Geophysical Laboratory of the High Temperatures Institute in Moscow, and has served as a member of the Board of the General assembly of the GKNT. Since 1984, he has been Deputy Director for science of the Industrial Lasers Scientific Research Center in Troitsk subordinate to the Academy. The center is comprised of scientific research divisions, a design bureau, and an experimental production facility that develops and introduces laser tools and methods into industry. His works are in low-temperature physics, plasma and magnetic hydrodynamics. Since 1984, he has also served as a Deputy Director for science of the Archive of the Academy of Sciences in St. Petersburg. In 1986, he was the

recipient of the M. D. Millionshchikov Prize in atomic power engineering. (GSE 4, p. 565.)

Chief Scientific Secretary of the Academy:

Makarov, Igor M., D. Tech. S. Born October 1927 in Saratov. A Russian automatic control scientist. Since 1974, he has been a corresponding member of the Mechanics and Control Processes Department of the Academy; and an academician since 1987. He was named Chief Scientific Secretary of the Academy in June 1988. He graduated from the Ordzhonikidze Moscow Institute of Aviation in 1950 and joined the staff at the Institute of Problems of Control. In 1961, he began teaching at the Moscow Institute of Radio Engineering, Electronics, and Automation. He became professor there in 1972. From 1962 to 1975 he worked in the administrative apparatus of the Central Committee of the CPSU. Since 1975, he has served as one of the seven Deputy ministers of Higher and Secondary Specialized Education of the former Soviet Union that was established in 1959 and that controls over 890 institutions. Since 1975, he has served as a board member of the GKNT General Assembly. In 1984, he received the former Soviet Union State Prize in Technology for his work--with others--for the development and introduction of management systems with the use of computers. His main works are on the theory of automatic control systems, the principles of building and designing automation equipment, the selection of structures for integrated engineering systems, and the theory of design, analysis and quality evaluation. (GSE 30, p. 557.)

Members of the Presidium:

Abalkin, Leonid I., D. Econ. S. Born in 1930. Russian economist. Elected member of the Presidium of the Academy in 1988. Corresponding member of the Economics Department of the Academy in 1984; and, an academician in 1987. He became Director of the Economics Institute in Moscow in 1986. That institute was founded in 1955 and its scientists study general economic theory, agricultural and labor economics, and Russian economic development. He is leading research in population, manpower and labor protection. The institute has a staff of 350 researchers of whom 63 hold the doctoral the and 186 hold candidate degrees. One academician and three corresponding members of the Russian Academy of Sciences are on the staff. Structure of the institute: The institute is organized into eight departments: general problems of the political economy of socialism; reproduction and efficiency; problems of labor; complex problems of the economic mechanism; theoretical problems of the management of the national economy; the study of foreign experience and criticism of bourgeois theory; scientific information, and an editorial-publishing department. Dr. Abalkin is heading research on the major theme of refining the economic mechanism in the management of the economy from 1988 to the year 2000.

Aganbegian, Abel. Born in 1932 in Tbilisi. Russian economist. Corresponding member of the Siberian Department since 1964; academician of the Economics Department of the AN SSSR since 1974. He was named Academician Secretary of the Economics Department of the AN SSSR in 1986. He graduated from Moscow State University in 1955. From 1955 to 1961 he worked for the State Committee of the Council of Ministers of the former Soviet Union on problems of labor and wages. In 1961, he became Chief of a laboratory of the Institute of Economics and Organization of Industrial Production of the Siberian Department of the Academy. He was named its Director in 1966. From 1967 to 1971, he was the Director of the Economics and Organization of Industrial Production Institute in Novosibirsk. His principal works are on labor productivity, wages, standard of living, and in developing models for future economic planning. In 1988, he was one of the economics advisers to Mikhail Gorbachev. (GSE 1, p. 130.)

Alferov, Zhores I., D. PM. S. Born in 1930. Russian physicist. He has been an academician of the General Physics and Astronomy Department of the AN SSSR and the RAS since 1979. In 1963, he proposed that heterostructures be used for semiconductor lasers. The CO₂ gas dynamic laser that resulted was proposed by Prokhorov and V. K. Koniukhov in 1967 and built in 1970. Since 1968, he has been Chief of the Contact Phenomenon in Semiconductors laboratory of the A. F. Ioffe Physical Technical Institute. In 1984, he was awarded the USSR State Prize for his work--with others--on "Isoperiodic Heterostructures of Multi-component (Quaternary) Solid Solutions of the Semiconductor Compounds A₃B₅," published from 1971-1981. In December 1987, he was made Director of the Ioffe Physical Technical Institute. In April 1989 he became Chairman of the St. Petersburg Scientific Center and was elected a member of the Presidium of the academy. (GSE, 31, p. 318.)

Arbatov, Georgii A., D. Hist. S. Born in 1923 in Kherson. Russian historian and economist. Elected member of the Academy Presidium in 1988. Corresponding member, 1970; academician, 1974--of the Economics Department of the Academy. Academician of the new department, Problems of World Economics and International Relations, since August 1988. He graduated from the Moscow Institute of International Relations in 1949. From 1949 to 1962, he worked for the Foreign Literary Publishing House and for several important journals. From 1962 to 1964, he was Head of a section of the Institute of World Economics and International Relations of the Academy. Since 1967, he has been Director of the USA and Canada Institute in Moscow. The Institute of the United States was created in 1968, and included research sectors in the academy dealing with North American concerns. In 1974, the USA Institute was renamed the Institute of the USA and Canada, with a Canadian section being created at that time. Its scholars research the history, international relations, economic policy, and sociological and social composition of the USA and Canada. In 1992, the institute had a staff of 254 researchers that included 34 holders of the doctoral and 150 holders of candidate degrees. Its staff includes one academician and one corresponding member of the RAS. His works are on foreign policy and international relations. (GSE 30, p. 16.)

Basov, Nikolai G., D. PM. S. Born in December 1922 in Voronezh. Elected member of the Presidium of the Academy in 1967. Since 1966, academician of the General Physics and Astronomy Department of the Academy. He is one of the founders of quantum radio physics. He graduated from the Moscow Engineering Physics Institute in 1950. Since 1963, he has been the Chief of the Quantum Radio Physics Division of the P. N. Lebedev Physics Institute. He holds the Nobel Prize in Physics (1966) for fundamental work in the field of quantum electrodynamics. From 1973 to December 1988, he served as Director of the P. N. Lebedev Physics Institute in Moscow, the oldest and largest institute of its kind in Russia. Among the topics of research at the institute are lasers, quantum radio physics, nonlinear optics, spectroscopy, plasma physics, theoretical astrophysics, particle physics, and theoretical biophysics. Since 1976, he has been Vice Chairman of the Executive Council of the World Federation of Scientific Workers. Since 1978, he has served as Chairman of the Presidium of the Society for Knowledge in Moscow. Basov was the first to point out the possibility of using semiconductors in quantum electronics. From 1957 to 1961, he and his co-workers developed methods for fabricating semiconductor lasers. From 1963, he headed the Quantum Radio Physics Division of the P. N. Lebedev Physics Institute. The first gallium arsenide semiconductor laser built in Russia was made in the B. M. Vul Laboratory. He received the Lenin Prize in 1959 and the Nobel Prize in 1964. He was one of Prokhorov's colleagues and collaborators. (GSE vol. 3, p. 58; vol. 11, p. 588; vol. 16, p. 457; vol. 21, p. 257; vol. 30, p. 146; and vol. 31, p. 318.)

Brekhovskikh, Leonid M., D. PM. S. Born in 1917 in the village of Strunkino, Arkhangelsk Province. Russian physicist. Corresponding member since 1953; academician of the Oceanology, Atmospheric Physics, and Geography Department since 1968. Originally elected to the Earth Sciences Department. Academician Secretary of the Oceanology Department since 1969. He graduated from the University of Perm' in 1939. He has been a professor at Moscow State University since 1953. From 1954 to 1964, he was Director of the Acoustics Institute that was founded in 1953 and that researched bioacoustics, hydro-acoustics, quantum acoustics, and ultrasonics--it also had two research ships attached to it. He headed a department at the university from 1964. His early work was on the scattering of X-rays in crystals and liquids. In 1942 he began working in acoustics and wave propagation. He studied propagation of sound and electromagnetic waves in heterogeneous media. He developed a theory of wave fields from point sources in stratified media and, in particular, produced a complete theory for so-called lateral waves that play an important role in seismological surveys. He discovered the extra long-range propagation of sound in the sea (jointly with L. D. Rozenberg) in 1946. He received the State Prize in 1951. (GSE 4, p. 62.)

Buslaev, Iurii A., D. Chem. S. Born in 1929 in Syzran. Russian inorganic chemist. Corresponding member, 1968, and academician, 1981. Academician Secretary to the department since October 1988. He graduated from the Moscow D. I. Mendeleev Chemical Engineering Institute in 1952. He has worked in the N. S. Kurnakov Institute of General and Inorganic Chemistry of the AN SSSR since 1952. Since 1967, he has been Deputy Director of the Kurnakov Institute in Moscow, that was established in 1934 to study metal alloys, rare earth elements, and the chemistry of complex compounds and polymers. Since 1969, he has served as Head of the Inorganic Polymers Laboratory of that Institute. His works are in the chemistry of transitional metals, the syntheses of their complex compounds, multiple bonds in inorganic chemistry, polymerization of inorganic compounds, and obtaining new classes of refractory substances. In 1986, he was awarded the L. A. Chugaev chemistry Prize for his work. (GSE 4, p. 211.)

Emel'ianov, (Emelianov) Stanislav V., D. Tech. S. Born in May 1929 in Voronezh. Russian scientist in the field of automated control. Elected member of the Presidium of the Academy in 1988. He has been a corresponding member of the Academy since 1970, and an academician of the Information Science, Computer Technology, and Automation Department of the Academy since 1984. He graduated from the Moscow Aviation Institute in 1952. He created a new line of development in the theory of automated control, the theory of systems with variable structure. Such systems are used to control non-stationary units, as in buildings, movement control systems of aircraft, and in the automated landing systems of the supersonic passenger aircraft Tu 144. Systems with variable structure are also used in the metallurgical, chemical and food industries. He received the Lenin Prize in 1972. Since 1976, he has been a Deputy Director of the Systems Research Scientific Research Institute in Moscow. Since 1977, he has been Director of the International Scientific Research Institute of Control Problems in Moscow that was established in 1977. (GSE 9, p.121.)

Faddeev, Ludwig D., D. PM. S. Born in March 1934 in Leningrad, son of D. K. Faddeev. Russian mathematician and theoretical physicist. Elected a member of the Presidium of the Academy in 1988. Academician of the Mathematics Department since 1976. He graduated from Leningrad State University in 1956. He became a professor at Leningrad State University in 1969. From 1976 to 1987, he served as Deputy Director of the V. A Steklov Mathematics Institute in St. Petersburg. In November of 1987, he was deputy director of MIRAS (V. A. Steklov Mathematics Institute) a St. Petersburg Institute which was a branch of the Steklov (since 1934) and which became independent in 1995 when Faddeev was made its director. It

conducts research on mathematical geology, mathematical physics. His works deal primarily with mathematical and theoretical physics. He worked on the three-body problem of classical mechanics in 1963 producing the Faddeev equations, and he solved the inverse problem in scattering theory for the N-dimensional Case in 1966. In 1967, he developed a method for quantifying fields with infinite dimensional asymmetry groups such as the Yang-Mills field and the Einstein gravitational field, by means of continual integration. In 1971, he received the State Prize and in 1975, he was the recipient of the prestigious Dannie Heineman Prize for Mathematical Physics of the American Physical Society. In 1975, he formalized the quantification of particle-like solutions (solitons) of field-theory equations. Methods developed by him are employed in various fields of mathematics, in quantum mechanics, and in the theory of elementary particles. From 1985 to 1987, he has served as Vice President of the International Mathematical Union when he became its president. (GSE 27, p. 86.)

Golitsyn, Georgii S., D. PM. S. Born in 1935. Russian physicist. Elected member of the Presidium of the Academy in 1988. Corresponding member, 1979; academician since 1987 of the Oceanology, Atmospheric Physics and Geography Department. He has headed the Climate Theory Department of the Atmospheric Physics Institute in Moscow which has four laboratories: the Climate Theory Laboratory--which Golitsyn headed from 1976--the Upper Atmosphere Physics Laboratory, the Atmosphere-Ocean Interaction Laboratory, and the Mathematical Ecology Laboratory. In 1990, he became Director of the Atmospheric Physics Institute that was established in 1956 and that uses modern physical mathematical means to probe the atmosphere from earth and space by optical and radio physical methods. He is the recipient of the A. A. Friedman prize for his works on "Study of the General Circulation of Atmosphere and Convection."

Kostiuk, Platon G., D. Bio. S. Born in 1924 in Kiev. (Human and Animal Physiology). Ukrainian Physiologist and a specialist in neuro-physiology and electro-physiology. Elected member of the Presidium of the Russian Academy in August of 1988. He has been a corresponding member of the Physiology Department of the Academy since 1966; and, academician since 1974. He has served as Academician Secretary of the Physiology Department since 1975. He has also been an academician of the Biochemistry, Physics, and Theoretical Medicine Department of the Ukrainian Academy of sciences since 1969 and a member of the GDR Republic Academy of Naturalists since 1966. He graduated from the University of Kiev in 1946 and from the Kiev Medical Institute in 1949. He became Head of the Institute of Animal Physiology of the University of Kiev in 1956. In 1958, he became Head of the division of general physiology of the nervous system that he had organized at the A. A. Bogomolets Institute of Physiology of the Ukrainian AN SSR. Since 1966, he has been Director of that institute in Kiev. Established in 1953, the institute does research on basic and applied problems of physiology. His works have included work on cellular mechanism of nervous activity. He was the first in the former Soviet Union to use micro electrodes in the study of nerve cells. He was awarded the I. P. Pavlov Prize in 1962. Since 1970, he has been Director of the Experimental Medical Institute in St. Petersburg. In 1977, he received the I. M. Sechenov Prize for his work. He was awarded the A. A. Bogomol'ts Prize in Physiology and Theoretical Medicine in 1987. (GSE 13, p. 439.)

Kudriavtsev, Vladimir N., D. Iur. S. Born in 1923 in Moscow. Russian iurist. Vice President of the Academy for the Social Sciences since 1988. Corresponding member of the Philosophy and Law Department of the Academy since 1974; and, academician since 1984. From 1952 to 1960 he taught and researched at the V. I. Lenin Military Political Academy. From 1960-63 he was Deputy Chief and Chief of organizational inspection division of the Military Collegium of the Supreme Court of

the former Soviet Union In 1963 he joined the All -Union Institute for the Study of the Causes of Crime and the Development of Crime Prevention Measures. From 1969 to 1973 he was Director of that institute. Since 1973, he has served as Director of the State and Law Institute in Moscow that was established in 1938 and is Russia's most prestigious and important facility for conducting research on governmental, Legal and political affairs. Its research directly affects Russian legislation. His principal works are on criminal law and criminology. Since 1975, he has been Deputy Chairman of Soviet Sociological Association, Moscow. Since 1983, he has served as a member of the Presidium of the Soviet Committee for the Defense of Peace. Since 1985, he has been member of the Presidium of the Academy. Since 1988, he has been the Academician Secretary of the Philosophy and Law Department of the Academy. (GSE 30, p. 536.)

Paton, Boris E., D. Tech. S. Born November 1918 in Kiev. Russian metallurgist and specialist in welding technology. Son of E. O. Paton. Since 1958, he has been an academician of the Physical and Technical Problems of Materials Science Department of the Ukrainian Academy of Sciences. Since 1962, President of the Ukrainian Academy of Sciences. Since 1962, he has been an academician of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy (originally having been elected to the Technical Sciences Department). Since 1963, he has been an elected member of the Presidium of the Academy. He graduated from Kiev Industrial Institute in 1941. He has been affiliated with the E. O. Paton Institute of Electrical Welding of the Ukrainian Academy of Sciences since 1942. He headed a laboratory there from 1942-50, was assistant Director of the institute from 1950-53, and has been Director since 1953. From 1964, he has been a member of the Presidium of the Committee for Lenin Prizes and State Prizes in Science and Technology. From 1977, he served as a board member of the GKNT General Assembly. His works have included: developing electro-slag welding, producing unique high-pressure vessels for the power and chemical industries and the manufacture of large assemblies for ships and hydroelectric generators and for other purposes; developing programs for improving the welding industry in Russia and accelerating technical progress; developing special purpose smelting plants and creation of a new branch of quality metallurgy known as special-purpose electro-metallurgy. He is a member of the Bulgarian (1969) and the Czechoslovakian (1973) academies of sciences. He received the State Prize in 1950; the Lenin prize in 1957. In 1981, he was the recipient of the M. V. Lomonosov Gold Medal for his contributions to science. (GSE 19, p. 339.)

Spirin, Aleksandr S., D. Bio S. Born in 1931 in Kaliningrad, Moscow Oblast. Russian biochemist. Elected member of the Presidium of the Academy in 1988. Academician of the Biochemistry, Biophysics, and Chemistry of Physiologically y Active Compounds Department of the Academy since 1970. He graduated from Moscow State University in 1954, where he studied under A. N. Belozerskii. From 1962 to 1967, he was Head of the Biochemistry Laboratory at the A. N. Bakh Institute of Biochemistry of the Academy. Since 1967, he has headed the Pushchino Protein Research Institute, established in 1967 as one of four institutes comprising the Science Research Center at Pushchino. It conducts research on protein structure and the biosynthesis of polypeptide chains. Since 1974, he has also been Chief of the Mechanisms of Protein Biosynthesis Laboratory of the institute. His works are in the biochemistry of nucleic acids and the biosynthesis of proteins. Lenin Prize, 1976. (GSE 24, p. 426.)

Subbotin, Valerii I., D. Tech S. Born in 1919 in Baku. Russian specialist in high temperature physics. Elected member of the Presidium of the Academy in 1988. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1968; and, academician since 1987. He graduated from Baku Industrial Institute in 1942. From 1943 to 1948, he served on the board

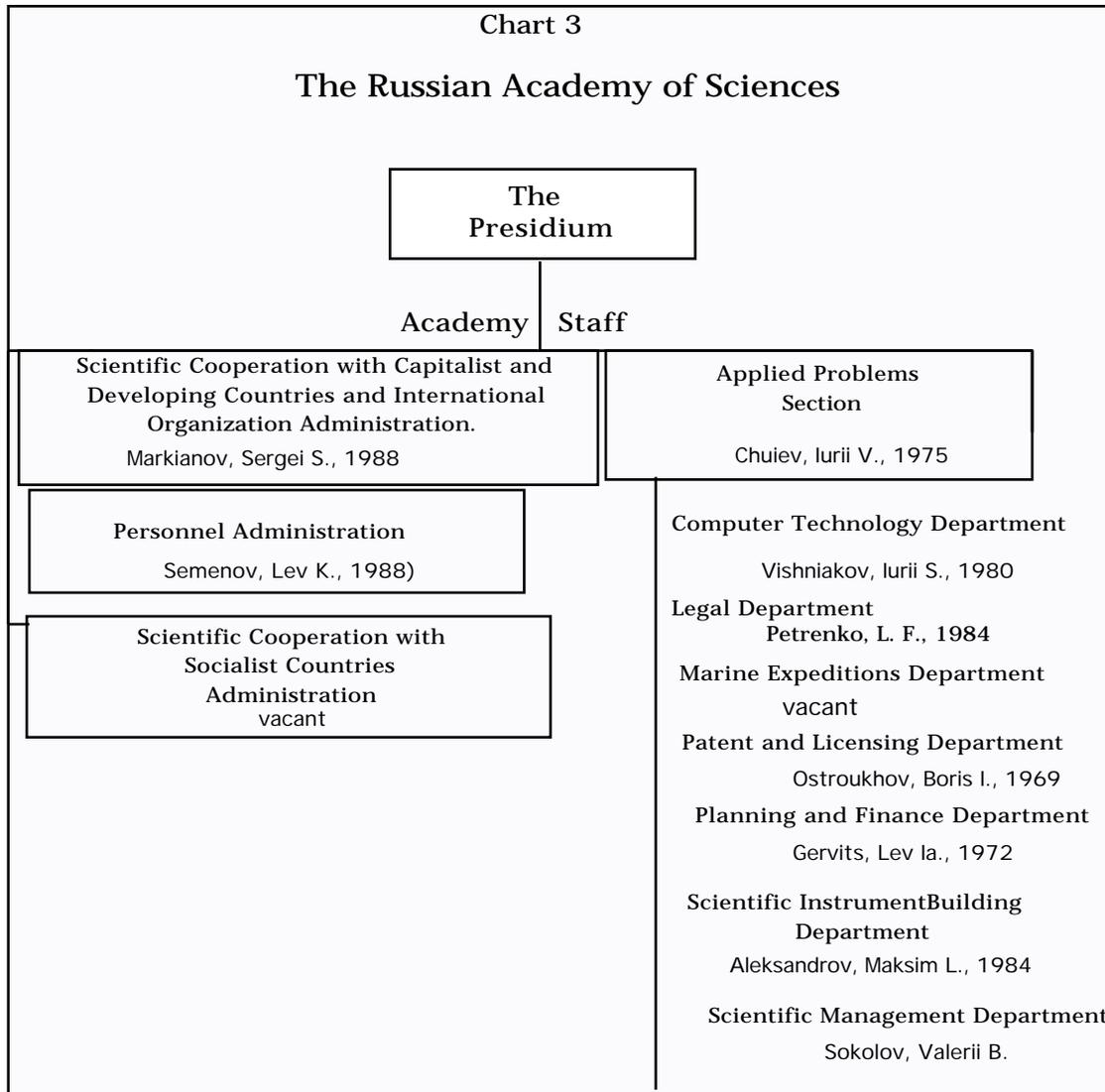
of the Caucasus Power Engineering Complex and from 1948 to 1953, he was a research worker at the Institute of Power Engineering of the Azerbaiian Academy of Sciences. In 1953, he joined the staff of the Institute of Physics and Energetics in the city of Obninsk, becoming Deputy Director in 1969. He is also Head of the subdepartment of high-temperature physics at the Moscow Physical Engineering Institute where he became a professor in 1960. He was awarded the Lenin Prize in 1964. (GSE 25, p. 187.)

Utkin, Vladimir F., D. Tech. S. Born in 1923. (Mechanics). Elected Member of the Presidium in 1988. Academician of the Mechanics Department of the Ukrainian Academy of Sciences since 1976. Awarded the M. K. Iange Prize for Applied and Technical Mechanics in 1980. Academician since 1984--of the Problems of Machine Building, Mechanics and Control Processes Department of the Russian Academy. He received the Lenin Prize in 1964. Ukraine Academy of Sciences Hero of Socialist Labor Prize recipient in 1969 and 1976.



Administrative Units of the Presidium

The Presidium maintains a staff in Moscow for administering various activities of the academy as shown in Chart 3.



The Presidium and Research Innovation: The Presidium of the academy often takes the lead in introducing new areas of research for the solution of problems by the establishment of research institutes directly subordinate to it or jointly subordinate to it and another governmental unit. At the present time there are six scientific research institutes directly subordinate to the Presidium. These are listed below.

Research Institutes Subordinate to Presidium in the early 90s:

(Note: Some of these institutes have been moved to other supervisory agencies in the continuing restructuring of the Academic Science System)

- 1. Archive of the Russian Academy of Sciences** in Moscow. This is one of the oldest of institutions in Russia having been established three years after the founding of the Russian Academy of Sciences in 1725 and is the first scholarly archive in Russia. Although in the beginning the archive collected only documents of scientific conferences, in 1922 it received independent status and was authorized to house all documents produced in the subsidiary units of the academy. In 1925, the archive

received official status as an institute, and in 1934 was transferred to Moscow. In 1963, the Moscow division was reorganized to become the Archive of the USSR Academy of Sciences as a whole and making the Leningrad division a subordinate division of the Moscow Archive. The archive is divided into seven departments: acquisitions, preservation; insurance record files, information reference mechanisms and accounting, private collections, information provision; and publications. The archive is staffed by 62 researchers in Moscow of whom two hold doctoral degrees and six hold candidate degrees. There is one corresponding member of the AN SSSR and the Russian Academy of Sciences on the staff. In terms of holdings, the archive in Moscow and in its division in St. Petersburg maintain some one million files that constitute the richest collections of documents from scientific institutions and scientists of the former Soviet Union in the world. Research priorities from 1989 to 1993 include: under the supervision of S. O. Shmidt, the "Documentary Relics of History and Culture, Problems of Search, Description, and Publication"--the N. E. Vernadskiaia (aya)'s collection of V. I. Vernadskii's letters, the A. O. and V. O. Kovalevskii correspondence, the P. P. Lazarev correspondence, and S. B. Vdeselovskii's documents on the Printed Order (the Pechatnyi prikaz); under the direction of I. D. Koval'chenko "Methodology and Historiography, Source Studies and Methods of Historical Research", the A. S. Lapapo-Danilevskii scientific legacy; under the guidance of B. B. Piotrovskii "The History of World Culture," documents of N. I. Vavilov in the Archive of the AN SSSR, autobiographical materials of biologists, the Central Astronomical Observatory history, the P. S. Pall as correspondence from 1741 to 1811, and the history of Russian-French scientific ties in the 18th century. The Archive has been headed by Dr. Boris V. Levshin, D. Hist. S., since 1963. Archive of the AN SSSR and the Russian Academy of Sciences, Leningrad Division, was established in 1963 as a division of the Moscow Archive. Its staff of 16 persons includes six candidate of science degree holders. It preserves documents of constituent institution of the AN SSSR and the Russian Academy of Sciences and collections of individual scholars and scientists from the early 18th century to the present. Altogether there are some 735 collections and 16 "special" collections with a total of some 479,000 files housed in the St. Petersburg division. The St. Petersburg division is headed by Vladimir S. Sobolev, C. Hist. S. (See: *A Scholars' Guide to Humanities and Social Sciences in the Soviet Union*, Ruble, et. al. Editors.)



- 2. Scientific and Technical Information Institute** in Moscow. Established in 1952. Originally y it was jointly subordinate to the Presidium of the academy and to the State Committee for Science and Technology (GKNT). It serves as the coordination point for the entire science and technology information system in the USSR. It reviews world literature on science and technology and prepares abstracts and bibliographies as well as develops better methods of information collection and dissemination. In 1989, the on-line service of VINITI maintained some 230 data bases on tape and 59 data bases and abstracts on exact, natural, and engineering sciences that represented material from some 9 million documents spanning from 1 to 9 years. Fields covered in these data bases and abstracts included automation and radio electronics, astronomy and geodesy, biology, geography and geophysics, geology and mining, information science, mathematics and computing, mechanics and mechanical engineering, metallurgy and welding, protection of the environment, transport, physics, physico-chemical biology and bioengineering, chemistry and chemical engineering, industrial economics, electrical engineering and power engineering. VINITI publishes a Reference Journal(abstracts) that includes material

from these scientific and engineering fields and had issued 240 issues of that journal since 1952. Its automated data bank of published Soviet and foreign serial publications included some 17,000 titles from some 130 countries. The structural data on chemistry data base, for instance, receives some 500,000 chemical compounds from some 80,000 publications that includes patent documents. The data base on primary structures of nucleic acids in 1989 included some 8 million base pairs abstracted from more than 4500 records. The data base for organic fluorine compounds annually includes some 40,000 reactions of organic fluorine compounds taken from journal articles, patent specifications, and inventor's certificates which amounts to searching some 5,000 documents a year. Director: Nesterov, Petr V., 1987; Deputy Directors: Boloshin, I. A., 1988; Bondar, Vladimir V., 1988; Chernii, Arkadii I., C. Tech. S., 1969; and Seiful-Muliukov, R. B., 1979. (*Products and Services Information of VINITI*, Moscow: All -Union Institute of Scientific and Technical Information (VINITI), 1989, 10 PP.)



3. Scientific Information on Social Sciences Institute in Moscow. The institute was founded in 1969 to provide a information on the social sciences to institutes and other subdivisions that collect, and disseminate social sciences information in Russia and the other republics of the former USSR. The institute is subordinate to the Presidium of the Russian Academy of Sciences. Academician Dr. Vladimir A. Vinogradov has headed the institute since 1972. The institute has more than 430 researchers on its staff that includes 25 who hold the doctoral degree and 180 with candidate degrees. The Analytic Survey and Abstracting Division is composed of: (1.) the Economic Sciences Department with sectors on world economy and economic theory; (2.) the Philosophical Sciences Department; (3.) the State and Law Department with sectors on political science and legislation; (4.) the Historical Sciences Department; (5.) the Philological Sciences Department with sectors on linguistics and literary studies; (6.) the Countries of Eastern Europe Department with sectors on foreign sovietology and problems of social development in the countries of Eastern Europe; (7.) the Countries of Asia and Africa Department with sectors on the developing countries and the Countries of the Far East Department; (8.) the America Department; (9.) the Countries of Western Europe Department with sectors on general problems of Western Europe, international studies and problems of the international Social Democratic movement ; (10.) the Studies of Sciences Department; (11.) the Global and National Socioeconomic Problems Department with a laboratory on sociology, a laboratory on the theory and history of culture, and a laboratory on coordination of international cooperation in the social sciences. The Bibliographic Processing and Automated Systems Division is composed of: (1.) the Scientific-bibliographical Processing of Literature and Creation of Data Bases Department with sectors in bibliographical information on philosophical sciences, philology, economics, state and law, history, and regional problems, with a group on the countries of Asia and Africa and scientific methods and problems of bibliographical information and unification of data bases; (2.) the Research and Development of Information Systems Department with sectors on prospective research and development, research and introduction of computing technique and technology of information systems; (3.) the Information Retrieval Languages Department; (4.) the Integrated Scientific Information Provision Department with sectors on provision of abstract-analytical information, provision of bibliographical information, and computerized provision of scientific materials, a laboratory on scientific problems and methods and coordination of information, and, a laboratory for research of informational requirements in the social sciences. The library has five

departments, one laboratory, and a group in the institute in Moscow and in 22 departments located in other social science institutes throughout the former Soviet Union and one department situated in the Archive of the Russian National Academy in Moscow. Its departments include: (1.) the Preliminary Processing of Informational Materials Department; (2.) the Scientific Holdings Department; (3.) the Scientific-informational Services Department; (4.) the Acquisition of Scientific Holdings Department with sectors on coordination of foreign literature purchases, acquisition of foreign literature, acquisition of Soviet literature, international book exchange, and automating acquisition and input processes; (5.) the Dissemination of Informational Materials Department; (6.) a Laboratory on Problems of Bibliographical Description and Compilation of Alphabetic Catalogs; and (7.) a group on marketing studies. (See: *A Scholars' Guide to Humanities and Social Sciences in the Soviet Union*, Ruble, et. al. Editors.)



- 4. Industrial Lasers Scientific Research Center** in Troitsk. Established in 1979. The center has scientific research divisions, a design bureau, and an experimental production facility. It is an experimental facility for the restructuring of the organization of scientific and technological enterprises in the Russian Federation with the end of introducing scientific and technological discoveries more quickly into the production of goods. Its production base is located in Shatura. This base was established in 1985.



- 5. Numerical Mathematics Institute in Moscow**--(Formerly--the Computational Mathematics Institute in Moscow). headed by the former President of the Academy of Sciences Guri I. Marchuk.
(Located at 32a, Leninskii ave., Moscow, 117993. Tel. (938-17-69)



- 6. A Computational Mathematics Institute** was created in 1980 and it was given full institute status in 1991 by the Presidium of the Russian Academy of Sciences (RAS). Its Director, Guri I. Marchuk, D. PM S., after serving as Chairman of the GKNT, became president of the Soviet Academy in 1986, a position he held until 1991. The institute conducts research in applied mathematics, long-range forecasting, the formulation of mathematical models, and in the development of computational methodology. Professor Marchuk continues to be the Director of the institute. Initially, this Institute was directly subordinate to the Presidium. It is now located under the Mathematics Department of the Russian Academy, and bears the title of Institute of Computing Mathematics. It is located at 32a, Leninskii Avenue., Moscow, 117993, and it is directed by Guri I. Marchuk, tel. 938-17-69.



- 7. Nuclear Safety Institute** in Moscow was established in 1988, the institute has remained subordinate to the Presidium of the Academy of Sciences itself. Scientists at the institute study the methodology of programming for the safety of the nuclear complexes in Russia and the problems of safety of atomic energy, the ecological problems resulting from the use of atomic energy, and the disposal of nuclear waste.

Since 1991, the Director of the institute has been Leonid A. Bol'shov (Bolshov), D. PM. S.



The Subject Matter Departments of the Russian Academy, 1996-97

The Eighteen Subject-Matter Departments of the RAS: The academy is organized into 18 subject-matter departments. Internally, the Presidium administratively locates the subject-matter departments under the four scientific-technical categories inherited from the AN SSSR. This guide follows that structure.

Departments of the Russian Academy of Sciences: 1. Department of Mathematics; 2. Departments of General Physics and Astronomy; 3. Department of Nuclear Physics; 4. Department of Physical and Technical Problems of Energetics; 5, Department of Problems of Machine-building, Mechanics and Control Systems; 6, Department of Informatics, Computer Equipment and Automation; 7. Department of General and Technical Chemistry; 8. Department of Physical Chemistry and Technologies of Inorganic Materials; 9. Department of Physical Chemistry Biology; 10. Department of General Biology; 11. Department of Physiology; 12. Department of Geology, Geophysics, Geochemistry and Mining Sciences; 13. Department of Ocean Research, of Atmosphere Physics and Geography; 14. Department of History; 15. Department of Philosophy, Sociology and Law; 16. Department of Economics; 17. Department of World Economy Problems and of International Relations; 18. and the Department of Literature and Language. (**Listing of the Departments on the Russian Academy Sciences from the Internet Homepage, 1996-97**)

Generalizations on Academy Membership: In 1989, there were a total of 974 academicians and corresponding members of the 18 subject departments of the AN SSSR in Moscow. Over 42 percent of these members have been Directors or Deputy Directors of research institutes in the former Soviet Union. Academicians totaled 346 in 1989 corresponding members, 628. In 1994, the academy had 465 Academicians and 620 Corresponding Members. A majority of the academicians hold professorships in universities and technical schools and have served or are serving as Deputy Directors and Directors of research institutes. Basic scientific research and advanced graduate study in the sciences is done in the scientific research institutes of the subject-matter and geographic departments and of their scientific affiliates and centers. (*Directory of Soviet Officials; Science and Education: A Reference Aid*, Washington D.C., Directorate of Intelligence, LDA 89-11378, May 1989, 296 pp. And, *Directory of Soviet Officials: Science and Education*, LDA87-11012, May 1987. Washington, D. C.: Directorate of Intelligence, pp. 3-7.)

Research Institute Direction: A large number of Russian scientists are quite elderly. However, in the institutes where the most important basic and applied research is done--at the cutting edge of scientific discovery--the men or women who are Directors or Deputy Directors have historically been young upon appointment. At appointment, they were the "youngsters" of Russian science. Their average age was 49.5 years. Their longevity, on the other hand is long, and many of those of advanced age have younger deputies.

The Directors of Research Institutes--Age Analysis: The birth dates of the Directors of 141 of the 265-odd research institutes directly subordinate to academy

departments are known. In 1991, of these, two were in their 40s; 43 in their 50s; 68 in their 60s; 14 in their 70s; nine in their 80s; and one in his 90s. Eighty percent of the Directors are in their 60s or below. The oldest are Generally in biology, chemistry, geology, mathematics, and physics. In the Russian lexicon these are among the oldest and strongest sciences.

Deputy Directors of Research Institutes--Age Analysis: The birth dates of 133 of the Deputy Directors is known. In 1991, nine were in their 40s; 50 were in their 50s; 50 were in their 60s; 16 in their 70s; and eight in their 80s. Eighty-two percent of the Deputy Directors were in their 60s or below. Their average age when chosen was 46.5 years. Several of those in their 80s have much younger superiors over them. The appointment of older academicians of the academy as Advisors to the Presidium in 1988, affords them honor. Coupled with an expansion of membership that appears to be beginning to occur, younger Russian scientists are being recognized and promoted into positions of authority. The road to the top will not be left unguarded by the older scientists, nor will scientific merit be less rigorously required. In the 1980s, research and development appears to have been absorbing these increasingly large numbers of bright young scientists, although the economic plight of the country has slowed, if not stopped this progress in the 1990s.

Representation of the Scientific Disciplines and Geographic Departments in the Academy: The Vice Presidents of the academy are selected from the four subject-matter areas and from the geographic regional departments.

The Physical, Technical and Mathematical Sciences are represented by Evgenii P. Velikhov, D. PM. S. Born in 1935 in Moscow. Russian theoretical physicist. Since 1974, he has been an academician of the General Physics and Astronomy Department of the Academy and since 1984, he has acted as Academician Secretary of the Information Science, Computer Technology, and Automation Department of the Academy. He graduated from Moscow State University in 1958 and began working in the Institute of Atomic Energy becoming Head of one of its departments in 1962. He has been a professor at Moscow State University since 1968. From 1971 to 1988, he served as Deputy Director of the I. V. Kurchatov Atomic Energy Institute in Moscow. In 1988, he was named Director of this important institute that was created in 1943 to develop nuclear weapons. It is the largest institute in Russia that concentrates on nuclear research that includes all aspects of atomic energy, including plasma and solid state physics, fission and fusion reactors, and lasers. The institute is directly subordinate to the State Committee for Utilization of Atomic Energy. Since 1977, he has served as Vice President for the Physical and Mathematical Sciences Section of the Academy. Since 1978, he has headed the Geophysical Laboratory of the High Temperatures Institute in Moscow, and has served as a member of the Board of the General Assembly of the GKNT. Since 1984, he has been Deputy Director for science of the Industrial Lasers Scientific Research Center in Troitsk subordinate to the Academy. The center is comprised of scientific research divisions, a design bureau, and an experimental production facility that develops and introduces laser tools and methods into industry. His works are in low-temperature physics, plasma and magnetic hydrodynamics. Since 1984, he has also served as a Deputy Director for Science of the Archive of the Academy of Sciences in St. Petersburg. In 1986, he was the recipient of the M. D. Millionshchikov Prize in atomic power engineering. (GSE 4, p. 565.)

The Chemo-Technical Sciences are represented by Oleg M. Nefedov, D. Chem. S. Born in 1931. Since 1970, Chief of the Carbene Chemistry laboratory of the N. D. Zelenskii Organic Chemistry Institute in Moscow. Corresponding

member of the General and Technical Chemistry Department of the Academy since 1979; and, academician since December 1987. Academician secretary to the Department since June 1988 and since that date he has been a member of the Presidium of the Academy and Vice President for the Chemotechnical Sciences Sector. In 1987, he shared the N. D. Zelinskii Prize in organic chemistry with Kh. M. Minachev, and V. V. Kharlamov.

The Biological Sciences are represented by Rem V. Petrov, D. Med. S. Born in 1930. Academician of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) since 1984. Also academician of the Academy of Medical Sciences. Vice President of the academy for Biology since October 1988. He was Editor-in-Chief of Science in Russia. In 1987, he received the I. I. Mechnikov Gold Medal in recognition of his contributions to the chemical and biological sciences.

The Earth Sciences are represented by Nikolai P. Laverov. Born in 1930. Corresponding member since 1979. Academician of the Geology, Geophysics, Geochemistry, and Mining Department of the national academy since December 1987. Since 1987, he has been President of the Kirghizstan Academy of Sciences. He was named vice-President of the Russian Academy of Sciences for the Earth Sciences Section in October, 1988. Since 1990, he has been the Director of the Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry Institute in Moscow.

The Social Sciences are represented by Vladimir N. Kudriavtsev, D. Iur. S. Born in 1923 in Moscow. Russian jurist. Vice President of the Academy for the Social sciences since 1988. Corresponding member of the Philosophy and Law Department of the Academy since 1974; and, academician since 1984. From 1952 to 1960 he taught and researched at the V. I. Lenin Military Political Academy. From 1960-63 he was Deputy Chief and Chief of organizational inspection division of the Military Collegium of the Supreme Court of the former Soviet Union. In 1963 he joined the All-Union Institute for the Study of the Causes of Crime and the Development of Crime Prevention Measures. From 1969 to 1973 he was Director of that institute. Since 1973, he has served as Director of the State and Law Institute in Moscow that was established in 1938 and is Russia's most prestigious and important facility for conducting research on governmental, legal and political affairs. Its research directly affects Russian legislation. His principal works are on criminal law and criminology. Since 1975, he has been Deputy Chairman of Soviet Sociological Association, Moscow. Since 1983, he has served as a member of the Presidium of the Soviet Committee for the Defense of Peace. Since 1985, he has been member of the Presidium of the Academy. Since 1988, he has been the Academician Secretary of the Philosophy and Law Department of the Academy. (GSE 30, p. 536.)

The Geographic Regional Departments:

The Far Eastern Department is represented by **Viktor I. Il'ichev (Ilichev)**, Born in 1932 in the village of Tikhonovo, Vladimir Oblast. Russian hydrologist and hydroacoustics specialist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the AN SSSR since 1976 and, academician since 1981. He graduated from the University of Gorkiy in 1955. Between 1955 and 1974 he was on the Acoustics Institute staff. In 1974, he became director of the Pacific Ocean Oceanology Institute in Vladivostok established in 1973 to study the complex hydrophysics of water masses, sea swell, energy exchange, and the

interactions of the ocean. It is subordinate to the academy's Far Eastern Scientific Center (now an academy Department.) Since March 1986, he has served as chairman of the Far Eastern Department of the academy. He has been a vice-president of the academy and a member of the Presidium since October 1987. His works deal with acoustic and hydrodynamic cavitation, the resistance of liquids to cavitation, and marine hydrology. (GSE 30, p. 440.)

The Siberian Department is represented by Nikolai L. Dobretsov, D. GM. S. Born in 1936. Corresponding member since 1984, and academician of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the RAN and of the Siberian Department since December 1987. He graduated from the G. V. Plekhanov Mining Institute in St. Petersburg in 1957. He worked in the geological field party on the Altai Geological Expedition of 1957-1960. He joined the Geology and Geophysics Institute of the Siberian Department in 1960, working in the Metamorphic Formation Laboratory from 1972 to 1980. From 1971-72 he worked in the chemistry laboratory of the Tectonics and Geophysics Institute of the National Academy. From 1980 to 1988, he served as Director of the Geology Institute of the Buriat Scientific Center in Ulan Ude that was established in 1973. Since 1988, he has been the chairman of the Ulan Ude Scientific Center. In 1988, he was named Director of the Institute of Geology and Geophysics of the Siberian Branch of the National Academy. He has been designated a professor since 1972. He has chaired the commission on metamorphosis and metamorphogeny of mineral deposits and head of the Petrography Committee of the national academy.

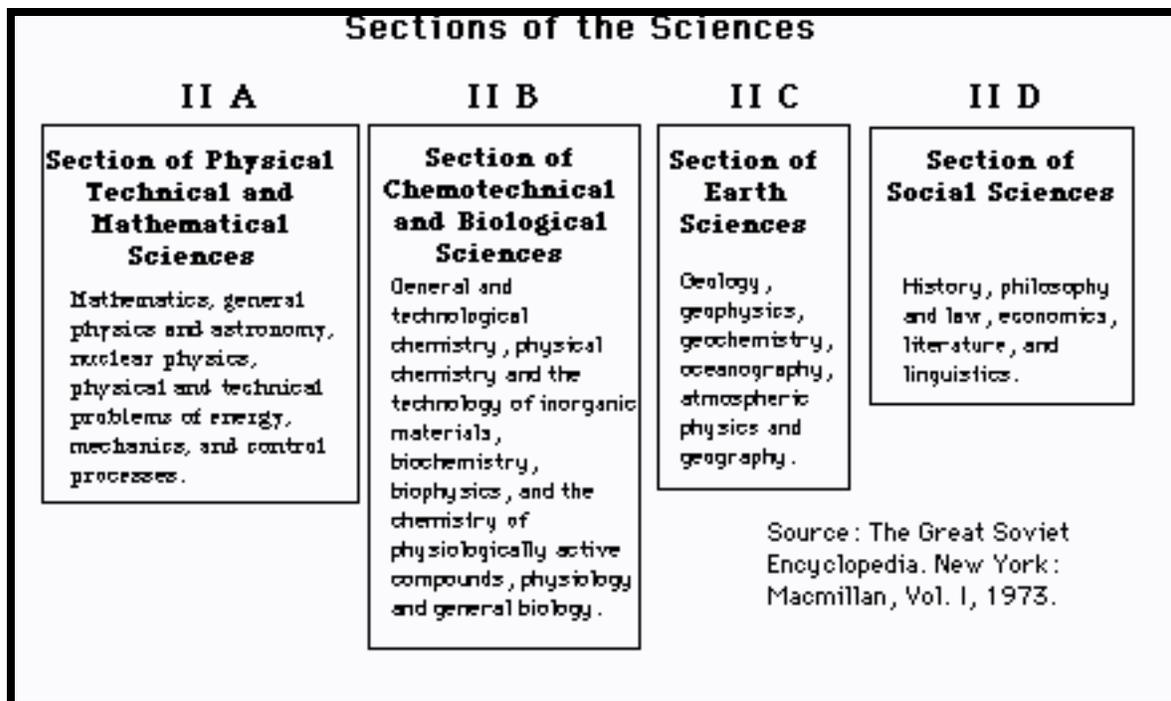
The Urals Department is represented by Gennadii A. Mesiats, C. GM. S. Born in 1936. Corresponding member since 1979; and an academician of the General Physics and Astronomy Department and of the Siberian Department since 1984. He is also a member of the Urals Department. He is a specialist in the fields of electronics and electrophysics. He received the Lenin Komsomol Prize in 1968, and the Laureate State Prize in 1978. Since 1986, as Chairman of the Urals Department, he has served as a member of the Presidium of the Academy of Sciences of the USSR. In 1988 he was named a Vice President of the Academy of Sciences for the Urals Department. From 1977 to 1986, he served as Director of the High Current Electronics Institute in Tomsk, which is subordinate to the Urals Department. The institute researches thermonuclear and accelerator physics and laser technology and was created in 1977 from the High Current Electronics laboratory of the Atmospheric Optics Institute. Since 1986, he has been Chairman of the Urals Department, and from November of 1986 to 1988, he served as the Director of the Electrophysics Institute in Ekaterinburg (Sverdlovsk) that was established in 1986. He is currently the President of the Russian Scientific Council on Problems of "Relativistic and Heavy-Current Electronics."

Ties between the subject-matter departments of the former AN SSSR and the present Russian Academy of Sciences in Moscow and the geographic departments and in the scientific research institutes were and are maintained by memberships of research scientists, either as corresponding members or as academicians in the departments of the academy. (*Directory of Soviet Officials; Science and Education: A Reference Aid*, Washington D.C., Directorate of Intelligence, LDA 89-11378)



Organization of the Scientific Disciplines

Russian scientists have used and continue to use the schema shown below for structuring the departments of the scientific academies in the Russian Academy.



Structure of the Guide: This Guide to the Russian Academy of Sciences (RAS) follows the organization of the scientific disciplines shown above. It presents the subject-matter departments, the geographic departments, the scientific research centers, branches and other units of the RAS. This approach treats scientific research and development in Russia as a national activity because the relationships between scientists recognizes few political borders in the Russia of today. A better appreciation of the breadth and scope of scientific development in Russia results from this approach.



The Section of the Physical, Technical and Mathematical Sciences

The Physical, Technical and Mathematical Sciences "section" of the academy includes mathematics, general physics and astronomy, nuclear physics, physical and Technical Problems of energy, information science, computer technology, automation, and problems of machine building and control processes. It includes six major subject-matter departments of the academy. In 1989, 42 Scientific Research Institutes were administratively located within the Physical, Technical and Mathematical Sciences section of the academy. In the entire country--including the

former republic academies, however, there were at least a total of 165 research institutes in the fields classified under this section of the academy.

Method of Presentation of the Subject-matter Departments: In analyzing this and other departments of the academy, academician and corresponding member biographical sketches are given before the expanded descriptions of the subordinate research institutes. When becoming acquainted with the academicians and corresponding members of each of the departments, a deeper sense of the nature of scientific research effort in that particular department is achieved. As far as is possible, institutes are presented in the order of their founding date under each department to which they are subordinate. By this method, a sense of the historical development and growth of scientific research in Russia is developed.



Department of Mathematics (DoM) in Moscow

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Retrospect: In 1987, there were 22 academicians and 31 corresponding members in the Mathematics Department of the academy. In 1989, membership totaled 58, of whom 25 were academicians and 33 were corresponding members. Twelve of the members of the Mathematics Department were either Directors or Deputy Directors of SRIs under either the Mathematics Department or the Information Sciences Department. One member is President of the Kirghizstan Academy of Sciences; one a Vice President of the Armenian academy; one is on the Presidium of the Ukrainian academy, another a member of the academy itself. The Scientific Secretary of the Siberian Department is a member of the Mathematics Department and eight of the department's members belong also to the Siberian Department. One is a member of the Urals Department and one a member of the Far Eastern Department. One is Vice President of the International Mathematics Union. One is Director of the joint Institute for Nuclear Research that was established by a pact between the USSR and 11 bloc countries for the purpose of collaborating in the development of nuclear energy. One department member is also on the General Assembly board of the GKNT. One is on the national academy's Presidium, and one was "retired" to the status of adviser to the national academy's Presidium in 1986.

Academicians: Birth dates are missing on two of the 25 academicians of the Mathematics Department. The average age of academicians was 70 years in 1991. The oldest member was 86 and the youngest was 52. Twenty-two of the 25 academicians held doctoral degrees. Sixteen of these were awarded by six universities, institutes or academies. Moscow State University produced nine graduates; Leningrad State University graduated three, and the other four came from four different institutions.

Corresponding Members: The corresponding members numbered 33, and the average of the 27 corresponding members whose birth dates are known was 66.6 years in 1991. Six of the 33 corresponding members were non-degree holders. Nineteen of the 27 doctoral degree holders graduated from seven universities and academies in Russia. Moscow State University graduated 10; Leningrad State University 3; the University of Tbilisi, the University of Novosibirsk, the University of Gorkiy, Erevan University, the A. F. Mozhaiskii Air Force Academy in St. Petersburg, and the F. E. Dzerzhinskii Artillery Academy--each graduated one.

Present Organization of the Department: The Academician-secretary of the Mathematics department in 1996 is Academician Ludvig D. Faddeev. Under the new reorganization, a "Bureau" made up--in 1996--of seven mathematicians--a miniature presidium--act as a governing body of the department. They include: Nikolai S. Backvalov, Andrei A. Gonchar, Ildar Ab. Ibragimov, Evgenii F. Mischenko, Vladimir P. Pavlov, Viktor V. Rusanov, and Professor Igor An. Lavrov.

Note on the method of presentation of the material of the Mathematics and all the other subject matter departments: A brief biographical sketch of each academician and corresponding member of the subject-matter departments of the RAS is given, followed thereafter by a presentation of the scientific research institutes subordinate to that department. Sources of this information have been entries digested from the *Great Soviet Encyclopedia* (MacMillan), and from the *Directory of Soviet Officials: Science and Education* for the years of 1980, 1985, 1987, and 1989. The biographical information has been compiled from a number of different publications. Even when biographical material has been used from the *Great Soviet Encyclopedia*, those items have often been modified by using later information from other sources. Much of this biographical material--and the information on the Scientific Research Institutes--has been reviewed, amended, and brought up to date by staff members of the Presidium of the Russian Academy of Sciences in Moscow--a process which continues. The Department of Mathematics is taking the leadership in presenting a homepage on the Web Internet which provides much good information, including telephone numbers, addresses, and often E-mail addresses.

The presentation of the subject matter departments in this volume follows the order of listing of those departments by the Russian Academy.

(1997 update)

Membership of the Department in 1996:

Academician-secretary of the Department

Academician Ludvig D. Faddeev, tel. 938-18-12

Faddeev, Ludwig D., D. PM. S. Born in March 1934 in Leningrad, son of D. K. Faddeev. Russian mathematician and theoretical physicist. Academician of the Mathematics Department since 1976. Member of the Presidium since October 1988. He graduated from Leningrad State University in 1956. He became a professor at Leningrad State University in 1969. From 1976 to 1987, he served as deputy director of the V. A. Steklov Mathematics Institute in Leningrad. In November of 1987, he was made director of that institute, that has operated since 1934 as the Leningrad independent branch of the Moscow Steklov Mathematics Institute. It conducts research on mathematical geology, mathematical physics, logic and number theory. Faddeev is also Chief of the Number Theory and Modern Algebra Department of the Leningrad institute. His works deal primarily with mathematical and theoretical physics. He worked on the three-body problem of classical mechanics in 1963 producing the Faddeev equations, and he solved the inverse problem in scattering theory for the N-dimensional Case in 1966. In 1967, he developed a method for quantifying fields with infinite dimensional symmetry

groups such as the Yang-Mills field and the Einstein gravitational field, by means of continual integration. In 1971, he received the State Prize and in 1975, he was the recipient of the prestigious Dannie Heineman Prize for Mathematical Physics of the American Physical Society. In 1975, he formalized the quantification of particle-like solutions (solitons) of field-theory equations. Methods developed by him are employed in various fields of mathematics, in quantum mechanics, and in the theory of elementary particles. From 1985 to 1987, he has served as Vice President of the International Mathematical Union when he became president. He is head of the National Committee of Mathematicians of the Russian Federation. He also heads the International Institute named after I. Eiler located in St Petersburg. (GSE 27, p. 86.)

Deputies of the Academician-secretary:

Corresponding Member Valentin V. Voevodin, tel.938-18-02

Voyevodin (Voevodin), Valentin V., D. PM. S. Born in 1934. Corresponding member of the Mathematics Department of the Academy since 1987. He is a deputy to the Academician Secretary of the Mathematics Department of the Academy.

Academician Anatoly (Anatolii) T. Fomenko, tel.938-18-12, 939-39-40

Fomenko, Anatoli T. Mathematician. Academician of the Mathematics Department of the Russian Academy. He is a deputy to the Academician Secretary of the Department.

Responsible for scientific-organizing activities: Prof. Alexei B. Zizcenko, tel.938-18-12

Bureau Members:

Academician Vladimir Ig. Arnold, tel.135-14-90

Arnol'd (Arnold), Vladimir I., D. PM. S. Born in 1937. Corresponding member of the Mathematics Department of the Academy since 1984; academician in 1993.

Academician Nikolai S. Bakhvalov, tel.938-59-07

Bakhvalov, Nikolai S., D. PM. S. Born in 1934. Corresponding member of the Mathematics Department of the Academy since 1981; academician in 1993.

Academician Vasili S. Vladimirov, tel.135-14-49

Vladimirov, Vasili S., D. PM. S. Born in 1923 in Leningrad Oblast. Russian mathematician. He became an academician of the Mathematics Department of the Academy in 1970, and Deputy Academician Secretary of the Department in August 1988. He graduated from Leningrad State University in 1948. He began working at the V. A. Steklov Institute that same year. In August 1988, he was selected to be the Director of the famous V. A. Steklov Mathematics Institute in Moscow. His works are on transport equations, quantum field theory, generalized solutions of equations in convolutions, holomorphic functions of many complex variables, the theory of multi-dimensional linear passive systems, the geometric theory of numbers, quadratic formulas for functional integrals, the monte-carlo method, and pulur-subharmonic functions. Recipient of the State Prize, 1953. (GSE 5, p. 535.)

Academician Andrei Al. Gonchar, tel.952-58-01

Gonchar, Andrei A. Born in 1931 in Leningrad. Russian mathematician. Corresponding member of the Mathematics Department since 1974, and academician since 1987. He became Academician Secretary of the Mathematics Department in October 1988. He graduated from Moscow State University in 1954 becoming a professor there in 1967. Since 1965 he has been associated with the V. A. Steklov Institute of Mathematics of the Academy. His work includes the theory of analytic functions and the theory of approximations. (GSE 30, p. 386.)

Academician Iurii L. Ershov, tel. 35-62-44(N.)

Ershov, Iurii L., D. PM. S. Born in 1940 in Novosibirsk. Russian mathematician. Since 1970, he has been a corresponding member of the Mathematics Department of the AN SSSR and the RAN and also a member of the Siberian Department, and an academician since 1990. He has authored 103 scientific pieces of which two major monographs are significant--"The Theory of Numbers" (1977) and "The Solution of Problems in Constructing Models" (1980). He has co-authored 12 publications of which the most famous is "Mathematical Logic." He graduated from the University of Novosibirsk in 1963 becoming a professor there in 1967. In 1967, he was head of a Department in Mathematical Logic, holding the chair in algebra and mathematical logic. From 1973 to 1976, he served as dean of the mathematical faculty at the Novosibirsk University. He was named rector in 1985. His works include the theory of algorithms, the theory of models, and number theory. Since 1968, he has been a member of the Association for Symbolic Logic. He has been on the Presidium of the Siberian Department since 1986. He is on the Scientific Council on the problems of mathematical modeling of the AN SSSR and the Russian Academy of Sciences. He is also on the Accreditation Commission for Symbolic Logic. He is an honored Scientist of the Soviet Union and the editor of a scientific journal. (GSE 9, p. 134.)

Corresponding Member Ildar Ab. Ibragimov, tel.210-49-93(SPb)

Ibragimov, Ildar. A. Corresponding member of the Mathematics Department of the Russian Academy in 1993.

Academician Michail M. Lavrentyev, tel.35-44-50(N.)

Lavrent'ev (Lavrentyev), Mikhail M. Born in July 1932 in Moscow. Russian mathematician. He has been a corresponding member of the Mathematics Department of the academy since 1968 and an academician of that Department since 1992. He worked in that Department from 1955 to 1957. He graduated from Moscow State University in 1955. He joined the Siberian Department in 1957. He has been a professor at the Novosibirsk State University since 1963, holding the chair in mathematical problems in geophysics. From 1980 to 1986, he directed the Computer Center of the Siberian Department. In 1986 he was named Director of the Mathematics Institute in Novosibirsk that was founded in 1957 to research theoretical and applied mathematics. He is the son of M. A. Lavrentiev, the first head of the Siberian Department. He was named to the Presidium of the Siberian Department in 1987. Since 1988, he has been Head editor of the *Siberian Mathematics Journal*. He is a member of the Society of Mathematical Geology. He is an honored scientist of the former Soviet Union. He received the Lenin Laureate Prize in 1962, the State prize in 1987. He has received a number of other medals and recognitions. (GSE 14, p. 302.)

Academician Evgeny (Evgenii) (Evgenii) F. Mischenko, tel.135-05-92

Mishchenko, Evgenii F., D. PM. S. Born in March 1922 in Moscow. Russian mathematician. He has been a corresponding member of the Mathematics Department of the Academy since 1951 and an academician since 1984. He graduated from Moscow State University in 1951, becoming a professor at the Moscow Physicotechnical Institute in 1959. He joined the staff of the V. A. Steklov Mathematics Institute in Moscow in 1951 and since 1967, has served as its Deputy Director. His work has dealt with the ordinary differential equations and their applications to the theory of vibrations. He also works in control theory. He has received numerous recognitions, including the Lenin Prize which he received in 1962. (GSE 30, p. 563.)

Academician Sergei P. Novikov, tel.135-14-90

Novikov, Sergei P., D. PM. S. Born in March 1938 in Gorkiy. Russian mathematician. He has been a corresponding member of the Mathematics Department of the Academy since 1966 and an academician since 1981. He graduated from Moscow State University in 1960. He became a professor at Moscow State University in 1966. Since 1963, he has worked at the V. A. Steklov Institute of Mathematics. His main works deal with geometry and topology and associated problems in algebra and the general theory of relativity. Since 1978, he has acted as Head of the Mathematics Laboratory of the L. D. Landau Theoretical Physics Institute in Moscow, that was created in 1965 from the Physical Problems Institute. The Landau institute is engaged in research in all aspects of theoretical physics, especially the theory of solids. The main branch of this institute is located in Chernogolovka. Lenin Prize, 1967, and the Fields Prize of the International Mathematical Union, 1970. In 1980, he received the N. I. Lobachevskii Prize in mathematics. (GSE vol. 18, p. 308 and vol. 27, p. 192.)

Prof. Vladimir P. Pavlov, tel.938-18-35

Academician Iurii V. Prockorov, tel.135-23-80

Prokhorov, Iurii V., D. PM. S. Born in December 1929 in Moscow. Russian mathematician. He has been a corresponding member of the Mathematics Department of the Academy since 1966 and an academician since 1972. He graduated from Moscow State University in 1949 and became a professor there in 1957. He began working at the V. A. Steklov Mathematics Institute in 1949. His principal works are in probability theory, particularly asymptotic methods. He has researched classical limit theorems, investigating conditions under which the strong law of large numbers and other so-called local theorems can be applied to sums of independent random variables. He has made major contributions to the queuing theory. Since 1969, he has been a Deputy Director of the V. A. Steklov Mathematics Institute in Moscow, that was established in 1921 and that does research in pure mathematics and mathematical physics. Since 1976, he has headed the Probability Theory Department of the Steklov Institute. He was on the Head Editorial Board of the third edition of the Great Soviet Encyclopedia. He received the Lenin Prize in 1970. He directs the work of the National Committee of Bernoulli Society on Mathematical Statistics, Probability Theory, Combinatorics and its Application. (GSE 21, p. 257.)

Corresponding Member Victor V. Rusanov, tel.250-31-83

Rusanov, Viktor V., D. PM. S. Born in 1919 in Kirov. Russian mathematician. Corresponding member of the Mathematics Department of the Academy since 1976. He graduated from the A. F. Mozhaiskii Air Force Academy in Leningrad. In 1954, he joined the staff of the Institute of Applied Mathematics of the AN SSSR. Since 1967, he has been Deputy Director of the M. V. Keldysh Applied Mathematics Institute in Moscow, which is subordinate to the Information Science, Computer Technology and Automation department of the academy. His works have been in computer mathematics, applied mathematics, and mathematical physics. State Prize, 1967. (GSE 30, p. 621.)

Prof. Sergei V. Khrushchev, tel.234-26-35(SPb)

Scientist Secretary: Dr. Igor An. Lavrov, tel.938-16-93

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Dr. Boris N. Rumiantsev, tel.938-53-27

Academicians

Aleksandrov, Aleksandr D. Born in July 1912, in Volyn in the Riazan Province. Russian mathematician. He has been a corresponding member since 1946, and an academician since 1964. He graduated from Leningrad State University in 1933 and began working there upon graduation. He served as the rector of Leningrad State University from 1952 to 1964. He has been at the Siberian Department since 1964. Aleksandrov's major contributions are in the field of geometry. He discovered methods for studying a new field of research, the irregular metric manifolds. The works of his school have produced solutions to several classical problems of the theory of surfaces and found a significant application in the theory of differential equations and the theory of elastic films. He has also done work in the theory of relativity. He received the State Prize in 1942 and in 1951 he was awarded the International Lobachevskii Prize. (GSE vol. 1, p. 222; vol. 16, p.635; vol. 20, p. 652, and vol. 22, p. 178.)

Anosov, Dmitri V., D. PM. S. Born in November 1936. Elected a Corresponding Member in 1990; Academician in 1992. Listed as a senior researcher from 1970-1980s in the V. A. Steklov Mathematics Institute in Moscow.

Arnold, Vladimir I., D. PM. S. Born in 1937 in Odessa. Corresponding member of of the Academy since 1984; academician in 1990. He graduated from Moscow State University and rose from Assistant Professor to Professor from 1961 to 1986. He has held a professorship at the Steklov Mathematics Institute in Moscow since 1986. He is a prolific writer and holds memberships in a number of Academic and Scientific Societies around the world. He received the Moscow Mathematical Society's Prize in 1958, the Lenin Prize in 1965, and the Crafoord Prize in 1982.

Bakhvalov, Nikolai S., D. PM. S. Born in 1934. Corresponding member of of the Academy since 1981; academician since 1991.

Borovkov, Aleksandr A., D. PM. S. Born in 1931 in Moscow. Russian mathematician. Corresponding member of of the AN SSSR since 1966, and academician of the Russian Academy since 1990. He graduated from Moscow State University in 1954 and became a professor at Novosibirsk University in 1966, holding a chair in the theory of probability and mathematical statistics. In 1961, he became Head of the Probability Theory and Mathematical Statistics Department of the Mathematics Institute in Novosibirsk. He is the Deputy Director of the Mathematics Institute of

the Siberian Department. Winner--with others--of the 1979 State Prize for a cycle of works on asymptotic methods of the theory of probability. His major work has been in the theory of probability. Honored scientist of the former AN SSSR. He is a recipient of the Order of the Red Banner Badge of Honor Medal. (GSE 3, p. 479.)

Dorodnitsyn (Dorodnitsin), Anatolii A., D. Tech. S. Born in November 1910 in the village of Bashino in Tula Province. Russian mathematician, geophysicist, and specialist in mechanics. He has been an academician since 1953. He was originally elected to the Physical Mathematical Sciences Department. He graduated from the Grozny Petroleum Institute in 1931. From 1941 to 1955, he worked at the Central Aerohydrodynamics Institute and at the Mathematics Institute of the AN SSSR. He has been a professor at the Moscow Physico-Technical Institute since 1947. In 1955, he became Director of the Computer Center of the academy, which provides computer support to academy institutes in the Moscow area and conducts mathematical research. Its research includes studies on gas dynamics, large-scale systems, heat and mass transfer, and technical cybernetics. Dorodnitsyn (Dorodnitsin)'s own researches are principally in dynamic meteorology, aerodynamics, and applied mathematics. He has studied the asymptotic behavior of the solutions of several classes of nonlinear differential equations. He developed a vortex theory of wings of complex forms and proposed methods for computing asymmetric supersonic gas fluids. He derived a numerical method in integral relations for the solutions of partial differential equations as well as methods for numerical solutions of the Navier-Stokes equations. He has theoretically described air flows over mountain ranges. He has constructed a theory of boundary layers in a compressible gas. He received the State Prize in 1946, 1947, and 1951. In 1978, he received the A. N. Krilov Prize in engineering and mathematics for his research. (GSE 8, p. 383 and 574.)

Ershov, Iurii L., D. PM. S. Born in 1940 in Novosibirsk. Russian mathematician. Since 1970, he has been a corresponding member of the AN SSSR and the RAS and also a member of the Siberian Department, and an academician since 1990. He has authored 103 scientific pieces of which two major monographs are significant--"The Theory of Numbers" (1977) and "The Solution of Problems in Constructing Models" (1980). He has co-authored 12 publications of which the most famous is "Mathematical Logic." He graduated from the University of Novosibirsk in 1963 becoming a professor there in 1967. In 1967, he was Head of a Department in Mathematical Logic, holding the chair in algebra and mathematical logic. From 1973 to 1976, he served as dean of the mathematical faculty at the Novosibirsk University. He was named rector in 1985. His works include the theory of algorithms, the theory of models, and number theory. Since 1968, he has been a member of the Association for Symbolic Logic. He has been on the Presidium of the Siberian Department since 1986. He is on the Scientific Council on the problems of mathematical modeling of the AN SSSR and the Russian Academy of Sciences. He is also on the Accreditation Commission for Symbolic Logic. He is an honored Scientist of the Soviet Union and the editor of a scientific journal. (GSE 9, p. 134.)

Faddeev, Ludwig D., D. PM. S. Born in March 1934 in Leningrad. Mathematician and theoretical physicist. Academician of since 1976. Member of the Presidium since October 1988. He graduated from Leningrad State University in 1956. He became a professor at Leningrad State University in 1969. From 1976 to 1987, he served as Deputy Director of the V. A Steklov Mathematics Institute in St. Petersburg. In November of 1987, he became its Director. The institute has operated since 1934 as the Leningrad (St. Petersburg) independent branch of the Moscow Steklov Mathematics Institute. It conducts research on mathematical physics, logic and numbers theory. Faddeev is also Head of the Numbers Theory and Modern Algebra Department of the institute. His works deals primarily with mathematical and theoretical physics. His studies of the three-body problem of quantum mechanics

produced the Faddeev equations in 1963. He proposed a solution for the inverse problem in scattering theory for the N-dimensional Case in 1966. In 1967, he developed a method for quantifying fields with infinite dimensional symmetry groups such as the Yang-Mills field and the Einstein gravitational field, by means of continual integration. In 1975, he formalized the quantification of particle-like solutions (solitons) of field-theory equations. Methods developed by him are employed in various fields of mathematics, in quantum mechanics, and in the theory of elementary particles. From 1985 to 1987, he served as Vice President of the International Mathematical Union when he became President. He was on the editorial board of Science in Russia. In 1971, he received the State Prize and in 1975, he was the recipient of the prestigious Dannie Heineman Prize for Mathematical Physics of the American Physical Society. (GSE 27, p. 86.)

Fomenko, A. T. Russian mathematician. In 1995, he was a Deputy to the Academician Secretary of of the Academy. (938-18-12, 939-39-48)

Gel'fand, (Gelfand) Izrail M., D. PM. S. Born in August 1913 in the small town of Okna now located in the Odessa Oblast. Russian mathematician. He has been a corresponding member of of the Academy since 1953 and an academician since 1984. He has been a professor at Moscow State University since 1943 and served as President of the Moscow Mathematical Society from 1966 to 1970. In 1940, Gelfand constructed the theory of commutative normed rings, that--although only one of the chapters in his book--subsequently served as the starting point for the theory of rings with involution. This theory of infinite-dimensional representations of groups developed by Gelfand had another starting point, and was subsequent to normed rings. He has made contributions to the theory of generalized functions, the theory of topological linear spaces, dynamic systems, automorphic functions, inverse problems in spectral analysis, and computational methods. He has also done significant work in the cytology and neuro-physiology of the cerebellum. Since 1976, he has been Head of the Bionics Laboratory of the M. V. Keldysh Applied Mathematics Institute (Moscow) that was established in 1966 to research space vehicle design, cybernetics, computer software, robotics, MHD, and laser fusion. He is an honorary foreign member of the Academy of Arts and Sciences in Boston (1964), the London Mathematical Society (1966), the Irish Academy of Sciences (1970), and the National Academy of Sciences in the United States (1970.) (GSE, 6, p. 158.)

Godunov, Sergei K., D. PM. S. Born in 1929. Mathematician Specialist in applied and computer mathematics and the theory of differential equations. He has been a corresponding member of since 1976; an academician since 1993. He graduated from the Moscow State University in 1951 and began work at the V. A. Steklov Mathematics Institute and at the Institute of Applied Mathematics of the AN SSSR and the RAS. He was also given a professorship at Moscow State University. In 1969, he joined the staff of the computer center of the Siberian Department of the AN SSSR. Since 1978, he has been Head of the Mathematics and Physics and Chemistry Laboratory and Head of the Applied Mathematics Department of the Novosibirsk Computer Center. From 1969 to 1980, he worked at the Computer Center, and in 1981 he was named Deputy Director of that institute. Since 1986, he has been acting Director of the Computer Center in Novosibirsk that conducts research on applied mathematics, long-range weather forecasting, formulation of mathematical models, and the development of computational methods. His work has been in numerical methods of solving equations of mathematical physics and the qualitative investigation of quasi-linear hyperbolic equations. He has been a professor at the Novosibirsk State University since 1977, holding a chair in differential equations. He has been director of the Mathematics Institute from 1982 to 1986. Honored Scientist and editor of a journal. Lenin Prize in 1959, the A. N.

Krilov Prize in 1972. Recipient of a number of medals and recognitions for his scientific contributions. (GSE 30, p. 380.)

Gonchar, Andrei A. Born in 1931 in Leningrad. Russian mathematician. Corresponding member of since 1974, and academician since 1987. He became Academician Secretary of the Mathematics Department in October 1988 and served until 1992. He is currently one of the Vice Presidents of the Russian Academy of Sciences. He graduated from Moscow State University in 1954 becoming a professor there in 1967. Since 1965 he has been associated with the V. A. Steklov Institute of Mathematics of the AN SSSR and the RAS. His work includes the theory of analytic functions and the theory of approximations. (GSE 30, p. 386.)

Ladyzhenskaia (aya), Olga A., D. PM. S. Born in 1922. Corresponding member of the AN SSSR since 1981; academician of the RAS in 1992. Since 1962, she has been Head of the Mathematics Physics Department of the V. A. Steklov Mathematics Institute Branch Institute in St. Petersburg. According to one Russian Mathematician, she is the best specialist on partial differential equations in Russia--if not in the world.

Lavrentiev, Mikhail M. Born in July 1932 in Moscow. Russian mathematician. He has been a corresponding member of of the AN SSSR since 1981; academician of that department since 1992. He graduated from Moscow State University in 1955. He joined the Siberian Department in 1957. He has been a professor at the Novosibirsk State University since 1963, holding the chair in mathematical problems in geophysics. From 1980 to 1986, he directed the Computer Center of the Siberian Department. In 1986 he was named Director of the Mathematics Institute in Novosibirsk that was founded in 1957 to research theoretical and applied mathematics. He is the son of M. A. Lavrentiev, the first Head of the Siberian Department. He was named to the Presidium of the Siberian Department in 1987. Since 1988, he has been Head editor of the Siberian Mathematics Journal. He is a member of the Society of Mathematical Geology. Honored scientist of the former Soviet Union. He received the Lenin Laureate Prize in 1962, the State prize in 1987. Recipient of a number of other medals and recognitions. He has been a member of Mathematics Department Bureau (governing body) of the Russian Academy of Sciences in Moscow since the early 1990s. (35-44-50-Novosibirsk) (GSE 14, p. 302.)

Marchenko, Vladimir A., D. PM. S. (Mathematical Physics) Ukrainian Mathematician. Born in 1922. Recipient of the Lenin Prize in 1962. Academician of the Mathematics and Cybernetics Department of the Ukrainian Academy of Sciences since 1969. Awarded the N. M Krilov Prize in Mathematics, Mathematical Physics and Theoretical Cybernetics in 1983. Academician of of the AN SSSR since December 1987. Recipient of the State Prize for Science and Technology in 1989.

Maslov, Viktor P., D. PM. S. Born in 1930. Academician of of the Academy since 1984. He was awarded the State Prize in Science and Technology for a series of work done with others from 1973-to 1976. In 1983, he received the A. M. Liapunov Gold Medal for his mathematical contributions to Russian science. In 1985 he received the Lenin prize for his work "Global Asymptotic Methods of the theory of Linear Equations with Partial Derivatives."

Mishchenko, E. F., D. PM. S. Born in March 1922 in Moscow. Russian mathematician. He has been a corresponding member of the academy since 1951 and an academician since 1984. He graduated from Moscow State University in 1951, becoming a professor at the Moscow Physico-Technical Institute in 1959. He joined the staff of the V. A. Steklov Mathematics Institute in Moscow in 1951 and since 1967, has served as its Deputy Director. His work has dealt with the ordinary differential equations and their applications to the theory of vibrations. He also works in control theory. He has received numerous recognitions, including the Lenin Prize which he received in 1962. (GSE 30, p. 563.)

- Mitropol'skii, (Mitrolpolskii) Iurii A.,** D. Tech. S. Born in 1917. Ukrainian Mathematician. Academician of the Ukrainian academy since 1961. Since 1966, Academician Secretary of the Mathematics and Cybernetics Department of the Ukrainian Academy of Sciences. Academician of of the AN SSSR since 1984. Recipient of the State Prize for Science and Technology in 1980. Since 1958, he has been Director of the Mathematics Institute in Kiev which is subordinate to of the Ukrainian Academy of Sciences. Awarded the V. I Vernadskii Prize for Geology, Geochemistry and Hydrophysics in 1985. Ukraine Academy of Sciences Hero of Socialist Labor Prize recipient in 1986. In 1986, he received the A. M. Liapunov Gold Medal for his scientific contributions to Russian science.
- Nikolskii, Sergei M.,** D. PM. S. Born in April 1905 in Talitsa, Ekaterinburg (Sverdlovsk) Oblast. Russian mathematician. He has been a corresponding member of the academy since 1968 and an academician since 1972. He graduated from Ekaterinoslav Institute of Public Education (now the University of Dnepropetrovsk) in 1929. He started work at the university in Dnepropetrovsk in 1939 and in 1940 he moved to the V. A. Steklov Institute of Mathematics in Moscow. In 1947, he became a professor at the Moscow Physico-Technical Institute. His work deals primarily with functional analysis, the theory of approximation of functions, the theory of imbedding of classes of differentiable functions of many variables, direct methods of calculus of variations and the theory of boundary value problems for partial differential equations. His approximation theory studies are important. He found asymptotically exact estimates for approximation of functions by trigonometric and algebraic polynomials. He developed a theory of optimal quadrature formulas. Nikolskii developed methods of approximation by entire exponential-type functions that enabled him to derive direct and inverse imbedding theorems for generalized Holder classes of functions of many variables. He also provided new formulations of boundary value problems for high order elliptic equations with strong degeneracy at the boundary and investigated these formulations by a variational method. State Prize, 1952, and the P. L. Chebyshev Prize, 1972. (GSE vol. 18, p. 215 and vol. 20, p. 15.)
- Novikov, Sergei P.,** D. PM. S. Born in March 1938 in Gorkiy. Russian mathematician. He has been a corresponding member of the academy since 1966 and an academician since 1981. He graduated from Moscow State University in 1960. He became a professor at Moscow State University in 1966. Since 1963, he has worked at the V. A. Steklov Institute of Mathematics. His main works deal with geometry and topology and associated problems in algebra and the general theory of relativity. Since 1978, he has acted as Head of the Mathematics Laboratory of the L. D. Landau Theoretical Physics Institute in Moscow, that was created in 1965 from the Physical Problems Institute. The Landau institute is engaged in research in all aspects of theoretical physics, especially the theory of solids. The main branch of this institute is located in Chernogolovka. Lenin Prize, 1967, and the Fields Prize of the International Mathematical Union, 1970. In 1980, he received the N. I. Lobachevskii Prize in mathematics. (GSE vol. 18, p. 308 and vol. 27, p. 192.)
- Platonov, Vladimir P.,** D. PM. S. Born in 1939. Belorussian Mathematician. Academician of the Belorussian academy's Physical and Mathematical Sciences Department since 1972, and an academician of of the AN SSSR since 1987. He was elected President of the Belorussian Academy of Sciences in March 1987. He has been the Director of the Mathematics Institute in Minsk since 1977. Founded in 1959, the institute is primarily a school studies in advanced mathematics for those who have received their candidate degree.
- Pogorelov, Aleksei V.,** D. PM. S. Born in March 1919 in Korocho in what is now Belgorod Oblast. Ukrainian Mathematician. He was a corresponding member of the academy from 1960 and an academician of of the AN SSSR since 1976. He is an academician of the RAS. He was originally elected to the Physical and Mathematical

Sciences Department. He has been a corresponding member of the Ukrainian academy since 1951 and an academician of the Mathematics and Cybernetics Department of the Ukrainian academy since 1961. Since 1978, he has been on the Presidium of the Ukrainian Academy of Sciences. He graduated from the N. E. Zhukhovskii Air Force Engineering Academy in 1945, and taught at the University of Kharkov from 1947. He joined the Physics Technical Institute of Low Temperatures of the Ukrainian AN SSSR in 1960. He developed a complete theory of convex surfaces and has done research on bending of surfaces. He has published studies on the foundations of geometry and on the development and successful application of far-reaching geometric methods for the study of deformations of thin shells. He was a Deputy to the 8th Convocation of the Supreme Soviet of the Ukrainian SSR. State Prize, 1950; the N. I. Lobachevskii Prize, 1959, and the Lenin Prize, 1962. (GSE 20, p. 260.)

Prokhorov, Iurii V., D. PM. S. Born in December 1929 in Moscow. Russian mathematician. He has been a corresponding member of the academy since 1966 and an academician since 1972. He graduated from Moscow State University in 1949 and became a professor there in 1957. He began working at the V. A. Steklov Mathematics Institute in 1949. His principal works are in probability theory, particularly asymptotic methods. He has researched classical limit theorems, investigating conditions under which the strong law of large numbers and other so-called local theorems can be applied to sums of independent random variables. He has made major contributions to the queuing theory. Since 1969, he has been a Deputy Director of the V. A. Steklov Mathematics Institute in Moscow, that was established in 1921 and that does research in pure mathematics and mathematical physics. Since 1976, he has been Head of the Probability Theory Department of the Steklov Institute. He received the Lenin Prize in 1970. (GSE 21, p. 257.)

Reshetniak, Iurii G., D. PM. S. Born in 1929. Russian mathematician. Specialist in Differential Geometry. Corresponding member of AN SSSR from 1981, and academician from December 1987. Academician of the Russian Academy of Sciences. Since 1968, he has been a senior researcher and Head of the Geometry Department of the Mathematics Institute in Novosibirsk. He graduated from the Leningrad State University in 1961 and worked in the Leningrad Department of the Mathematics Institute imeni V. A. Steklov from 1954 to 1957. In 1957, he joined the Mathematics Institute in Siberia, becoming a Department Head (geometry) in 1960. He has been a professor at the Novosibirsk State University since 1962, holding the chair of mathematical analysis.

Shafarevich, Igor R., D. PM. S. Born in 1923 in Zhitomir. Russian Mathematician. Corresponding member of AN SSSR from 1958; academician of the RAS in 1993. Originally elected to the Physical and Mathematical Sciences Department. He graduated from Moscow State University in 1940 and started teaching there in 1944; he became a professor in 1953. In 1943, he was associated with the Institute of Mathematics of the AN SSSR. His works are in algebra and the theory of algebraic numbers. Lenin Prize, 1959. (GSE 29, p. 516.)

Vitushkin, Anatolii G. Born in 1931 in Moscow. Russian mathematician. Corresponding member of the AN SSSR from 1976; academician of the RAS since 1991. He graduated from Moscow State University in 1954. He joined the Steklov Institute of Mathematics staff in 1965. His works are in mathematical analysis and its application. (GSE 30, p. 679.)

Vladimirov, Vasilii S., D. PM. S. Born in 1923 in Leningrad Oblast. Russian mathematician. He became an academician of the Academy in 1970, and Deputy Academician Secretary of the Department in August 1988. He graduated from Leningrad State University in 1948. He began working at the V. A. Steklov Institute that same year. In August 1988, he was selected to be the Director of the famous V. A. Steklov Mathematics Institute in Moscow, where he also heads the Department of

Mathematical Physics. His works are on transport equations, quantum field theory, generalized solutions of equations in convolutions, holomorphic functions of many complex variables, the theory of multi-dimensional linear passive systems, the geometric theory of numbers, quadratic formulas for functional integrals, the Monte Carlo method, and subharmonic functions. He received the State Prize in 1953. In 1971 he received the Presidium's Gold Medal named after A. M. Liapunov for mathematics. (GSE 5, p. 535.)

Corresponding Members

Adyan, Sergei I., D. PM. S. Corresponding member of the Academy in 1991. Since 1977, he has been Head of the Mathematical Logic Department of the V. A. Steklov Mathematics Institute in Moscow.

Bogliubov, Nikolai N., Ir., D. PM. S. Born in 1940. Corresponding member AN SSSR from 1984. Since 1978, Head of a laboratory of the Field Quantum Department of the V. A. Steklov Mathematics Institute in Moscow. He is a son of the Russian mathematician and theoretical physicist who, in 1978, headed the Field Quantum Department. He is a specialist in mathematical physics.

Gamkrelidze, Revaz V., D. PM. S. Born in 1927. Russian Mathematician. He has been a corresponding member of the AN SSSR from 1981. Since 1969, he has also been an academician of the Physical and Mathematical Sciences Department of the Georgian Academy of Sciences. Corresponding member of the RAS.

Ibragimov, Ildar Ab. Born in 1932. Corresponding member of the Academy since 1990. Since 1992, he has been a member of the Bureau (governing body) of the Mathematics Department. He is a specialist in the theory of probability.

Imanaliev, Murzabek I., D. PM. S. Born in 1931. Kirghizian Mathematician. Since 1979, academician of the Physical, Technical, and Mathematical Department of the Khirgiz Academy of Sciences, and from 1981, a corresponding member of the AN SSSR. From 1979 to 1986, he served as President of the Kirghizstan Academy of Sciences. He is a member of the RAS. (LDA 87-11012.) (LDA 89-11378.)

Kostrikin, Aleksei I., D. PM. S. Born in 1929 in Volgograd Oblast. Soviet mathematician. Corresponding member of the Academy since 1976. He graduated from Moscow University in 1952 and was appointed professor there in 1976. In 1956, he joined the staff of the V. A. Steklov Institute of Mathematics of the academy. His works include Lie algebras and their applications to finite groups. State Prize, 1968. (GSE 30, p. 535.)

Kozlov, Vladimir Ia. Born in 1914 in Moscow. Russian mathematician. Corresponding member since 1966. He graduated from Moscow State University in 1937 and has been a professor there since 1952. His works are principally in the theory of functions of a real variable. (GSE 12, p. 632.)

Kudriavtsev, Lev D., D. PM. S. Born in 1923. Corresponding member of the Academy since 1984. Since 1968, he has been Deputy Director of the V. A. Steklov Mathematics Institute in Moscow which was established in 1921. It carries out research in all branches of pure mathematics as well as mathematical physics.

Kuznetsov, Nikolai V. Corresponding member of the AN SSSR from December 1987. He is a member of the RAS. (LDA 89-11378.)

Lupanov, Oleg B., D. PM. S. Born in 1932 in Leningrad. Russian Mathematician. Corresponding member of the Academy since 1972. He graduated from Moscow State University in 1955 and became a professor there in 1964. He had begun work at the Institute of Applied Mathematics of the AN SSSR in 1954, and had been promoted to senior research worker in 1960. His works have included mathematics problems in cybernetics and mathematical logic. He has investigated the asymptotic laws of complexity of control systems. Lenin Prize, 1966. (GSE 15, p. 188.)

Mergelian, Sergei N., D. PM. S. Born in 1928 in Simferopol. Russian mathematician. Corresponding member of the AN SSSR from 1953. Originally elected to the

Physical and Mathematical Sciences Department. He is an academician of the Physics and Mathematics Department of the Armenian Academy of Sciences. Since 1971, he has been Vice President of the Armenian Academy of Sciences. He graduated from Erevan University in 1947, and worked there from 1945 to 1957. From 1954 to 1958 and from 1964 to 1968, he worked at Moscow State University. From 1950 to 1960, he was Director of the SRI of Mathematical Machines and of the Computing Center of the Armenian Academy of Sciences. From 1961 to 1971, he worked at the Institute of Mathematics of the AN SSSR. His works include the theory of functions of a complex variable, the theory of approximation, and the theory of potential and harmonic functions. He served as a Deputy to the 5th, 6th, 7th, and 8th convocations of the Supreme Soviet. State Prize, 1952. He is a member of the RAS. (GSE 16, p. 136.)

Mikhailov, Gennadii A., D. PM. S. Born in 1934. Specialist in methods of statistical modeling, computer mathematics and mathematical systems. Corresponding member of the Siberian Department (1984) and the Mathematics Department of the Academy since 1990. He graduated from the Leningrad State University in 1956. He worked on business development. In 1965 he joined the Computer Center of the Siberian Department in Akademgorodok where he successively worked as a senior researcher, Head of the Monte Carlo Laboratory (1966), and Head of the Department of statistical modeling in physics in 1986. He has been a professor since 1974, holding the chair in computer mathematics at the Novosibirsk State University. Lenin Prize in 1962, and the State Prize in 1979. In 1979, winner--with others--of the State Prize in Science and Technology for a cycle of works on the development and application of statistical modeling methods for the solution of multidimensional tasks of radiation transfer. In 1981, he was awarded the S. A. Lebedev Ukrainian SSR Academy of Sciences Prize for the development of computer storage elements and devices--among a group of authors. He is a member of the RAS.

Napalkov, Valentin V. Born in 1941. Elected as a corresponding member of the Russian Academy in 1990. Currently he is Director of the Institute of Mathematics with Computing Center of Ufa's Scientific Center of the RAS.

Plotnikov, Pavel I., D. PM. S. Born in 1947. Specialist in differential equations and their application of the study of wave motion in liquids. Corresponding member of the Academy since 1990. Scientific researcher of the Institute of Hydrodynamics of the Siberian Department of the RAS. His reputation rests primarily upon his work on the motion of liquids in various states.

Pokhozhaev, Stanislav I., D. PM. S. Born in 1935. Corresponding member of the AN SSSR from 1984. He is a specialist in Mathematical Analysis and is a member of the staff of the Steklov Mathematics Institute.

Romanov, Vladimir G., D. PM. S. Born in 1938. Specialist in mathematical physics and differential equations. Corresponding member of the AN SSSR from December 1987. He graduated from the Moscow State University in 1961 and worked from 1961 to 1965 at the Mathematics Institute of the Siberian Department. From 1965 to 1987, he worked at the Computer Center of the Siberian Department, as a junior and senior researcher and as Head of a laboratory. In 1987, he was Head of a laboratory and Deputy Director of the Mathematics Institute. He has been a professor at the Novosibirsk State University since 1974, holding the chair in mathematical methods in geophysics. Honored scientist. Laureate State Prize in 1987. He is a member of the RAS. (LDA 89-11378.)

Rusanov, Viktor V., D. PM. S. Born in 1919 in Kirov. Soviet mathematician. Corresponding member of the Academy since 1976. He graduated from the A. F. Mozhaiskii Air Force Academy in Leningrad. In 1954, he joined the staff of the Institute of Applied Mathematics of the AN SSSR. Since 1967, he has been Deputy Director of the M. V. Keldysh Applied Mathematics Institute in Moscow, which is

subordinate to the Information Science, Computer Technology and Automation department of the academy. His works have been in computer mathematics, applied mathematics, and mathematical physics. State Prize, 1967. He was a member of the Mathematics Department Bureau governing body. (GSE 30, p. 621.)

Sevastianov, Boris A., D. PM. S. Born in 1933. Specialist in theory probability and cybernetics. He is currently on the staff of the Steklov Mathematics Institute. Corresponding member of the AN SSSR since 1984. He is a member of the RAS.

Ulianov, Petr L., D. PM. S. Born in 1928. Specialist in mathematical analysis. He is on the faculty of Moscow State University. Corresponding member of the AN SSSR since 1981. He is a member of the RAS.

Yablonskii, Sergei V., D. PM. S. Born in 1924 in Moscow. Russian mathematician. Corresponding member since 1968. He graduated from Moscow State University in 1950 and became a professor there in 1963. In 1953, he joined the staff of the Institute of Applied Mathematics of the AN SSSR. His specialties include general problems of the theory of control systems, functional systems and operations, the monitoring and reliability of control systems, and algorithmic difficulties in designing control systems. Lenin Prize, 1966. (GSE 30, p. 406.)

Honorary Members elected in October 1996 to membership in the Academy for Mathematics: A. Alfors (USA), M. Atiyah (England), G. Iliev (Bulgaria), L. Karleson (Sweden), I. Lax (USA), I. Leray (France), I. L. Lions (France), I. W. Milnor (USA), I. Moser (Schweiz), C. Olech (Poland), B. Szokefalvi-Nagy (Hungary), H. Hironaka (Japan), F. Hirzebruch (BRD).

Mathematics Department Institutes:

In 1989, the Mathematics Department had only two Scientific Research Institutes under its subordination. They are, however, the most important mathematics institutes in Russia and mathematics remains the basic science for all scientific endeavors in Russia.⁵

In 1984, the academy moved the computer centers that had previously been subordinate to the Mathematics Department to the new Information Science, Computer Technology, and Automation Department. In 1995, the Mathematics Department had six institutes affiliated with it and two major national committees under its guidance and direction.

In 1996, The two Steklov Institutes--the one in Moscow and its branch in St. Petersburg--have been joined by three additional institutes--the L. Eiler International Mathematical Institute under Professor Faddeev, the Institute of Computing Mathematics under Gurii Marchuk, the Institute of Mathematics and Computing Center under Academician Valentin V. Napalkov. The Mathematics Department also carries out scientific-systematic direction of two other institutes attached to universities: the Scientific-Research Institute of Applied Mathematics and Mechanics attached to Moscow State Technical University named after N. E. Bauman under the direction of Professor Vitalii V. Savichev; and the Scientific-Research Institute of Mathematics and Mechanics named after N. G. Chebotarev which is attached to the V. I. Lenin Kazan State University and under the direction of Professor Aleksandr V. Kosterin. The Mathematics Department is also the center for two national

committees: The National Committee of Mathematicians of the Russian Federation, and the National Committee of Bernoulli Society on Mathematical Statistics, Probability Theory, Combinatorics and its Application.

1. The V. A. Steklov Mathematics Institute of the Russian Academy of Sciences in Moscow

42 Vavilov st. Moscow U-333, GSP-1, 117966. Tel. 135-22-91. For telegrams: Moscow V-333 Mathematics. Under the direction of Iurii S. Osipov, President of the Russian Academy of Sciences. Tel. 135-22-91.

[The material below is taken from the Steklov Institute homepage on the internet of the Mathematics Department of the Russian Academy of Sciences, dated late 1995. I have reproduced it here with only very minor editing because it is an important historical statement.]

[Retrospect: The scientific history of the Institute goes back to the pre-revolutionary epoch. Mathematics in Russia was actively and harmonically developed. The level of mathematical education was rather high in a number of Universities. There were several active mathematical communities grouped around outstanding researchers. At the origin of the Petersburg school was great Euler. A large contribution to the development of mathematics was made by M. V. Ostrogradskii One should also mention the founder of the famous Petersburg school P. L. Chebyshev and his followers A. M. Lyapunov, A. A. Markov, S. V. Kovalevskaja (aya), E. I. Zolotarev, [and] V. A. Steklov These scientists, together with some others, are part of Russia's national pride. Very famous was the Kazan' mathematical school founded by N. I. Lobachevskii.

However the development of mathematics in the pre-revolutionary Russia was not sufficient enough. In particular at the Academy of Sciences there were no scientific institutions devoted specifically to research in mathematics.

The situation changed radically after the Revolution in 1917, when rapid growth of education and science was initiated. V. A. Steklov, an outstanding researcher in mathematics and mechanics, who was elected the Vice President of the Russian Academy of Sciences in 1919, founded the Mathematical Cabinet of the Academy of Sciences and in 1921--at his initiative--the Institute of Physics and Mathematics was established, which included the Mathematical Cabinet, the Physics Laboratory, and a network of Seismology Stations. A small group of outstanding mathematicians and physicists was invited to work at the Institute. After V. A. Steklov's death in 1926 the Institute was given his name. In 1928 A. N. Krylov, an outstanding mathematician and engineer, became the Director of the Steklov Institute of Physics and Mathematics. It should be noted that until the beginning of the early 1930s the activity of the Institute was rather limited.

In 1929, I. M. Vinogradov was elected a member of the Academy of Sciences of the USSR The President of the Academy requested a special Committee, which included A. N. Krylov and A. M. Vinogradov, to work out a plan of division and transformation of the Institute of Physics and Mathematics into two leading scientific centers, one in Mathematics and one in Physics.

In 1932, the Institute of Physics and Mathematics was divided into two independent Departments, the Mathematics Department headed by Academician I. M. Vinogradov and the Physics Department headed by Academician S. I. Vavilov.

I. M. Vinogradov invited to his Department of Mathematics some famous scientists as well as several young bright mathematicians. Among the older members of the Department were S. N. Bernshtein, B. N. Delone, N. N. Luzin, N. I. Muskhelishvili, V. I. Smirnov, R. O. Kuz'min, N. S. Koshliakov; the younger group included N. E. Kochin, S. L. Sobolev, D. K. Faddeev, A. D. Kupradze and others. Mathematicians from both Leningrad and Moscow became members of the Department.

At the time when the Institute was founded, its policies and the goals of its activity were formulated, which are still in effect: the development of the most modern mathematical theories and their applications; organization of groups of first class mathematicians to develop jointly the most important scientific directions; the invitation of gifted young mathematicians to join mathematical research; and the education of high quality specialists for remote regions of the country and for the Union Republics.

On April 28, 1934, at the general meeting of the Division of Mathematical and Natural Sciences of the Academy of Sciences of the USSR, a decision was made to transform the Departments of the Steklov Institute of Physics and Mathematics into independent Institutes, the Steklov Mathematical Institute and the Lebedev Physical Institute. Ivan Matveevich Vinogradov and Sergei Ivanovich Vavilov became the Directors of these new founded Institutes. The library of the Institute of Physics and Mathematics, which consisted mostly of private libraries of several outstanding Russian scientists, including A. M. Lyapunov, A. A. Markov, V. A. Steklov, was divided between the Mathematical and the Physics Institutes. In 1934, the Steklov Mathematical Institute, together with some other institutions of the Academy, was moved from Leningrad to Moscow.

During 1934-1935, A. O. Gelfond, M. V. Keldysh, (Keldish) M. A. Lavrent'ev, L. A. Lyusternik, A. A. Lyapunov, K. K. Mardzhanishvili, P. S. Novikov, P. Ya. Polubarinova-Kochina, L. S. Pontryagin, S. A. Khristianovich, A. L. Shnirelman and others worked at the Mathematical Institute. Thus, among the members of the Institute were outstanding mathematicians from both Leningrad and Moscow.

In 1935, the Institute had the following Departments: Number Theory (headed by I. M. Vinogradov); Algebra (B. N. Delone); Topology and Functional Analysis (L. S. Pontryagin); Theory of Functions of Real Variables (N. N. Luzin); Theory of Functions of Complex Variables (M. A. Lavrent'ev); Theory of Differential Equations (S. L. Sobolev); Theory of Elasticity (N. I. Muskhelishvili); Mechanics of Continuous Medium (N. E. Kochin); Approximate Methods of Analysis (A. M. Zhuravskii).

Thus, already in 1934-1935, an outstanding scientific center was organized with many researchers known for their deep and important scientific contributions. At the Institute new scientific schools were originated which brought world-wide fame to Soviet mathematics.

A rather small but powerful group of the Institute members was very active. I. M. Vinogradov himself was a very persistent and selfless researcher. With great inspiration he developed his new method in analytic number theory. This work culminated when in 1937 he obtained estimates of trigonometric sums over prime numbers which led to the solution of a large class of additive problems with prime numbers. I. M. Vinogradov's work was highly appreciated by the international

mathematical community and introduced him into the prestigious foreign Academies and Societies.

In 1938-1939, a number of leading mathematicians from Moscow University joined the Institute still keeping their positions at the University. Among them were P. S. Aleksandrov, I. M. Gel'fand, A. N. Kolmogorov, I. G. Petrovskii, and A. Ya. Khinchin. The Department of Probability and Statistics was organized at this time at the Institute and it was headed by A. N. Kolmogorov.

In 1940, the Leningrad (now Sankt-Petersburg) Branch of the Mathematical Institute was founded. Among its members were A. D. Aleksandrov, L. V. Kantorovich, Iurii V. Linnik, A. A. Markov, D. K. Faddeev. The same year the Department of Mechanics of the Institute was transformed into the Institute of Mechanics of the Academy of Sciences. N. E. Kochin, P. Ya. Polubarinova Kochina, S. A. Khristianovich left the Mathematical Institute to join the new Institute.

In 1941, the first Stalin prizes (now they are called State prizes) were awarded. Among mathematicians the recipients were I. M. Vinogradov, A. N. Kolmogorov, N. I. Muskhelishvili, S. L. Sobolev, L. S. Pontryagin, A. Ya. Khinchin. At the beginning of the Great Patriotic War the Academy of Sciences was evacuated from Moscow. The Mathematical Institute was moved to Kazan'. In the spring of 1943, the Institute was moved back to Moscow. From October 1941 to February 1944, the Director of the Institute was S. L. Sobolev.

The War destroyed the international scientific relations of Soviet scientists. The restoration of these relations started at the end of the war. In 1944, the Academy of Sciences of the USSR celebrated 220 years of its existence. A number of outstanding foreign scientists came to Moscow to take part in the celebration. Some of them gave lectures at the Mathematical Institute. In the same year I. M. Vinogradov was awarded the title of a Hero of Socialist Labor.

In the years after the War I. M. Vinogradov, who became a member of the British Royal Society, was the first among Soviet mathematicians to go abroad. In the Autumn of 1946, he went to England to attend celebrations on the occasion of 300th birthday of Isaac Newton. In 1948, after the war, the first delegation of Soviet mathematicians went abroad. The delegation, included three members of the Institute: P. S. Aleksandrov, A. N. Kolmogorov and K. K. Mardzhanishvili, who attended the Congress of Polish Mathematicians in a Warsaw destroyed by Hitler troops.

In spite of its small size, the Mathematical Institute has played a leading role in the development of Mathematics as well as in the organization of mathematical activity in Russia. In the international relations of Russian mathematicians, the Steklov Mathematical Institute continues to play a leading role. The National Committee of Soviet mathematicians from the time of its establishment in 1957, has been closely connected with the Institute. Members of the Institute--P. S. Aleksandrov, M. A. Lavrent'ev, L. S. Pontryagin, Iurii V. Prokhorov, and L. D. Faddeev--have represented Russian Mathematics in the International Mathematical Union. L. D. Faddeev from 1986 to 1990, was the President of the International Mathematical Union.

The Mathematical Institute participates in the organization of almost all international mathematical conferences in Russia. The Institute also has played a special role in all recent International Mathematical Congresses. Usually a large number of the

invited speakers consist of the Institute members and former Soviet and later Russian delegations were and are headed as a rule by prominent scientists from the Institute.

In the years after the War the connection between the topics developed at the Institute and the applied problems important for the country became stronger.

The Departments of Theoretical Physics and of Applied Mathematics were organized and the Department of Mechanics was reestablished. In the 1940s and the 1950s the Institute (both in Moscow and its branch in Leningrad) took active part in the research and in practical computations connected with creation of the nuclear shield of our country. To work in the new Departments of the Institute such outstanding scientists as N. N. Bogolyubov, I. M. Gel'fand, A. A. Dorodnicyn, M. V. Keldysh, (Keldish) N. I. Muskhelishvili, A. A. Samarskii, A. N. Tikhonov, V. S. Vladimirov were thus employed. The applied problems were also actively studied by L. S. Pontryagin, Iurii V. Linnik, K. K. Mardzhanishvili, A. O. Gelfond, A. A. Markov, and N. V. Smirnov.

Theoretical research developed rapidly. The structure of the institute was in constant flux. At the Institute, besides those mentioned above, the following fulland corresponding members of the Russian Academy of Sciences continue to work: S. I. Adian, A. D. Alexandrov, D. V. Anosov, V. I. Arnold, A. V. Bitsadze, N. N. Bogolyubov, N. N. Bogolyubov (Ir.), L. N. Bolshev, L. D. Faddeev, A. T. Fomenko, R. V. Gamkrelidze, A. A. Gonchar, I. A. Ibragimov, V. A. Il'in, V. P. Korobeinikov, A. I. Kostrikin, L. D. Kudryavtsev, O. A. Ladyzhenskaia (aya), A. F. Leont'ev, Iurii V. Linnik, A. I. Mal'tsev, D. E. Men'shov, S. N. Mergelyan, E. F. Mishchenko, S. M. Nikol'skii, P. S. Novikov, S. P. Novikov, V. P. Platonov, S. I. Pohozaev, Iurii V. Prokhorov, B. A. Sevast'yanov, I. R. Shafarevich, A. A. Slavnov, P. L. Ul'yanov, I. N. Vekua, A. G. Vitushkin, V. S. Vladimirov, and others.

Although rather small in the number of researchers, the Mathematical Institute--due to its high scientific potential--has had a great impact on the creation of virtually all leading mathematical centers of our country, such as the Keldysh Institute of Applied Mathematics, the Computing Center of the Russian Academy of Sciences, the Institute of Mathematics of the Siberian Branch of the Academy (Novosibirsk), the Institute of Mathematics and Mechanics of the Urals Scientific Center (Ekaterinburg), the Institute of Mathematics with Computing Center in Ufa, the Institute of Applied Mathematics in Vladivostok with a branch in Khabarovsk, the Euler International Mathematical Institute in Sankt-Petersburg. Some of these Institutes originated at the Steklov Mathematical Institute itself, as Departments and Divisions, and others were organized by prominent members of the Institute who invited young researchers working in the Institute to the newly-founded Institutes. Moreover, the leading specialists of almost all Mathematical Institutes in Russia (and in the former USSR) were trained at the Steklov Mathematical Institute either as graduate students or as doctoral students or as visiting researchers.

In 1967, the Steklov Mathematical Institute was decorated with an Order of Lenin and in 1984, with an Order of the October Revolution.

After I. M. Vinogradov's death, the Directors of the Steklov Mathematical Institute were N. N. Bogolyubov (from 1983 to 1988) and V. S. Vladimirov (from 1988 to the present time). The position of the Vice-Director responsible for research activities was held at different times by I. N. Vekua, M. V. Keldysh, (Keldish) L. D.

Kudryavtsev, E. F. Mishchenko, S. M. Nikol'skii, I. G. Petrovskii, Iurii V. Prokhorov, and A. G. Sergeev. The Vice-Directors at the Leningrad (Sankt Petersburg) Branch have been A. A. Markov, N. P. Erugin, G. I. Petrashen, and L. D. Faddeev.

(1996 update)

The Steklov Mathematics Institute: In 1996, the institute had some 16 departments and/or laboratories, as compared with 10 in 1989.

1. Department of Mathematical Logic: The Department of Mathematical Logic at the Steklov Mathematical Institute was organized in 1957 at the recommendation of the second All -Union Mathematical Congress which was held in Moscow in 1956. The first Head of the Department was Petr Sergeevich Novikov. In 1973, by the request of P. S. Novikov , S. I. Adian was appointed Head of Department. The present staff of the Department, besides S. I Adian , are G. S. Makanin (since 1966), V. N. Grishin (since 1975), S. N. Artemov (since 1980), N. N. Repin (since 1984), A. A. Razborov (since 1987), I. G. Lysionok (since 1990) and L. D. Beklemishev (since 1991).

The traditional directions of research in the Department are connected with algorithmic problems of algebra and with combinatorial group theory. The results obtained at the Department always were among the most advanced results in the world in this area. One can mention here P. S. Novikov's result on non-solvability of the identity problem in Group theory (he received a Lenin prize for it in 1957); S. I. Adian's theorems on non-recognizability of group properties (a Chebyshev prize in 1963); a negative solution of the famous Burnside problem about periodic groups obtained by P. S. Novikov and S. I. Adian . The method of classification of periodic words introduced by them was improved and used for solution of a number of other well-known and difficult problems of group theory. One can also mention G. S. Makanin's results on existence of algorithms for recognition of solvability of arbitrary systems of equations in free groups and semigroups. Besides these traditional topics in the Department in recent years, the theory of proofs (S. N. Artemov, L. D. Beklemishev) and the theory of complexity of calculations (A. A. Razborov) were developed. A. A. Razborov, for his lower estimates of the complexity of calculations of Boolean functions, was awarded a Nevanlinna prize at the International Congress of Mathematicians in Tokyo. Members of the Department were invited speakers at the International Congress of Mathematicians in Stockholm (1962, P. S. Novikov), Nice (1970, S. I. Adian), Helsinki (1978, G. S. Makanin), Berkeley (1986, A. A. Razborov).

2. Laboratory of Analytic Number Theory: The Department of Number Theory was set up in 1934. I. M. Vinogradov was its Head from 1934 until 1983. At different times, K. K. Mardzhanishvili, A. O. Gelfond, B. I. Segal, L. G. Shnirelman, N. M. Korobov, A. G. Postnikov, L. P. Postnikova, N. V. Kuznetsov, K. I. Oskolkov, S. A. Stepanov, A. I. Vinogradov worked in the department.

The most brilliant research achievements in the Department include: a new method of estimates of H. Weil's sums and its applications in number theory; an asymptotic formula for the number of representations of an odd number by a sum of three prime numbers; and, as a corollary of this formula, the solution of the Goldbach problem; the theory of trigonometric sums with prime numbers; the solution of the seventh Hilbert problem on transcendency of the logarithms of algebraic numbers; rational approximations of linear forms of algebraic numbers and Diophantine

equations; an upper bound for the number of summands in the Hilbert--Kamke problem; elementary methods in additive problems on prime number; the study of the Waring problem and its generalization to non-integer indices; number theory methods in numerical analysis; the large sieve and its applications.

After I. M. Vinogradov's death, the Department was renamed as the Laboratory of Analytic Number Theory. At the present time its staff includes: A. A. Karatsuba, Head of Laboratory; G. I. Arkhipov, S. M. Voronin, V. A. Iskovskikh, and A. I. Pavlov. The members of the Department have made contributions to all main directions of analytic number theory as well as to some directions of applied mathematics, function theory and, algebraic geometry. In particular, a local method of trigonometric sums was suggested which was used to construct a theory of multiple trigonometric sums similar to the Vinogradov classical theory of Weil's sums; problems about the exponent of convergence of special integrals in the Terry problem and its generalizations were solved; the Hilbert--Kamke problem and its generalization to the multiple case were solved; it was proved that strong forms of the Artin hypothesis on the number of variable forms or systems of forms, representing non-trivial zero in local fields are false; a method of estimation of short sums of characters with modules equal to a power of a fixed prime number was discovered; new elementary methods were developed in the theory of distribution of prime numbers and in the theory of equations in finite fields; estimates of short sums of characters over shifted prime numbers in linear and nonlinear cases were obtained which are stronger than the results implied by the extended Riemann hypothesis; the universality of the Riemann zeta-function and its generalizations was proved; a new method of obtaining explicit formulae in additive problems of number theory was suggested; a strong version of the Hilbert problem on differential independence of the Riemann zeta-function and its generalization was proved; the A. Selberg hypothesis on zeros of the Riemann zeta function on short intervals of the critical line was proved; a theorem about the "exclusiveness" of the critical line for zeros of the Davenport--Heilbronn function and the Epstein zeta-function was proved; on the basis of the Vinogradov method new properties of solutions of the Cauchy problem for Schrodinger type equations with periodic initial data were found; local and global properties of sums of trigonometric series with real algebraic polynomials in the index of imaginary exponent were studied; algorithms of rapid multiplications of large numbers and of rapid calculation of elementary algebraic functions were found; new quadrature formulae were constructed; The non-rationality of some classes of three dimensional algebraic manifolds with zero differential-geometrical invariants was proved, in particular, the Luroth problem was solved; a birational theory of rational surfaces over an algebraic non-closed field was developed.

Closely related to the Laboratory research was the work carried out in the Institute by M. P. Mineev, who studied additive problems with rapidly increasing functions and by A. I. Pavlov, who worked on lacunar power series, the theory of substitutions with a given set of cycles and systems of equations in substitutions.

At the present time the actively developed topics at the Laboratory are the theory of multiple integrals, additive problems, the theory of distribution of prime numbers, the theory of Riemann zeta-functions and its generalizations, the theory of Dirichlet equations, the spectral theory of trigonometric series, the theory of birational automorphisms of three-dimensional Fano manifolds and defining relations in the Cremona group of a plane over an algebraic non-closed field.

3. Department of Algebra: The Department of Algebra was organized and for a long time headed by B. N. Delone. Due to his influence, the Department is still active in the theory of algebraic numbers and diophantine equations. Since 1960, the Head of Department has been I. R. Shafarevich. Since about the same time, the Department became active in algebraic geometry. The Department staff includes: A. I. Kostrikin, A. N. Parshin, A. N. Turin, V.A.Kolyvagin, V. N. Nikulin, S. A. Stepanov. At the Department, A. I. Malte, S. A. Chunikhin, I. M. Gel'fand, S. P. Demushkin, S. P. Novikov, A. I. Lapin, and M. M. Kapranov also worked at different times.

There are six main topics actively developed in the Department, namely:

The arithmetic of fields of algebraic numbers. The most famous results obtained here are the solution of the inverse problem of Galois theory for solvable groups, the investigation of the Galois groups of fields of p -adic numbers, the solution of the problem of class field tower.

The theory of Lie groups and algebras. At the time when A. I. Maltsev worked at the Department he obtained results on semi-simple subgroups of semi-simple Lie groups, the theory of nilmanifolds of the Maltsev completions of groups. When I. M. Gel'fand worked at the Department, the Gelfand-Naimark theory of infinite dimensional representations of classical Lie groups was developed.

The theory of finite groups and modular Lie algebras. The limited Burnside problem was solved and the basis of the theory of simple Lie p -algebras was constructed.

The arithmetic of algebraic manifolds: the theory of elliptic curves, the multidimensional class field, the arithmetic of algebraic and arithmetic surfaces, "the Arakelov geometry".

Algebraic geometry: the solution of the Luroth problem, the theory of K3 type algebraic surfaces.

Problems of mathematical physics connected with algebraic geometry: instanton theory, gauge fields theory, super-geometry. Of course some investigations do not fit in the outlined directions. Recently also new directions of investigations appeared: problems of homological algebra; the classification of multidimensional algebraic manifolds; the theory of nilpotent algebras; and the study of the Galois groups of the algebraic closure of fields of a finite type.

Many young mathematicians have been trained at the Department. The present members of the Department have advised more than 75 candidates and 30 doctors of Physical-Mathematical sciences.

4. Department of Geometry and Topology: The Department of Geometry and Topology at the Mathematical Institute was organized in 1939 and the first Head of Department was L. S. Pontryagin. P. S. Aleksandrov joined the Department at that time.

Topology became an independent branch of science and the organization of the Department was a reflection of it. The main topics investigated at the Department were differential topology (L. S. Pontryagin) and general algebraic topology (P. S. Aleksandrov). Even though the Department was rather small, investigations in all of the main directions of the development of topology were carried on.

After the War, a large number of talented mathematicians joined the Department. They were L. V. Keldysh, (Keldish) who actively studied problems of geometric topology, and L. S. Pontryagin's and P. S. Aleksandrov's students N. A. Berikashvili, V. G. Boltyanskii, R. V. Gamkrelidze, M. M. Postnikov, K. A. Sitnikov . At the

same time, L. S. Potryagin's scientific interests were shifted to differential equations, and in 1959, he became Head of the Department of Differential Equations, with V. G. Boltyanskii and R. V. Gamkrelidze on its staff. P. S. Aleksandrov became Head of the Department of Topology--by that time a separate Department of Geometry was organized. About that time N. A. Berikashvili left the Institute and A. A. Maltsev joined the Department of Topology.

5. Department of Function Theory: The Department of Function Theory was organized in 1934, on the basis of the Department with the same name at the Institute of Physics and Mathematics of the Academy of Sciences of the USSR (Leningrad). The first heads of Department at different years were N. N. Luzin, M. A. Lavrent'ev, S. M. Nikolskii. Classical and new problems of mathematical analysis were studied at the Department, and new methods of solutions of important problems of function theory were developed.

N. N. Luzin was the founder of a large mathematical school. His works on the theory of trigonometric series, metric function theory and the theory of functions of complex variables long ago became classical. They were successfully developed by members of the Department, his students and followers: P. S. Novikov, D. E. Men'shov, P. L. Ul'yanov, S. V. Bochkarev, B. S. Kashin, K. I. Oskolkov, S. A. Telyakovskii, and V. N. Temlyakov .

D. E. Men'shov was at the Department from its founding. He developed the theory of trigonometric and orthogonal series, as well as the theory of monogenic functions and conformal mappings. In 1951, for his fundamental investigations of the problem of representation of functions by trigonometric series, he was awarded a State Prize and in 1975, for his work on summation of trigonometric series, he received an Academy P. L. Chebyshev Prize.

6. Department of Complex Analysis: The Department of Complex Analysis at the Steklov Mathematical Institute is relatively young. It was organized in 1964, and consisted of Sergei Nikitovich Mergelyan, Head of Department, A. G. Vitushkin, A. A. Gonchar, A. F. Leontiev. In 1972, S. N. Mergelyan moved to Armenia and A. A. Gonchar became Head of Department. At the present time, the staff of the Department consists of A. A. Gonchar, A. G. Vitushkin (since 1965), S. N. Mergelyan (he returned in 1986), E. M. Chirka (since 1971), E. A. Rakhmanov (since 1977), V. I. Buslaev (since 1975), S. P. Suetin (since 1982) and N. G. Kruzhilin (since 1984).

The traditional research area in the Department is the theory of approximation in a complex domain. At first it was qualitative questions of the possibility of approximation by polynomials and rational functions on compacts in the complex plane, and since the beginning of the 1970s, the main efforts were concentrated on the development of rational approximations of analytic functions, their theoretical foundation and applications. The Department is the center of the mathematical school of the theory of complex approximations in the country.

Since the beginning of the 1970s, at the Department, besides the approximation theory, also the theory of several complex variables was developed. One can mention here the research in the theory of rational approximations in a complex space, in the theory of analytic continuation, in the theory of real manifolds in a complex space, and on boundary properties of holomorphic functions of several complex variables.

The results obtained at the Department were highly appreciated in the USSR and throughout the world. In different years, the contributions of S. N. Mergelyan, A. G. Vitushkin, A. F. Leontiev were awarded State Prizes. The Prizes of the Division of Mathematics of the Academy of Sciences of the USSR were received by A. A. Gonchar, E. A. Rakhmanov and E. M. Chirka. Among invited speakers at International Mathematical Congresses were A. G. Vitushkin (1966, Moscow; 1974, Vancouver), A. A. Gonchar (1966, Moscow; 1986, Berkeley), N. G. Kruzhilin (1986, Berkeley), S. N. Mergelyan (1970, Nice).

7. Department of Ordinary Differential Equations: The Department of Ordinary Differential Equations was established and headed by L. S. Pontryagin in 1959, in connection with his decision to change the direction of his research, to drop topology and to devote himself to the study of applied problems of mathematics connected with ordinary differential equations, oscillation theory and control theory.

In the fall of 1952, L. S. Pontryagin organized a regular seminar at the Steklov Mathematical Institute on mathematical problems of oscillation theory and control theory. In running the seminar L. S. Pontryagin was assisted by his young students V. G. Boltyanskii, R. V. Gamkrelidze, and E. F. Mishchenko .

From the very beginning, the aim of the seminar was not only to study the accumulated mathematical knowledge or already formulated open mathematical problems, but also to study purely physical and technical aspects of the matter to understand better the known problems and to find new interesting mathematical problems.

This approach turned out to be very fruitful. Soon two mathematical problems were formulated, the study and solution of which made the Department one of the leading centers on applied mathematics.

The first problem concerned the asymptotic behavior of relaxing oscillations. Mathematically this meant the study of differential equations with a small parameter at high order derivatives, the proof of the existence of periodic solutions of such equations and, perhaps, a more detailed study of the asymptotic behavior of these solutions.

The second problem concerned the optimal functioning of controlled processes. Soon a necessary condition of optimality was found which is known now as the Pontryagin maximum principle. This work was a starting point of a new direction in applied mathematics, the theory of optimal processes.

In subsequent years the research in the Department went in both of the above directions. The scope of the considered problems was extended and deepened. For instance the theory of differential games was constructed with active participation of M. S. Nikolskii , a member of the Department. Members of the Department S. M. Aseev , V. I. Blagodatskih and Iurii S. Ledyayev work in convex analysis. Their research is closely related to the theory of optimal processes.

Besides the above mentioned directions is the research of D. V. Anosov , a member of the Department, in the theory of dynamic systems. He obtained important results on the structural stability of hyperbolic systems.

In 1987, on L. S. Pontryagin's initiative a Laboratory of Mathematical Problems of Natural Phenomena was organized at the Department. The staff of the Laboratory consists

of the following members of the Department: A. S. Mishchenko (Head of Laboratory), M. I. Zelikin, and N. V. Pavlova .

In 1990, A. A. Bolibruch joined the Department. He solved completely the 21-st Hilbert problem. Since 1988, R. V. Gamkrelidze has headed the Department.

8. Department of Mathematical Physics: The Department of Mathematical Physics, headed by V. S. Vladimirov , was organized in January, 1969. Its staff included some members of the Department of Theoretical Physics and of the Department of Differential Equations. In the Department there is a Laboratory of Partial Differential Equations, headed by V. P. Mikhailov .

Research in several directions of modern mathematical physics is going on in the Department: axiomatic quantum field theory (analytic and algebraic approaches, dispersion relations, automodel asymptotics), the theory of (super)strings, super symmetric and gauge theories, twistors, p-adic quantum theory, quantum groups, integrable systems, models of statistical physics, conservation laws and symmetry for differential equations, boundary value problems of mathematical physics, solvability for elliptic, parabolic and hyperbolic equations and systems and description of solvable extensions, non-local problems, problems of qualitative theory (asymptotic behavior of solutions of nonstationary problems, behavior near the boundary, the method of Lyapunov exponents).

In the Department appropriate mathematical tools were constructed with applications of the theory of distributions and hyperfunctions, analysis of several complex and real variables and superanalysis, analysis of functions of p-adic argument, multidimensional Tauberian theorems for distributions, differential geometry, representation theory.

Since 1969, at the Department there is a regular seminar on mathematical physics and related mathematical topics.

Among the members of the Department invited speakers at International Mathematical Congresses were V. S. Vladimirov (Edinburgh, 1958; Nice, 1970), V. M. Millionshchikov (Nice, 1970).

State Prizes recipients in the Department have included: V. S. Vladimirov (1953, 1987), and A. A. Dezin (1989). Other awards have been a Golden Lyapunov Medal (V. S. Vladimirov, 1971); a Golden Bertran Bolzano Medal (V. S. Vladimirov, 1982); a P. L. Chebyshev Prize (V. P. Mikhailov, 1978); Division of Mathematics Prizes (I. V. Volovich, 1988; Iurii N. Drozhzhinov, 1990; B. I. Zav'yalov, 1990; O. I. Bogoyavlenskii, 1988).

In 1992, the staff of the Department consisted of V. S. Vladimirov, I. V. Volovich, A. V. Voronin, A. K. Gushchin, A. A. Dezin, Iurii N. Drozhzhinov, V. V. Zharinov, B. I. Zav'yalov, E. I. Zelenov, S. V. Znamenskii, N. G. Marchuk, V. M. Millionshchikov, V. P. Mikhailov, A. G. Sergeev, S. S. Horuzhii. For a number of years, B. M. Stepanov, V. N. Maslennikova, V. S. Vinogradov and O. V. Meunargia also were members of the Department. In 1992, V. P. Maslov joined the Department.

9. Department of Partial Differential Equations: The Department of Partial Differential Equations was set up at the Institute in July 1971. The staff of the Department were A. V. Bitsadze, Head of Department, V. S. Vinogradov, A. K.

Gushchin, A. A. Dezin, V. N. Maslennikova, V. P. Mikhailov. In 1972, V. N. Maslennikova left the Department and V. A. Il'in joined it. In 1977, A. K. Gushchin and V. P. Mikhailov moved to the Department of Mathematical Physics.

In the Department structural and qualitative properties of solutions of linear and nonlinear equations of all main types (i.e. elliptic, hyperbolic, parabolic), as well as of equations of mixed types were studied. Many of them were included in A. V. Bitsadze's monograph "Some classes of partial differential equations" (published first in Russian in 1981 by Nauka and then in English in 1988 by Gordon and Breach) and in A. A. Dezin's monograph "General questions of boundary value problems" (published in Russian in 1980 by Nauka and in English in 1987 by Springer).

The A. A. Dezin monograph was awarded a State Prize and A. V. Bitsadze's work received a Muskhelishvili Prize.

In 1989, the Department was closed and on its basis the Laboratory of Partial Differential Equations was organized as a section of the Department of Mathematical Physics.

10. Department of Statistical Mechanics: The Department of Statistical Mechanics was organized in 1967 as a result of the partition of the Department of Theoretical Physics into the Department of Quantum Field Theory (Head of Department N. N. Bogolyubov) and the Department of Statistical Mechanics (Head of Department S. V. Tyablikov) and the Department of Mathematical Physics (Head of Department V. S. Vladimirov).

The Department of Theoretical Physics was organized in 1947, and the first Head of it was N. N. Bogolyubov. The establishment of this Department favored the extension of research activity of the Mathematical Institute and led to a closer cooperation between mathematicians and physicists in accordance with the ideas of V. A. Steklov when he founded the Institute of Physics and Mathematics and with general trends of Science. N. N. Bogolyubov invited to join the Department his students S. V. Tyablikov and B. M. Stepanov. In 1954, the Department started to grow--D. N. Zubarev, Iurii A. Tserkovnikov, V. S. Vladimirov, B. V. Medvedev, M. K. Polivanov and later V. V. Tolmachev, I. A. Kvasnikov, V. T. Khozyainov, Iurii M. Shirokov were appointed to the Department. After S. V. Tyablikov's death in 1969 N. N. Bogolyubov became Head of the Department of Statistical Mechanics.

From 1976 to 1987, the Department of Statistical Mechanics also included the Laboratory of Problems of Quantum Statistical Mechanics. The staff of the Laboratory included: N. N. Bogolyubov Jr. (Head of Laboratory), P. E. Krasnushkin, A. M. Kurbatov, and A. N. Kireev.

Since 1987, N. N. Bogolyubov Jr. has headed the Department of Statistical Mechanics which includes: D. P. Sankovich, A. V. Soldatov, A. N. Kireev, V. T. Khozyainov, Iurii A. Tserkovnikov. N. N. Bogolyubov was a member of Department from 1987 until 1992. D. N. Zubarev worked at the Department from 1954 to 1992.

During the period of existence of the Department, several studies in the area of statistical mechanics were carried out in it which received high international appreciation. Among them one should mention, first of all, the development of a new method in the theory of superfluidity and superconductivity, which was formulated basically by N. N. Bogolyubov.

Other important areas of research in the Department were the development of the method of approximating Hamiltonian, problems of nonequilibrium Statistical Mechanics, the theory of interaction of electromagnetic radiation with matter, problems of the mathematical theory of phase transitions, theories of quasi-averages, the Green functions method, and problems of radio waves transmission.

11. Department of Mechanics: After the Mathematical Institute had been organized and moved to Moscow, two Mechanics departments were set up in it, the Department of Elasticity Theory headed by N. I. Muskhelishvili and the Department of Continuous Media headed by N. E. Kochin. These Departments were closed in 1939, when N. I. Muskhelishvili moved to Georgia and N. E. Kochin with his colleagues moved to the newly organized Institute of Mechanics of the Academy of Sciences of the USSR

The Department of Mechanics was set up again in 1944, with M. V. Keldysh as Head of Department and has continued in existence. In 1953, after M. V. Keldysh moved to the newly established Division of Applied Mathematics and then to the Institute of Applied Mathematics, L. I. Sedov was appointed as Head of the Department and he held that position until 1988. At different years, at the Department of Mechanics many famous scientists worked who made important contributions to the development of Mechanics. At present, the staff of the Department includes: L. I. Sedov (since 1945), A. G. Kulikovskii (since 1958, Head of Department since 1988), V. V. Markov (since 1973), G. A. Alekseev (since 1975), A. T. Il'ichev (since 1984). The research directions in the Department are in accordance with its traditions which were introduced by its founders, and first of all by L. I. Sedov .

A traditional area of research is the theory of nonstationary gas motions and strong explosions. After basis results of L. I. Sedov (presented in his monographs "Plane problems of hydrodynamics and aerodynamics" and "Methods of the theory of similarity and dimension in mechanics", for which a State Prize was received in 1952) this topic was developed by members of the Department V. P. Korobeinikov, N. N. Kochina, N. S. Mel'nikova (they received a State Prize in 1975). In subsequent years in this direction some phenomena were studied connected with the process of chemical reactions, radiative transfer, with the movement of solid and liquid particles in nonstationary currents. A number of numerical results was obtained on non-one-dimensional and nonstationary spreading of detonation fronts, initiation and extinction of detonation, and movement of particles in streams (V. V. Markov).

Another direction of research is the construction of new models of the mechanics of continuous media using the basic variational equation (the L. I. Sedov equation). The methods of description of interaction of continuous media with electromagnetic fields in the framework of special and general relativity theory are developed (L. I. Sedov, A. G. Tsympkin). A. G. Tsympkin worked at the Department from 1969 until 1992. The problems of connection of space-time geometry and moving matter are also studied. In the framework of general relativity theory, the problem of inertial navigation was solved (in 1981, the International Astronautics Association awarded L. I. Sedov the Karman Prize).

In the framework of general relativity theory, on the basis of modern theory of integrable systems new methods of integration of nonlinear equations for interacting of gravitational and electromagnetic fields, the Einstein-Maxwell equations, are developed. Applications of the constructed new exact solutions to different

problems of gravitation theory are considered (G. A. Alekseev). New types of spectral problems arising in the analysis of the Einstein-Maxwell equations are considered. Qualitative study of solutions of the nonlinear equations describing wave processes in dispersive medium is carried out (proof of the existence of periodic and solitary waves, their stability--A. T. Il'ichev).

The motions of continuous media containing discontinuities (magneto-hydrodynamics, anisotropic elasticity theory, hydrodynamic theory of avalanches), including the discontinuities with change of medium properties (e.g. elasticity constants, as well as with origination or disappearance of electro-conductivity) are studied. The stability of one dimensional stationary flows of continuous media is considered in a general case. A criterion of stability of one dimensional flows with sign change of the characteristic velocity is obtained, as well as a criterion of stability of one-dimensional flows in stretched domains (S. A. Chaplygin Prize, 1967) (A. G. Kulikovskii).

12. Department of Quantum Field Theory: The Department of Theoretical Physics was organized at the Steklov Mathematical Institute in 1947, with N. N. Bogolyubov as Head of Department. N. N. Bogolyubov invited to the Department many of his students and colleagues and now, after more than forty years, there are three Departments based on it, i.e.: the Departments of Mathematical Physics, of Statistical Mechanics and of Quantum Field Theory. The Department of Quantum Field Theory was setup in 1969, headed by M. K. Polivanov (from 1969 to 1992).

The main research area in this Department is the development of mathematical methods for the description of fundamental interactions. The studies of renormalization theory (R-operation), axiomatic S-matrix theory and dispersion relations carried out by N. N. Bogolyubov and his school in the fifties made a fundamental contribution to the development of quantum field theory and construction of its mathematical tools. In these studies the methods of distribution theory and the theory of several complex variables were used efficiently. This work was summed up in the monographs by N. N. Bogolyubov and D. V. Shirkov "Theory of quantized fields" (1957) and by N. N. Bogolyubov, B. V. Medvedev and M. K. Polivanov "Problems of the theory of dispersion relations"(1958). In the subsequent years, investigations along these lines were continued by V. S. Vladimirov, M. K. Polivanov, B. V. Medvedev, V. P. Pavlov, O. I. Zavialov. The new development of renormalization theory was presented in detail in O. I. Zavialov's monograph "Renormalized Feinman diagrams" (1979).

Starting from the 1960s, the main activity in quantum field theory concentrated on the studies of symmetries, in particular gauge invariance. Gauge invariant models of elementary particles interactions provided a theoretical basis for the high energy physics and lead to the fruitful idea of unification of interactions. Some pioneering investigations in this field were carried out in the Department. The monograph "Introduction to Quantum Theory of Gauge Fields" (1978) by A. A. Slavnov and L. D. Faddeev gave the first comprehensive exposition of the quantization and renormalization of gauge theories. The further development in this direction led to the introduction of new types of symmetries and new models, based on the notion of relativistic strings. These models in turn are closely related to conformally invariant theories and completely integrable systems. The researchers working in the Department participated actively in these studies.

At present, the main directions of scientific activity of the Department of Quantum Field Theory include gauge theories and general constrained systems, superstring

models, completely integrable systems and matrix models, nonperturbative methods in quantum field theory. In 1992, the staff of the Department included: I. Ya. Aref'eva, O. I. Zav'yalov, V. P. Pavlov, A. K. Pogrebkov, A. A. Slavnov (Head of the Department), Iurii M. Zinov'ev, V. M. Muzafarov, N. A. Slavnov, L. O. Chekhov, and S. A. Frolov.

13. Department of Probability Theory and Mathematical Statistics: From the time when the Department was organized in 1938, and until 1960, the Head of the Department was A. N. Kolmogorov (excluding 1946-1948 when A. Ya. Khinchin occupied this position) and after 1960, it was headed by Iurii V. Prokhorov. During some period, a part of the Department existed independently under the name of the Department of Mathematical Statistics successively headed by N. V. Smirnov, L. N. Bol'shev, D. M. Chibisov, and from 1983 to 1987 by A. N. Kolmogorov. Research in Probability Theory and in Statistics also was done outside the Department (S. N. Bernshtein, O. V. Sarmanov). In the Department itself, investigations in these fields were carried out by A. N. Kolmogorov, A. Ya. Khinchin, E. E. Slutskii, and N. V. Smirnov. At the end of the 1940s, the Department was joined by B. A. Sevast'yanov and Iurii V. Prokhorov, and at the beginning of the 1950s, by L. N. Bol'shev. At that time, a close assistant of A. N. Kolmogorov was A. A. Petrov.

At the present time, the staff of the Department includes: K. A. Borovkov, A. A. Gushchin, E. S. Kedrova, V. I. Khokhlov, A. S. Holevo, V. K. Malinovskii, A. V. Melnikov, A. A. Novikov, Iurii V. Prokhorov, Iurii A. Rozanov, V. V. Sazonov, A. N. Shiryaev, B. S. Stechkin, O. V. Viskov, A. L. akymiv, V. M. Olotarev. During different times in the Staff except those already mentioned were S. A. Aivazyan, V. F. Kolchin, V. P. Leonov, Iurii O. Senko. Special appointments for preparation to the degree Doctor of Sciences had Iurii V. Prokhorov, V. S. Semenov (subsequently an Air Force General), S. Kh. Sirazhdinov. A. N. Kolmogorov was the scientific adviser of all of them. Among graduate students at the Department were A. A. Borovkov, N. N. Chentsov, G. M. Maniya, E. A. Nadaraia (aya). In the 1950s, in the Department there was a group of people working on statistical control in industry (I. A. Borodachev and his collaborators).

Along with theoretical research (details on its main directions see below) applied investigations were always carried out in the Department. Among them were

1. Theory of shell scattering (A. N. Kolmogorov);
2. Statistical quality control (A. N. Kolmogorov, S. A. Aivazyan, A. N. Bol'shev, and S. Kh. Sirazhdinov);
3. Composition of statistical tables, which A. N. Kolmogorov considered to be very important (E. E. Slutskii, N. V. Smirnov, L. N. Bol'shev and their assistants E. S. Kedrova, V. F. Kotelnikova, and M. A. Rybinskaia (aya));
4. In the 1940s, in the Department there was a regular seminar on queuing theory (A. Ya. Khinchin, Iurii V. Prokhorov, and B. A. Sevast'yanov) with participation of specialists in teletraffic and other applied fields.

In connection with the translation into Russian of G. Cramer's book "Mathematical methods of Statistics" the work on creation and perfection of Russian statistical terminology was initiated by (A. N. Kolmogorov, and A. A. Petrov).

Main directions of theoretical research in the Department were: 1. Foundations of Probability Theory (measure theoretic approach--A. N. Kolmogorov, V. V. Sazonov, Iurii V. Prokhorov, and an algorithm complexity approach--A. N.

Kolmogorov); 2. Asymptotic methods of Probability Theory and Statistics (A. Ya. Khinchin, A. N. Kolmogorov, N. V. Smirnov, Iurii V. Prokhorov, D. M. Chibisov, V. V. Sazonov, and V. M. Zolotarev); 3. Theory of random processes and fields, including information theory (A. Ya. Khinchin, and A. N. Kolmogorov), purely jump processes (A. Ya. Khinchin, and B. A. Sevast'yanov), foundations of statistical mechanics and quantum statistics (A. Ya. Khinchin and later A. S. Holevo), stationary processes and fields (A. N. Kolmogorov, Iurii A. Ozanov, for more details see the section on Laboratory of stochastic processes and fields), stochastic control (A. N. Kolmogorov, and A. N. Shiryaev, for more details see the section on Laboratory of statistics of stochastic processes), branching processes.

The theory of branching processes, which originated in the 1940s in A. N. Kolmogorov's school, was subsequently developed by B. A. Sevast'yanov and his students and followers V. P. Chistyakov, V. F. Kolchin, A. M. Zubkov, V. A. Vatutin. From the middle of the 1960s, active investigation of a number of probability problems in discrete mathematics (random all locations of particles, random maps, random graphs, distribution of s-tuples in random sequences etc.) were carried out by B. A. Sevast'yanov, V. P. Chistyakov, V. F. Kolchin, A. M. Zubkov, V. G. Mikhailov. In Statistics, the main directions of theoretical research were nonparametric methods, properties of order statistics, asymptotic theory of different tests (N. V. Smirnov, A. N. Kolmogorov, L. N. Bol'shev, N. N. Chentsov, and D. M. Chibisov).

14. Laboratory of Statistics of Stochastic Processes of the Department of Probability Theory and Mathematical Statistics: The staff of the Laboratory of Statistics of Stochastic Processes are: A. N. Shiryaev (Head of Laboratory), A. A. Novikov, A. V. Mel'nikov, D. D. Kramkov.

In 1957-1960, members of the Steklov Mathematical Institute V. P. Leonov and A. N. Shiryaev, under supervision of A. N. Kolmogorov (in connection with some nonlinear problems of the theory of stochastic processes and needs of radiotechnics) developed a technique of handling moments and semi-invariants of high orders. This technique is applicable to many problems in nonlinear analysis and nonlinear transformations of stochastic processes, as well as to proofs of limit theorems of probability theory.

In 1959, A. N. Kolmogorov and A. N. Shiryaev started research (originated from problems in radio location) devoted to the development of methods of fastest detection of changes of characteristics of observed data ("the change point problem"). Not only the problems suggested by radio engineers were solved, but a large scale investigation of optimal stopping rules was initiated, which was fundamental for the optimal stochastic control and was summed up in A. N. Shiryaev's monograph "Statistical sequential analysis".

"The change point problem" revealed the importance of investigation of problems of optimal nonlinear filtration. A detailed exposition of the relevant theory and its applications is given in R. S. Liptser and A. N. Shiryaev's monograph "Statistics of stochastic processes".

In subsequent years A. N. Shiryaev jointly with his students and colleagues (in particular A. V. Mel'nikov and A. A. Novikov from the Laboratory) systematically studied stochastic processes of martingale types. Martingales, semi-martingales and related stochastic calculus, together with stationary and Markov processes, constitute one

of the main directions in the general theory of stochastic processes. The two monograph "Martingales theory" by P. S. Liptser and A. N. Shiryaev and "Limit theorems for stochastic processes" (Springer, 1987) by I. Iacob and A. N. Shiryaev contain results of the authors as well as results of participants of the regular seminar "Martingales and statistics of random processes", organized by A. N. Shiryaev and N. V. Krylov, which has continued in the Steklov Mathematical Institute for more then twenty years.

The main subject of investigation of A. V. Mel'nikov is the theory of stochastic differential equations and regression analysis problems from the point of view of the modern theory of martingales.

A. A. Novikov works in the areas of sequential analysis, theory of martingales, and boundary value problems for stochastic processes.

The research in the Laboratory at present are concentrated on the general theory of decision functions and statistical experiments (i.e. on probabilistic and statistic models) connected with phenomena described by stochastic processes. The stochastic calculus, martingale theory play here a key part. Their notions and methods unify the theory of statistical inference for stochastic processes.

Members of the Laboratory take active part in the organization of Soviet-Japanese symposiums (A. N. Shiryaev, A. A. Novikov) and Soviet-Finnish Symposiums (A. N. Shiryaev, A. V. Mel'nikov). Also the 1st World Congress of the Bernoulli Society (Tashkent, 1986) was organized with the enthusiastic participation of all members of the Laboratory.

15. Laboratory of Stochastic Processes and Fields of the Department of Probability Theory and Mathematical Statistics Laboratory of Stochastic Processes and Fields of the Department of Probability Theory and Mathematical Statistics: The staff of the Laboratory of Stochastic Processes and Fields are Iurii A. Rozanov (Head of Laboratory), A. S. Holevo, A. A. Gushchin, E. S. Kedrova. Iurii A. Rozanov constructed a general spectral theory of multidimensional stationary stochastic processes, and studied problems of Gaussian infinite-dimensional distributions. He also contributed to the development of the theory of Markov random fields, and studied boundary value properties of solutions of linear stochastic partial differential equations.

A. S. Holevo studied problems of noncommutative probability theory. He constructed an algebraic Generalization of the theory of statistical decisions, which gives a mathematical basis for considering fundamental limits of precision and informativeness of measurements. A structural theory of quantum stochastic processes is being developed.

A. A. Gushchin studied problems of the theory of martingales with multidimensional parameter and of statistics of stochastic processes.

16. Information and Publishing Department: The Information and Publishing Department was organized in July, 1991, by the Steklov Mathematical Institute and Division of Mathematics of Russian Academy of Sciences. The members of Department are: A. B. Zizcenko (Head of Department), G. A. Alekseev, S. V. Znamenskii, A. M. Malokostov, V. M. Muzafarov, N. N. Repin, S. P. Suetin, V. R. Telesnin, and Iurii E. Hohlov.

Among the main activities of the Department are the following.

- * Publishing activities. The Department prepares camera-ready models of some Russian mathematical journals and is going to extend this activity to cover all Russian mathematical journals. The plans for the future include also preparing cover-to-cover English translations of these journals which will be published in the West.
- * Telecommunications and Information services. The Department is developing and maintaining the noncommercial electronic mail system which will in several years cover the leading mathematical scientific and educational centers of the country. Also there exist plans to develop mathematical data bases suitable for scientific and educational purposes. This work is to be regarded as a part of international activities aiming at creating international scientific multi-media (EuroMath project)

(1997 update)

The Information and Publishing Department was organized in July, 1991 jointly by the Steklov Mathematical Institute and Mathematical Branch of the Russian Academy of Sciences. The Head of the Department is Professor Aleksii B. Zizcenko. Among the main activities of the Department are the following.

1. Publishing activities. The Department prepares camera-ready models of some Russian mathematical journals and is going to extend this activity to cover all Russian mathematical journals. The plans for the future include also preparing cover-to-cover English translations of these journals which will be published in the West. The following persons are involved in the publishing activities: Alexander D. Isaak, Andrei M. Malokostov, Victor M. Muzafarov. Dr. Sergei P. Suetin supervises this activities.
2. Telecommunications and Information services.

The Department is developing and maintaining a wide area information system which will in several years cover the leading mathematical scientific and educational centers of the country. This work is to be regarded as a part of the international activities aiming at creating international scientific multi-media for mathematicians (EuroMath project). The Department will maintain a basic node of EmNet/fSU network - which is the fSU part of the pan-European subject oriented network which will connect leading European mathematical centers.

The Department develops and maintains several mathematical data bases suitable for scientific and educational purposes: a directory of Russian mathematicians, directory of mathematical organizations, database on mathematical publications etc.

The Department maintain Gopher server-gopher.ras.ru and WWW server-www.ras.ru, which distribute this information. In the frame of the EmNet and RAS-GMD projects, Department takes part in the development of scientific telecommunication infrastructure in Russia. Department maintain one of the basic nodes of the Moscow fiber optic backbone and will provide international connections between this backbone and European networks. The Department is an IP service provider for several scientific organizations. Telecommunication and information services of the Department is maintained by Ekaterina V. Beskova, Andrei A. Gonchar, Olga P. Kalachyova, Vladimir R. Telesnin, Dr. Sergei E. Teriaev, Eugene Mamchits, Maksim E. Moshkow, Alexei A. Pogrebkov, Michail A. Zhizhchenko. Dr. Nikolai N. Repin supervises this activity.



2. St. Petersburg Branch of the Mathematical Institute (POMI)

As was mentioned above, the Leningrad (now St-Petersburg) branch of the Mathematical Institute (LOMI, now POMI) was set up in March, 1940. The first members of the LOMI were A. D. Aleksandrov, B. A. Venkov, G. M. Goluzin, L. V. Kantorovich, Iurii V. Linnik, A. A. Markov, V. I. Smirnov, V. N. Faddeeva, D. K. Faddeev. In the first years after the War, O. A. Ladyzhenskaia (aya), G. I. Petrashen, V. S. Vladimirov, V. A. Zalgaler, V. P. Il'in, V. N. Kublanovskaia (aya), N. A. Shanin, A. A. Ivanov, and N. N. Vorob'ev joined the LOMI. Their scientific interests defined the direction of research in the LOMI in the 1940s and the 1960s. During this time, in the LOMI important results were obtained in the theory of algorithms and constructive mathematics, number theory, inverse problems of the Galois theory and the theory of representations, relativity theory, the geometry of non regular manifolds in the global geometry, imbedding theorems for differentiable functions, geometric function theory, nonstationary operator equations, the theory of generalized solutions of boundary and initial-boundary value problems of mathematical physics and mathematical problems of hydrodynamics, probability theory and mathematical statistics, computational methods of linear algebra and mathematical physics, theoretical physics and engineering methods of calculation of wave fields.

In recent years, in POMI, important results have been obtained in mathematical logic and in the theory of complexity of algorithms, algebraic and geometric number theory, the Galois theory, algebraic K-theory, the topology of small-dimensional manifolds, complex analysis and spectral function theory, nonlocal stability theory and the theory of attractors for nonlinear dissipative systems, the spectral theory of differential operators, the classical and quantum theory of dissipation, gauge field theory, automorphic functions theory, the mathematical theory of classical and quantum solitons, deformation theory and its application to the general theory of quantization, interpretations of anomalies in quantum field theory and quantum groups, the asymptotic theory of estimation in problems of mathematical statistics, the mathematical theory of wave processes in continuous media, computational methods of algebra.

The research in the POMI continues traditions of the Petersburg-Leningrad mathematical school. In September of 1961, in the LOMI on the basis of existing research groups, six laboratories were set up headed by L. V. Kantorovich, O. A. Ladyzhenskaia (aya), Iurii V. Linnik, G. I. Petrashen', V. N. Faddeeva, and D. K. Faddeev . In subsequent years, the structure of the LOMI has been changed several times in accordance with changes in the research directions.

The structure of the Petersburg Branch of the Steklov Mathematical Institute and the main results obtained in its Laboratories during the last five years are presented below:

- 1. Laboratory of Mathematical Logic:** Staff: Iurii V. Matiyasevich, (Head of Laboratory), A. A. Musaev, V. P. Orevkov, and N. A. Shanin. The possibility of the construction of calculus in the framework of "finitary way of thinking" going back to L. Kronecker was investigated. Finitary versions of several functional spaces were suggested. New methods of majorizing non-finitary statements by finitary ones were developed.

Upper and lower estimates of complexity of proofs and their transformations in axiomatic theories were obtained. For formal arithmetics the problem of construction of a statement of some proof in the general case on the basis of its short enough proofs in several particular cases was solved.

Methods of calculations on computers with controlled accuracy were developed. On the basis of these methods a solution of D. Polya's problem about a proof without the Riemann hypothesis of Turan's inequalities for Taylor's coefficient of the Riemann-function was found.

2. Laboratory of Number Theory: Staff: A. N. Andrianov, (Head of Laboratory), V. A. Gritsenko, A. V. Malyshev, N. V. Proskurin, B. F. Skubenko, Iurii G. Teterin, and O. M. Fomenko. Structural and analytic properties of solutions of quadratic Diophantine equations were studied systematically. An algebraic technique was developed, the technique of parabolic extensions of the Gekke rings, which permitted to construct the basis of the theory of zeta-function of symplectic group and to discover multiplicative expansions of integer solutions of quadratic Diophantine equations in elementary solutions.

In the geometry of numbers fundamental results on integer minima of products of linear polynomials were obtained and the well known Minkowski hypothesis was proved for the dimension five.

3. Laboratory of Algebra: Staff: B. B. Venkov, (Head of Laboratory), V. V. Ishkhanov, A. N. Kirillov, B. B. Lur'e, I. A. Panin, A. I. Skopin, and A. A. Suslin. The problems of immersion in the Galois theory were investigated, universally solvable immersion problems were studied, and a systematic study of immersion problems with non-abelian kernel of order p was started.

A classification of all 32-dimensional even unimodular lattices was given. Representations of quantum groups were studied with applications to the theory of combinations and quantum field theory. The Milnor and K-theory of local fields as well as connections between quadratic forms and the Galois cohomologies were studied. K-theory and K-cohomology of different manifolds (classical groups, Grassman manifolds, spaces of generalized flags) were calculated.

A computer study of transmetabelian groups of exponent 9 was carried out.

4. Laboratory of Geometry and Topology: Staff: O. Ya. Viro, (Head of Laboratory), A. D. Aleksandrov, Iurii D. Burago, A. I. Degtyarev, V. A. Zalgaller, A. A. Ivanov, N. V. Ivanov, V. G. Turaev. Topological and homotopic properties of real algebraic manifolds were studied.

New algebraic and topological invariants of small dimension manifolds and low dimensional knots and links were investigated. New topological invariants of three-dimensional manifolds of statistical sums type and the corresponding topological quantum field theory of dimension $2+1$ were constructed.

Algebraic aspects of bitopological structures and modular Teichmüller groups were studied.

A study of geometry of metrized manifolds and of geometric inequalities was carried out.

5. Laboratory of Mathematical Analysis: Staff: N. K. Nikolskii, (Head of Laboratory), A. A. Borichev, V. I. Vasyunin, E. G. Goluzina, L. N. Dovbysh, V. P. Il'in, S. V. Kislyakov, G. V. Kuz'mina, N. G. Makarov, Iurii V. Netrusov, and V. V. Peller.

A coordinateless functional model has been constructed. This model was used to study spectral singularities and to find a resolvent criterion of similarity to a normal operator. A local functional calculus was developed and a unique solution of the problem of free interpolation on discrete and continuous spectra was found. A complete spectral description of the Schrodinger dissipative operator under wide assumptions on the potential was given.

A non-commutative version of the Cauchy-Bunyakovskii-Schwartz inequality was proved, which can be understood as a decomposition of the space into a quasi-orthogonal integral of Hilbert spaces. Fourier series with respect to general biorthogonal systems in Hilbert space were considered and estimates of coefficients of one-sheeted functions, including the L. de Branges inequality (known as the Bieberbach hypothesis) were proved.

On the basis of discovered probability properties of one-sheeted functions a probability theory of conformal mappings was constructed. This led to the solution of a number of known problems of geometric function theory (distortion of boundary sets, metric properties of a harmonic measure etc.)

A method of solution of convolution equations was developed based on the analysis of algebras of analytic functions. It permitted giving an exponential polynomial description of solutions of convolution equations of a discrete argument over a wide scale of functional spaces.

6. Laboratory of Mathematical Physics: Staff: O. A. Ladyzhenskaia (aya), (Head of Laboratory), A. V. Ivanov, L. V. Kapitanskii, A. P. Oskolkov, Iurii G. Safarov, A. I. Sobolev, V. A. Solonnikov, A. F. Vakulenko, and D. R. Yafaev. A new rapidly developing direction in qualitative theory and the theory of asymptotic methods for nonlinear partial differential equations, in particular for the viscous liquid hydrodynamics equations, was originated, i.e. non-local stability theory and attractor theory for autonomous evolutionary problems of dissipative type, as well as the theory of compact and asymptotically compact semigroups of nonlinear operators acting in a locally noncompact metric phase space.

A stationary problem with free boundaries for the Navier-Stokes equations and a problem of evolution of an isolated finite volume of viscous noncontractive liquid were solved.

The limiting smoothness of generalized solutions of quasi linear parabolic equations admitting double degeneration was proved.

A theory of solvability of initial-boundary value problems for equations of motion of linear viscous-elastic liquid was developed.

Binomial asymptotic formulae for the distribution function of eigen values and the spectral function of elliptic self adjoint differential operator with regular elliptic boundary conditions on a smooth compact manifold with edge were obtained.

7. Laboratory of Mathematical Problems of Physics: Staff: .D. Faddeev, (Head of laboratory), A. Iurii Alekseev, A. B. Venkov, V. E. Korepin, P. P. Kulish, A. G. Reiman, M. A. Semenov-Tian-Shanskii, E. K. Sklyanin, F. A. Smirnov, L. A. Takhtadian, C. D. Shatashvily. The development of the quantum method of inverse problems originated in the Laboratory and led to quantum groups and Lee algebras which turned out to be a successful deformation of classical objects. This activated research in such branches of mathematics as representation theory, deformation theory, braid groups and knot invariants, noncommutative geometry, super-algebras. The compact formulation of quantum algebras and Lee groups based on the R-matrix acting as structural constants was widely spread, in particular, in conformal field theory.

Simple formulas were found reflecting close connection of the Poincare metric and the canonical projective structure on Riemann surfaces with the Weil--Peterson geometry of modules spaces, which permitted to describe in the theory of uniformization of Riemann surfaces the behavior of accessory parameters near the "boundary" of the Teichmuler space. The local Atiyah--Zinger index theorem for families of d-operators on Riemann surfaces and holomorphic stratifications was proved.

Explicit formulas for matrix elements (form-factors) of important local operators for the most interesting two-dimensional completely integrable models of quantum field theory were obtained and a general program of calculation of form-factors was given.

A general method of finding boundary conditions compatible with complete integrability of models of classical and quantum field theory was suggested. To describe the inner symmetry of the corresponding systems a new class of associative algebras, defined by special type quadratic relations, was introduced, and for these algebras a rich class of representations was indicated. A commutative algebra serving as the motion integrals Generating function was constructed.

The Lax representation with spectral parameter for the Kovalevskaya (aya) top and its Generalizations was obtained. Explicit formulae for its solutions in terms of the theta-functions of Riemann surfaces were constructed.

8. Laboratory of Mathematical Problems of Statistical Physics: Staff: V. N. Popov, (Head of Laboratory), I. M. Antonova, N. M. Bogolyubov, A. G. Izergin, E. A. Nazarov, N. Iurii Reshetikhin, B. N. Skachkov, M. M. Skriganov, and S. E. Cheremshantsev. A method of description of collective excitation in systems of quantum statistical physics in the formalism of functional integration with applications to the theory of superfluidity of Bose- and Fermi-systems, plasma, the theory of Coulomb and quantum crystals, the theory of model Hamiltonians was developed. Models of high temperature superconductivity were studied. On the basis of algebraic technique of the theory of quantum groups, methods of construction of topological invariants of knots, links and knotted graphs in three dimensional manifolds were developed.

Integrable partial differential equations for temperature simultaneous correlation functions of one-dimensional boson gas with infinitely strong point repulsion were obtained. Asymptotic behavior of two-point correlators at large distances, at small distances and under small density of gas was found.

9. Laboratory of Statistical Methods: Staff: I. A. Ibragimov, (Head of Laboratory), A. N. Borodin, A. Iurii Zaitsev, M. S. Nikulin, V. N. Solev, V. N. Udakov, A. V. Teplyaev, L. A. Khalfin, and N. M. Khalfina. New methods of investigation of the limiting behavior of statistical parameter estimates in the asymptotic estimation theory were suggested, which led to the final solution of the old problem about the asymptotic efficiency of maximum likelihood estimates. Methods of solution of nonparametric estimation problems were developed.

The approximation of the distribution of sums of independent random variables by infinite divisible distributions was studied. In particular an old A. N. Kolmogorov's problem about the order of accuracy of such approximation in the Levy metric was solved.

Methods of investigation of asymptotic behavior of the distribution of functionals defined on random walks were suggested, which proved for the first time, the appropriate limit theorems under natural conditions.

Researches were carried out in the theory of Gaussian processes, spectral theory and in statistics of stationary processes and homogeneous fields.

10. Laboratory of Algorithmic Methods: Staff: D. Iurii Grigor'ev, (Head of Laboratory), A. Iurii Volkov, N. N. Vorob'ev, L. Iurii Kolotilina, T. Ya. Kon'kova, V. N. Kublanovskaia (aya), N. B. Lebedinskaia (aya), M. M. Lebedinskii, and V. N. Simonova. For theories of the first order of algebraically closed, as well as real closed, fields, algorithms of solutions were constructed with subexponential complexity under a bounded number of changes of quantors in the theory formula.

An algorithm of solution of systems of polynomial inequalities over a real closed field in a subexponential time, an algorithm of elimination in the first order theory of ordinary differentially closed fields with an elementary estimate of complexity and an algorithm of polynomial complexity for finding the greatest common divisor of a family of linear ordinary differential operators were suggested.

A new approach to the construction of algorithms of the solution of spectral problems for bundles of matrices, as well as for polynomial and rational matrices of general type (both regular and singular), based on the minimal (non cancelable) factorization of the rational matrix was suggested.

11. Laboratory of Mathematical Problems of Geophysics: Staff: V. M. Babich, (Head of Laboratory), A. I. Bobenko, B. V. Budaev, N. S. Zabavnikova, A. P. Kachalov, N. Ya. Kirpichnikova, L. A. Krauklis, P. V. Krauklis, Ya. V. Kurylev, E. M. Ledovskaia (aya), L. A. Molotkov, S. M. Novoselova, G. I. Petrashen', Iurii A. Surkova, T. N. Surkova, V. B. Filippov, and Z. A. Yanson.

Exact solutions of wave problems from the point of view of applications of these solutions to the numeric calculation of wave phenomena of different nature were studied.

Asymptotic methods of solution of wave problems, i.e. the space-time ray method, the method of Gaussian bundles, were developed, which can be used for representation of a wave field both in the area of regularity of the ray and in the caustics.

On the basis of the developed exact and asymptotic methods of solution of wave problems computer programs for numeric solution of these problems were constructed and

engineering methods of solution of wave problems in media of complex structure were developed. [These materials appeared on the Internet Homepage of the Mathematics Department in 1996. The translation was by V.V. Sazonov, the composition of the material was by V. I. Buslaev, and the editing of the material was by V. S. Vladimirov.]



**3. L. Eiler International Mathematical Institute in St. Petersburg
197022, Pesochnaia (aya) quay, 10. tel. 234-32-31.
Under the direction of Academician Ludvig D. Faddeev.In**

Faddeev, Ludwig D., D. PM. S. Born in March 1934 in Leningrad, son of D. K. Faddeev. Russian mathematician and theoretical physicist. Academician of the Mathematics Department since 1976. Member of the Presidium since October 1988. He graduated from Leningrad State University in 1956. He became a professor at Leningrad State University in 1969. From 1976 to 1987, he served as deputy director of the V. A Steklov Mathematics Institute in Leningrad. In November of 1987, he was made director of that institute, that has operated since 1934 as the Leningrad independent branch of the Moscow Steklov Mathematics Institute. It conducts research on mathematical geology, mathematical physics, logic and number theory. Faddeev is also Chief of the Number Theory and Modern Algebra Department of the Leningrad institute. His works deal primarily with mathematical and theoretical physics. He worked on the three-body problem of classical mechanics in 1963 producing the Faddeev equations, and he solved the inverse problem in scattering theory for the N-dimensional Case in 1966. In 1967, he developed a method for quantifying fields with infinite dimensional symmetry groups such as the Yang-Mills field and the Einstein gravitational field, by means of continual integration. In 1971, he received the State Prize and in 1975, he was the recipient of the prestigious Dannie Heineman Prize for Mathematical Physics of the American Physical Society. In 1975, he formalized the quantification of particle-like solutions (solitons) of field-theory equations. Methods developed by him are employed in various fields of mathematics, in quantum mechanics, and in the theory of elementary particles. From 1985 to 1987, he has served as Vice President of the International Mathematical Union when he became president. He is head of the National Committee of Mathematicians of the Russian Federation. He also heads the International Institute named after I. Eiler located in St Petersburg. (GSE 27, p. 86.)



**4. The Numerical Mathematics Institute (Formerly the Institute of
Computing Mathematics) in Moscow.
(Located at 32a, Leninskii ave., Moscow, 117993. Tel. (938-17-69)
Under the direction of Gurii Iv. Marchuk, former President of the Academy
and Chairman of the GKNT.**

A Computational Mathematics Department was created in 1980, and it was given full institute status in 1991 by the Presidium of the Russian Academy of Sciences (RAS). Originally it was directly under the Presidium of the Academy. It is now located under the Mathematics Department of the RAS. Its Director, Gurii I. Marchuk, D. PM S., after serving as Chairman of the GKNT, became president of the Soviet Academy in 1986, a position he held until 1991. The institute conducts research in applied mathematics, long-range forecasting, the formulation of mathematical models, and in the development of computational methodology.

Professor Marchuk continues to be the Director of the institute. This institute is a new type of research institute which includes a number of leading scientists from a variety of disciplines in its research projects. There are some 55 scientific researchers in the institute, including three academicians and two corresponding members of the Russian Academy of Sciences. There are 13 professors and 30 Philosophy Doctors in mathematics and physics on its staff. The main research thrusts of the institute include: mathematical modeling of the general circulation of the atmosphere and the oceans, the transport of pollutants in the atmospheres and oceans, ecological phenomena, human immune status throughout the world--in short, the synthesis of physical and mathematical investigations of broad areas such as these. The Institute is the base for the Chair of Mathematical Modeling of Physical Processes at the Moscow Physical Technical Institute. Professor Marchuk is Head of that chair and its Deputy Head is Professor E. E. Tyrtushnikov. Some 200 students have graduated from the Chair since 1981.

The Institute has six laboratories and two research groups within its structure: the laboratories are:

- 1). **The Laboratory of Numerical Methods of Algebra** under corresponding member of the RAS Valentin V. Voevodin, D. PM. S. Born in 1934. Corresponding member of the Mathematics Department of the Academy since 1987. He is a deputy to the Academician Secretary of the Mathematics Department of the Academy.
- 2). **The Laboratory of Computational Processes and Algorithms** under Professor Viacheslav I. Lebedev;
- 3). **The Laboratory of Numerical Mathematics** under Professor Iurii A. Kuznetsov;
- 4). **The Laboratory of Ocean Dynamics** under Academician Artem S. Sarkisian; D. PM. S. Born in 1926. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1981; academician since 1988. He is Deputy to the Academician Secretary of the Department. Since 1971, he has headed the Marine Current Dynamics Department of the P. P. Shirshov Oceanology Institute in Moscow.
- 5). **The Laboratory of General Circulation of Atmosphere and Ocean** under corresponding member of the RAS Professor Valentin P. Dymnikov, (Dimnikov), D. PM. S. Corresponding member of the Academy in 1993. In 1972, he was Chief of the Statistical Methods of Weather Forecasting Subdepartment of the Satellite Meteorology Department of the Computer Center in Akademgorodok-Novosibirsk in Siberia.
- 6). **The Laboratory of Mathematical Modeling in Immunology and Medicine** under Academician and Professor Gurii I. Marchuk.

The two research "groups" are:

- (1). **The Scientific research Group of Adjoint Equations, Optimization Methods and Perturbation Theory**, headed by Professor Valeri I. Agoshkov; and
- (2). **The Scientific research Group of Mathematical Modeling of Ecological Processes** under Professor Artash E. Aloian (Aloyan).



5. Institute of Mathematics and Computing Center (IMCC) in Ufa.

The institute is located at 112 Chernyshevskaya (aya) st., Center, Ufa 450000. Telephone 222-34-12, Teletype 162149 RAD, Fax 23-34-12.
The institute is under the direction of corresponding member of the RAS Valentin V. Napalkov.



6. Scientific-Research Institute of Applied Mathematics and Mechanics attached to Moscow State Technical University named after N. E. Bauman (SRIAMM)

(The Department carries out scientific-systematic direction)
5, 2-nd Baumanskaya (aya) st., Moscow, 107005
Directed by Professor Vitalii V. Savichev, tel. 263-64-30



7. Scientific-Research Institute of Mathematics and Mechanics named after N. G. Chebotarev attached to Kazan State University named after V. I. Lenin

18, Lenina st., Kazan-8, 420008
Directed by Professor Aleksandr V. Kosterin, tel. 38-75-25 (The department carries out scientific-systematic direction)

The Mathematics Department also has under its guidance and responsibility two major national Committees:

**National Committee of Mathematicians of Russian Federation
32a, Leninsky (skii) ave., Moscow, 117993
Directed by Academician Ludvig D. Faddeev, tel. 938-18-12**

Faddeev, Ludwig D., D. PM. S. Born in March 1934 in Leningrad, son of D. K. Faddeev. Russian mathematician and theoretical physicist. Academician of the Mathematics Department since 1976. Member of the Presidium since October 1988. He graduated from Leningrad State University in 1956. He became a professor at Leningrad State University in 1969. From 1976 to 1987, he served as deputy director of the V. A. Steklov Mathematics Institute in Leningrad. In November of 1987, he was made director of that institute, that has operated since 1934 as the Leningrad independent branch of the Moscow Steklov Mathematics Institute. It conducts research on mathematical geology, mathematical physics, logic and number theory. Faddeev is also Chief of the Number Theory and Modern Algebra Department of the Leningrad institute. His works deal primarily with mathematical and theoretical physics. He worked on the three-body problem of classical mechanics in 1963 producing the Faddeev equations, and he solved the inverse problem in scattering theory for the N-dimensional Case in 1966. In 1967, he developed a method for quantifying fields with infinite dimensional symmetry groups such as the Yang-Mills field and the Einstein gravitational field, by means of continual integration. In 1971, he received the State Prize and in 1975, he was the recipient of the prestigious Dannie Heineman Prize for Mathematical Physics of the American Physical Society. In 1975, he formalized the quantification of particle-like solutions (solitons) of field-theory equations. Methods developed by him are employed in various fields of mathematics, in quantum mechanics, and in the theory of elementary particles. From 1985 to 1987, he has served as Vice President of the International Mathematical Union when he became president. He is head of

the National Committee of Mathematicians of the Russian Federation. He also heads the International Institute named after I. Eiler located in St Petersburg. (GSE 27, p. 86.)

**National Committee of Bernoulli Society on Mathematical Statistics,
Probability Theory, Combinatorics and its Application
42, Vavilov st., Moscow V-333, GSP-1, 117966
Directed by Academician Iurii V. Prokhorov, tel. 135-23-80**

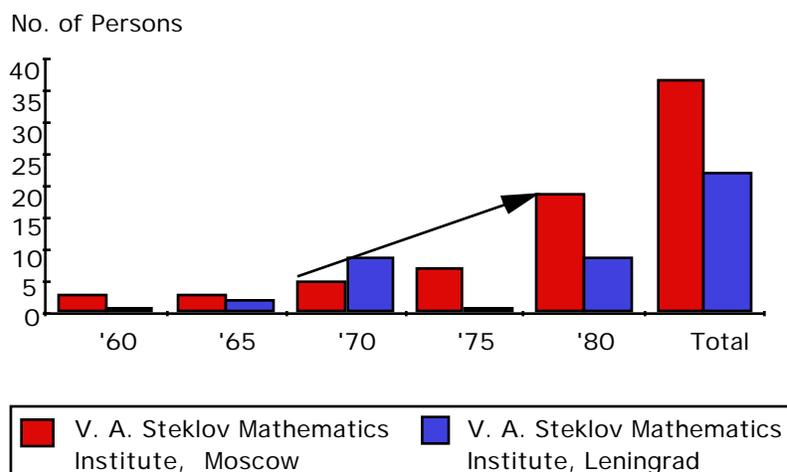
Prokhorov, Iurii V., D. PM. S. Born in December 1929 in Moscow. Russian mathematician. He has been a corresponding member of the Mathematics Department of the Academy since 1966 and an academician since 1972. He graduated from Moscow State University in 1949 and became a professor there in 1957. He began working at the V. A. Steklov Mathematics Institute in 1949. His principal works are in probability theory, particularly asymptotic methods. He has researched classical limit theorems, investigating conditions under which the strong law of large numbers and other so-called local theorems can be applied to sums of independent random variables. He has made major contributions to the queuing theory. Since 1969, he has been a Deputy Director of the V. A. Steklov Mathematics Institute in Moscow, that was established in 1921 and that does research in pure mathematics and mathematical physics. Since 1976, he has headed the Probability Theory Department of the Steklov Institute. He was on the head Editorial Board of the third edition of the Great Soviet Encyclopedia. He received the Lenin Prize in 1970. He directs the work of the National Committee of Bernoulli Society on Mathematical Statistics, Probability Theory, Combinatorics and its Application. (GSE 21, p. 257.)



Greatest Growth Period: The period of greatest growth in the assignment of personnel to the two Steklov research institutes directly subordinate to the Mathematics Department of the Russian Academy was from 1970 to 1980, as Figure 14 shows.

Figure 14

Assignment of Personnel to the
Mathematics Department,
1960-1980



Source: CR 80-13202, pp. 141-143 and 279-282.



(1997 Listing)

Institutions and Organizations of the Department: this is the latest list of institutes and or other units under the direct or supervisory control of the department.

1. Mathematical Institute named after Steklov V. A. (MIRAS)

42, Vavilov st., Moscow V-333, GSP-1, 117966, tel.135-22-91

For telegrams: Moscow V-333 Mathematics

Directed by Academician Iurii S. Osipov, tel.135-22-91

2. International Mathematical Institute named after L. Euler

197022 S.-Petersburg, Pesochnaya quay, 10 tel.234-32-31

Directed by Academician Ludvig D. Faddeev, tel.234-32-31

3. Institute of Computing Mathematics

32a, Leninsky ave., Moscow, 117993

Directed by Academician Gury Iv. Marchuk, tel. 938-17-69

4. Institute of Mathematics and Computing Centre (IMCC)

112, Chernyshevskaya st., Centre, Ufa 450000 ,

tel.22-59-39, teletype 162149 RAD, Fax: 23-34-12

Directed by Academician Valentin V. Napalkov, tel.22-59-36

5. Scientific-Research Institute of Applied Mathematics and Mechanics attached to Moscow State Technical University named after N. E. Bauman (SRIAMM)

(The Department carries out scientific-systematic direction)

5, 2-nd Baumanskaya st., Moscow, 107005

Directed by Prof. Vitaly V. Savichev, tel.263-64-30

6. Scientific-Research Institute of Mathematics and Mechanics named after N. G. Chebotarev attached to Kazan State University named after V. I.

Lenin

18, Lenina st., Kazan-8, 420008

Directed by Prof. Alexandr (Aleksandr) V. Kosterin, tel.38-75-25 (The department carries out scientific-systematic direction)

7. National Committee of Mathematicians of Russian Federation

32a, Leninsky ave., Moscow, 117993

Directed by Academician Ludvig D. Faddeev, tel. 938-18-12

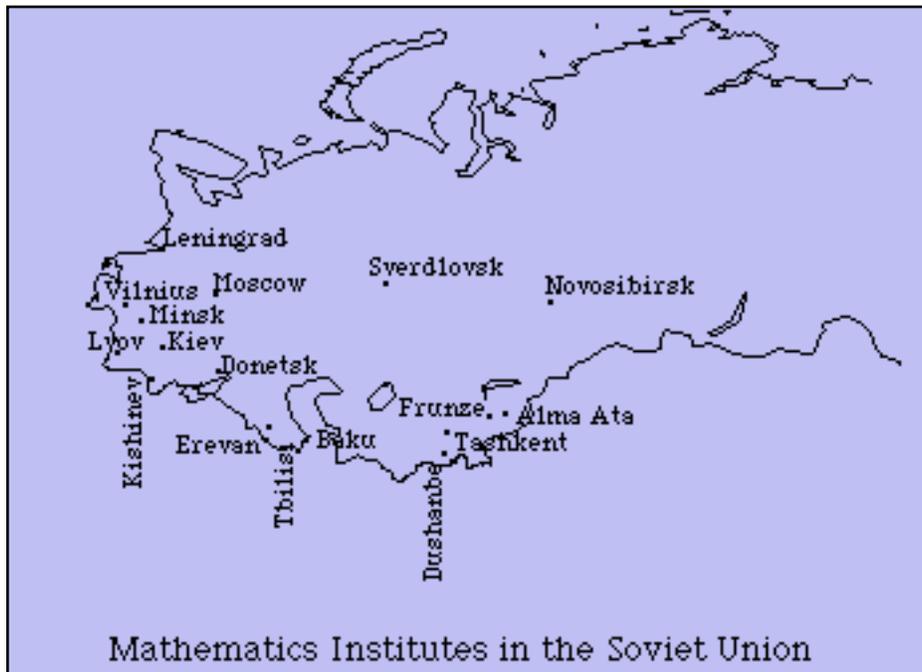
8. National Committee of Bernully Society on Mathematical Statistics, Probability Theory, Combinatorics and its Application

42, Vavilov st., Moscow V-333, GSP-1, 117966

Directed by Academician Iurii V. Prochorov, tel. 135-23-80



National Mathematics Research: While the Mathematics Department of the AN SSSR had only two mathematics institutes under its direct subordination in 1989, there were some 23 mathematics institutes located in some 17 cities, many of which, not coincidentally, also had computer sciences research institutes or computer centers located in them. Moscow has five mathematics institutes; Frunze, three, and Alma Ata, two--the others count only one.



Mathematics Institutes Within the Academic Science Research System of the former Soviet Union: These institutes had similar missions to the two institutes directly subordinate to the RAS Mathematics Department, though today they may be under other administrative controls.

Before 1960

1. Mathematics Institute in Kiev.
2. A. M. Razmadze Mathematics Institute in Tbilisi.
3. V. I. Romanovskii Mathematics Institute in Tashkent.
4. Mathematics Institute in Erevan.
5. Mathematics Institute in Minsk.
6. Mathematics and Mechanics Institute in Baku.
7. Mathematics Institute and Computer Center in Kishinev.

1960s

8. Mathematics and Mechanics Institute in Alma Ata.
9. Applied Mathematics and Mechanics Institute in Donetsk.
10. Mathematics and Cybernetics Institute in Vilnius.
11. Applied Problems of Mechanics and Mathematics Institute in Lvov.



The General Physics and Astronomy Department

The Department is located at 32a Leninskii avenue, Moscow 117993. Telephone 938-16-95; Fax: 938-17-14; Under the direction of Leonid V. Keldysh (Keldish) , (E-mail: Keldysh@oofa.msk.su)

Retrospect: In 1987, academicians in the General Physics and Astronomy Department numbered 37 and corresponding members 57. By 1989, total membership in the department had grown to 103. Because its members also hold scientific administrative positions of responsibility, the department exercises great influence over Russian scientific research and development. Some cities, of course have more than one physics research institute. Moscow has some 13, for instance; Minsk has five; Kiev, Ekaterinburg (Sverdlovsk), and Novosibirsk have four; and, Troitsk, Tomsk, Kharkov, and Gorkiy have three. In total there are some 68 physics research institutes in the former Soviet Union located in 33 cities. Generally, the strongest institutes are located in those areas that have the strongest mathematics and astronomy institutes.

Academicians: Of the 39 academicians of the General Physics and Astronomy Department, 30 are known to have completed their undergraduate work in 15 different universities or institutes in Russia. Graduates from the Moscow State University number 12 of the 30 university graduates--constituting something of an "old boys'" network--in reality as well as figuratively since the average age of these

Moscow State University graduates was 59 years. The oldest academician of the department was 91 and the youngest was 52 in 1991. Two other academicians graduated from institutes in Moscow; three graduated from the Leningrad State University and two others from other Leningrad institutes. The rest of the known university or institute graduates--11 in number--graduated from six other Russian universities: the University of Voronezh, the University of Kiev, the University of Kharkov, the University of Dnepropetrovsk, the University of Byelorussia, and the University of Gorkiy. Of the nine remaining whose origin of degree is not known, only one held no degree, and one held a candidate degree. The rest received doctoral degrees from unknown universities, probably in one of the republics or from a degree-granting scientific research institute. The Presidents of the Georgian and Estonian academies were academicians of this department and both held doctoral degrees, probably from universities in their republics.

Corresponding Members: The birth dates of 55 of the 67 corresponding members of the General Physics and Astronomy Department are known at present, and the average age of those who graduated from known institutes or universities was 73.5 years; those holding doctoral degrees from unknown institutes (29 in total) averaged 63. Those graduating from known universities and institutes total 23. Nine of these graduated from Moscow State University--with an additional two from schools located in Moscow--five graduated from institutes in Leningrad--and the rest graduated from schools located in six other cities. The fact that so many of the corresponding members--more than half of the total hold doctoral degrees from unknown institutions--strongly suggests that they received their degrees at the scientific research institutes of which they became professionally a part. This does not mean that any less rigorous program was given to these persons, but rather that a greater degree of concentration and specialization marked their programs, and that the concentration of relatively scarce professorial resources was most effectively used in this manner during a critical period of scientific manpower development.

Administrative Roles of Academician Members: In 1989, of the 39 academicians of the department 32 (82 percent) had served either as Directors or as Deputy Directors of one of the SRIs subordinate to the department. Several served in a double capacity as Chiefs of major laboratories of research institutes. Five academicians served on the board of the General Assembly of the GKNT, and two were members of the academy Presidium. The Presidents of the Byelorussian and Georgian SSR Academies of Sciences were academicians of the department. One academician was first Vice President of the AN SSSR, another was Vice President, and one was Deputy Chairman of the national academy's Committee for the Coordination of the Scientific Activities of the Republic academies--an important activity to notice. One was a member of the State Committee for the Utilization of Atomic Energy, one served as Chairman of the Noginsk Scientific Center, and one was Chairman of the Urals Department. One was also an academician of the Ukrainian SSR Academy of Sciences, and four were members of the Siberian Department of the academy.

Administrative and Other Roles of the Corresponding Members: The story of the influence of the corresponding members of the department was similar. In 1987, of the 57 corresponding members, eight were Directors and ten were Deputy Directors of departmental SRIs. By 1989, with the infusion of new blood among the corresponding members, 25 of the 67 corresponding members (37 percent) had served either as Deputy Directors or Directors of the Scientific Research Institutes subordinate to the General Astronomy and Physics Department and many of them also served as laboratory chiefs of important laboratories. One was a Division Chairman in the Lebedev Scientific Research Institute. The Presidents of the Azerbaijani and Estonian SSR Republic Academies of Sciences are corresponding members of the department. The Chairman of the Daghestani Affiliate of the academy was a member. One was a member of the Urals Department, one was a

member of the Ukrainian Academy, and another of the Azerbaiian Academy. One member serves as Vice President of the State Committee on Space Research. Three are members of the Siberian Department.

Membership Listing of the General Physics and Astronomy Department: A brief biographical sketch of each academician and corresponding member of the subject-matter departments of the RAS was given, followed thereafter by a presentation of the scientific research institutes subordinate to that department. Sources of this information have been entries digested from the *Great Soviet Encyclopedia* (MacMillan), and from the *Directory of Soviet Officials: Science and Education* for the years of 1980, 1985, 1987, and 1989. The biographical information has been compiled from a number of different publications. Even when biographical material has been used from the *Great Soviet Encyclopedia*, those items have often been modified by using later information from other sources. All of this biographical material--and the information on the Scientific Research Institutes--has been reviewed, amended, and brought up to date by staff members of the Presidium of the Russian Academy of Sciences in Moscow--a process which continues.

**1997 update:
Bureau of the Department**

Academician-secretary

Academician Leonid V. Keldysh, (Keldish) tel. 938-16-95

Keldysh, (Keldish) Leonid V., D. PM. S. Born in April 1931 in Moscow. Russian physicist. He has been a corresponding member of the General Physics and Astronomy Department of the Academy since 1968, and an academician since 1976. He graduated from Moscow State University in 1954, and went to work at the Institute of Physics. He became a professor at Moscow State University in 1969. His principal works have dealt with quantum many-particle theory and with solid-state physics. He is author of a number of monographs on the theory of semiconductor characteristics in strong electric fields. Since 1976, he has been Chief of "Keldysh's subdepartment" and of the Theory of Superconducting Department of the Nuclear Physics Division of the P. N. Lebedev Physics Institute in Moscow. From 1972 until 1988, Keldysh was Director of the P. N. Lebedev Physics Institute Branch in Troitsk and in 1988 he became Director of the Moscow Institute itself. From 1976, he also served as a Deputy Director of the Spectroscopy Institute in Troitsk that is subordinate to the academy's General Physics and Astronomy Department. He is now Academician Secretary of the Russian Academy's Department of General Physics and Astronomy in Moscow. (GSE, 12, p. 395; 31, pp. 315-316.)

Deputies of the Academician-Secretary:

Academician Andrei S. Borovik-Romanov, tel. 137-68-20

Borovik-Romanov, Viktor Andrei S., D. PM. S. Born in March 1920 in Petrograd. Russian Physicist. He has been a corresponding member of the General Physics and Astronomy Department of the Academy since 1966, and an academician since 1972. He graduated from Moscow State University in 1947. He worked at the Moscow State Institute of Measures and Measuring Instruments from 1948 to 1955. From 1956 he worked at the Institute of Physical Problems. Since 1963, he has served as Deputy Director of the S. I. Vavilov Physical Problems Institute in Moscow. He was named Chief of the Low Temperature Magnetic Properties

laboratory of the Vavilov Institute in 1964. His scientific work has been in experimental investigation of antiferromagnetism. He discovered the phenomenon of piezomagnetism. Since 1984 he has been acting Director of the S. I. Vavilov Physical Problems Institute in Moscow that was founded in 1934 to research in low temperature physics, plasma physics, theoretical physics, and power electronics. (GSE vol. 3, p.479; vol. 23, p. 729, and vol. 31, p. 316.)

Academician Aleksandr Al. Boyarchuk (Boiarchuk), tel. 231-09-24

Boiarchuk, Aleksandr A., D. PM. S. Born in 1931. Astronomer. Corresponding member of the General Physics and Astronomy Department of the Academy since 1976; academician since December 1987. Since 1979, he has been Deputy Director of the Crimean Astrophysical Observatory, that was organized in 1948 to conduct solar, stellar, and planetary research and to investigate gas and dust nebulae.

Academician Boris K. Vainshtein, tel. 135-65-41

Vainshtein, Boris K., D. PM. S. Born in July 1921 in Moscow. Russian crystallographer. He has been a corresponding member of the academy since 1962, and an academician since 1976 of the General Physics and Astronomy Department. He was originally elected to the Physical Mathematical Sciences Department. He graduated from Moscow State University in 1945, and from the Institute of Steel in 1947. He began work at the A. V. Shubnikov Crystallography Institute in 1949. He headed a laboratory there from 1958, and became the institute's Director in 1962. His principal works are in the field of structural analysis of crystals, the theory of the diffraction of electrons and roentgen rays, and research on the structure of albumen molecules. Vainshtein, Z. G. Pinkser and others developed a method of structural electronography and worked out its theoretical foundations. He was the first to define the position of hydrogen atoms in a series of crystals and to analyze the structures of many complex and organic compounds. The A. V. Shubnikov Crystallography Institute in Moscow was established in 1944 to investigate the structure and physical properties of crystals. (GSE 4, p. 470.)

Academician Vladimir V. Migulin, tel.952-19-21, 334-09-10

Migulin, Vladimir V., D. PM. S. Born in July 1911 in Sereda--present-day Furmanov--in Ivanovo Oblast. Russian radio physicist. He has been a corresponding member of the General Physics and Astronomy Department of the Academy since 1970, and Deputy Academician Secretary of that Department since 1984; academician of the Department in 1993. He graduated from Leningrad Polytechnic Institute in 1932. He worked at the Institute of Physics of the academy from 1934 to 1941, and at the Heat Engineering laboratory of the academy from 1946 to 1951. From 1951-54 he was Director of the Physicotechnical Institute in Sukhumi. He has taught at the Moscow State University since 1935--becoming a professor in 1948--and he served as Deputy General Director of the International Atomic Energy Agency from 1957-59. Since 1972, he has been Vice President of the International Radio Union. From 1969 to 1988, he served as Director of the Terrestrial Magnetism, Ionosphere, and Radio Wave Propagation Institute at Troitsk that was established in 1939. It is a leading facility in the U.S.S.R. for the study of magnetism and the ionosphere. It also investigates spherics, radio astronomy, solar physics, and cosmic rays. He has published seven major works dealing with the theory of oscillation, the propagation of radio waves and other problems of radio physics. He was awarded State Prizes in 1946 and 1953 and has received numerous other awards of recognition for his scientific work. (GSE, 16, p. 287.)

Acting Deputy of Academician-secretary on scientific-organizing problems: Dr. Viktor An. Zayats, tel. 938-55-00

Members of the Bureau:

Academician Jores (Zhores) Iv. Alferov, tel. 938-17-28, 247-40-59(SPb)

Alferov, Zhores I., D. PM. S. Born in 1930. Russian physicist. He has been an academician of the General Physics and Astronomy Department of the AN SSSR and the RAN since 1979. In 1963, he proposed that heterostructures be used for semiconductor lasers. The CO₂ gas dynamic laser that resulted was proposed by Prokhorov and V. K. Koniukhov in 1967 and built in 1970. Since 1968, he has headed the Contact Phenomenon in Semiconductors laboratory of the A. F. Ioffe Physical Technical Institute. In 1984, he was awarded the U.S.S.R. State Prize for his work--with others--on "Isoperiodic Heterostructures of Multi-component (Quaternary) Solid Solutions of the Semiconductor Compounds A₃B₅," published from 1971-1981. In December 1987, he was made director of the Ioffe Physical Technical Institute. In April of 1989 he became Chairman of the St. Petersburg Scientific Center and was elected a member of the Presidium of the academy. (GSE, 31, p. 318.)

Academician Alexandr (Aleksandr) F. Andreev , tel. 938-20-29, 237-81-19

Andreev, Aleksandr F., D. PM. S. Born in 1939. Academician of the General Physics and Astronomy Department of the Academy since December 1987. Corresponding member since 1981. In 1985 he was awarded the Lenin Prize along with others for his work on "the tunnel transfer of matter and quantum crystallization." Since 1986, he has been Deputy Director of the S. I. Vavilov Physical Problems Institute in Moscow that was created in 1934 to do research in low temperature physics, plasma physics, theoretical physics, and power electronics. In 1984, he received the M. V. Lomonosov Prize in recognition of his scientific contributions along with K. O. Keshishev and A. Ia. Parshin.

Academician Viktor Ev. Golant, tel. 247-41-50 (SPb)

Golant, Viktor E., D. PM. S. Born in 1928. Corresponding member of the General Physics and Astronomy Department since 1984; academician in 1993. Since 1964, he has headed the Plasma Physics Laboratory under the Mathematical Physics Division of the A. F. Ioffe Physical-Mechanical Institute in St. Petersburg. He is a specialist in the field of controlled thermonuclear fusion. He is author of some 140 scientific works on this problem.

Academician Albert Ab. Galeev, tel. 333-25-88

Galeev, Albert A., D. PM. S. Born in 1940. Corresponding member of the General Physics and Astronomy Department of the Academy since December 1987; academician since 1993. From 1973 to 1988, he was assistant to the Director of the Space Research Institute in Moscow, and since 1976, he has been Chief of the Interplanetary Plasma and Ionosphere Division of that institute. In 1988, he assumed the Directorship of the Space Research Institute. Together with R. Z. Sagdeev, he has been a leader in the development of new ideas in physical kinetics.

Corresponding Member Vladimir V. Zeleznyakov (Zhelezniakov), tel. 36-35-19 (N.N.)

Zhelezniakov, Vladimir V. Corresponding member of the General Physics and Astronomy Department of the Academy since December 1987. In 1977, he was listed as a junior researcher at the Radio Astronomy Observatory of the Radio Physics Scientific Research Institute in Gorkiy. (LDA 89-11378.)

Academician Nikolai S. Kardashev, tel.333-21-11

Kardashev, Nikolai S., D. PM. S. Born in 1932 in Moscow. Russian Astronomer. Corresponding member of the General Physics and Astronomy Department of the Academy since 1976; academician in 1993. He graduated from Moscow State University in 1955. Since 1973, he has been Chief of the Radioastronomy Laboratory of the Space Research Institute. Since 1979, he has been deputy director of the Space Research Institute in Moscow that was created in 1965 as the Civilian Space Agency in Russia. Since 1985, he has served as Vice President of the Committee on Space Research. His research has been in experimental and theoretical astrophysics. He was the first to point out the possibility of observing radio-frequency lines of highly excited atoms of hydrogen, helium, and other elements. He has also contributed to the design of radio telescopes. (GSE 30, p. 532.)

Corresponding Member Nikolai V. Karlov, tel. 485-42-22

Karlov, Nikolai V., D. PM. S. Born in 1929. Corresponding member of the General Physics and Astronomy Department of the Academy since 1984. Since 1976, he has been Chief of the Application of Molecular Lasers department of the P. N. Lebedev Physics Institute in Moscow.

Academician Iurii An. Osipian, tel. 930-33-73, 584-97-25 (Chernogolovka)

Osip'ian (Osipian), Iurii A., D. PM. S. Born in 1931 in Moscow. Russian physicist. He was made a vice-president of the academy in 1988. He has been a corresponding member of the General Physics and Astronomy Department of the AN SSSR and the RAN since 1972; and, an academician since 1981. He graduated from Moscow Institute of Steel in 1955. From 1955 to 1962 he was on the staff of the Institute of Metal Physics of the Central Scientific Research Institute of Ferrous Metallurgy. From 1962-63 he was deputy director of the Crystallography Institute of the AN SSSR. In 1970 he was appointed professor at the Moscow Physicotechnical Institute. His main work has been in solid state physics. He has investigated the interaction of dislocations and electrons in solids and discovered new phenomena in solids, for example: the photoplastic effect, electron paramagnetic resonance in dislocations, and dislocation conductivity. His work forms the basis of a new field--"dislocation solid state physics." Since 1973, he has been director of the Solid State Physics Institute in Moscow that was created in 1962 and whose main branch is in Chernogolovka. It does research in the fields of crystallography, high pressure physics, metallurgy, semiconductors, superconductors, and magnetic fields. He was co-winner of the 1978 Lenin Prize for studies on "New Means of Synthesis and Study of the Structure of Organic Phosphorus Compounds" (1954-75.) (GSE 30, p. 600.)

Corresponding Member Yaroslav Ev. Pokrovsky, tel.203-48-12

Pokrovskii, Yaroslav Ie., D. PM. S. Born in 1928. Corresponding member of the General Physics and Astronomy Department of the Academy since 1987.

Academician Alexandr (Aleksandr) M. Prockorov, tel.135-13-31

Prokhorov, Aleksandr M., D. PM. S. Born in June 1916 in Atherton, Australia. Russian Physicist. He has been a corresponding member of the General Physics and Astronomy Department of the Academy since 1960, and an academician since 1966. He has been Academician Secretary of the General Physics and Astronomy Department of the Academy since 1973. He graduated from the Leningrad State University in 1939 and from 1939-1941 and from 1944 to 1946 he was an "aspirant" at the Institute of Physics of the AN SSSR. He began working at the institute in 1946, becoming head of a laboratory in 1954 and Deputy Director of the institute in 1968. In 1959, he became a professor at Moscow State University. In 1961, he was Chief of the Oscillation laboratory and in 1965, Chief of the P. N. Lebedev Physics Institute's Oscillation Division in Moscow. He won the 1964 Nobel Prize in Physics for fundamental work in the field of quantum electrodynamics. Together with N. G. Basov, he developed a fundamentally new method of generating electromagnetic waves using quantum systems, devising the first molecular generator using beams of ammonia molecules--a beam-type maser--in 1954-55. With his colleagues he also developed methods for creating paramagnetic masers (1957-58). Since 1968, he has been Deputy Director of the Lebedev Physics Institute in Moscow. Since 1969, he has been editor-in-Chief of the Great Soviet Encyclopedia. He has been on the Presidium of the academy since 1970. In 1971 he became Director of a subdepartment at the Moscow Physicotechnical Institute. Since 1983, he has served as Director of the General Physics Institute in Moscow that was set up in 1983 to research lasers, solid-state physics, fusion, spectroscopy, and fiber optics. It is subordinate to the academy's General Physics and Astronomy Department. He received the Lenin Prize in 1959. He has been a member of the American Academy of Arts and Sciences since 1971. (GSE vol. 21, p. 257; vol. 3, p. 684; vol. 11, p. 587 and 607; vol. 16, p. 457; vol. 30, p. 146, and vol. 31., p. 318.)

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Academicians

Abrikosov, Aleksei A., D. PM. S. Born in June 1928. Russian theoretical physicist. He has been a corresponding member of the Academy since 1964, and an academician since December 1987. He graduated from the Moscow State University in 1948 and worked at the Institute of Physical Problems from 1948 to 1965. Since 1965 he has worked at Theoretical Physics Institute of the Academy where he has been Head of the Metal Physics Laboratory. He has been a professor at Moscow State University since 1965. He was named Director of the L. F. Vereshchagin High

Pressure Physics Institute in Troitsk in 1988. His research is in fields of superconductivity, the theory of semimetals, statistical physics, quantum electrodynamics, the theory of plasma, and astrophysics. He received the Lenin Prize in 1966 (with L. P. Gorkov and V. L. Ginzburg) for work on the theory of superconductive alloys and the properties of superconductors in strong magnetic fields. He has produced four major monographs. (GSE vol. 1, p. 31; vol. 14, p. 191; vol. 23, p. 613.)

Aleksandrov, Evgenii B., D. PM. S. Born in 1936. Physicist. Corresponding member since 1979; academician since 1993 of the General Physics and Astronomy Department of the Academy. Winner--with others--of the 1978 State Prize for a series of studies on "Detection, Research and Implementation of New Optical Phenomena Conditioned by Coherence and Atomic State" (1955-1976)

Aleksandrov, Kirill., D. PM. S. Born in 1931. He is a specialist in the field of crystallography and the physics of crystals. He was elected a corresponding member in 1972, and he has been an academician of the General Physics and Astronomy Department of the academy since 1984. He graduated from the Leningrad V. I. Ulyanova-Lenin ElectroTechnical Institute in 1954 and began work at the A. V. Shubnikov Crystallography Institute in 1958, and at the Physics Institute in Krasnoyarsk as a junior researcher; he was Head of a laboratory and a Deputy Director from 1968 to 1981. Since 1983, he has been Director of that institute--the L. V. Kirenskii Physics Institute in Krasnoyarsk that was established in 1956 to study thin magnetic film physics, super strong stationary magnetic fields, ferroelectric physics, and radio spectroscopy. It is subordinate to the Krasnoyarsk Scientific Center of the academy's Siberian Department. He also became Deputy Chairman of the Krasnoyarsk Scientific Center in 1983. As a professor he has held the chair of Solid State Physics at the Krasnoyarsk State University since 1971. (Material from an unpublished manuscript: *Perasoval'nii sostav, 1957-1989* Novosibirsk: Akademia Nauk SSSR Publishing House, 1989.)

Alferov, Zhores I., D. PM. S. Born in 1930. Russian physicist. He has been an academician of the General Physics and Astronomy Department of the AN SSSR and the RAS since 1979. In 1963, he proposed that heterostructures be used for semiconductor lasers. The CO₂ gas dynamic laser that resulted was proposed by Prokhorov and V. K. Koniukhov in 1967 and built in 1970. Since 1968, he has been Chief of the Contact Phenomenon in Semiconductors Laboratory of the Semiconductors Physics Division of the A. F. Ioffe Physical Technical Institute. In 1984, he was awarded the USSR State Prize for his work--with others--on "Isoperiodic Heterostructures of Multicomponent (Quaternary) Solid Solutions of the Semiconductor Compounds A₃B₅," published from 1971-1981. In December 1987, he was made Director of the Ioffe Physical Technical Institute in St. Petersburg. In April of 1989 he became Chairman of the St. Petersburg Scientific Center and was elected to the Presidium of the academy. He currently serves on the Bureau governing body of the General Physics and Astronomy Department of the Academy. (GSE, 31, p. 318.)

Ambartsumian, Viktor A., D. PM. S. Born in 1908 in Tiflis. Russian astrophysicist working in the physics of stars and nebulae, astronomy, the dynamics of stellar systems, and the cosmogony of the stars and galaxies. He is the founder of a school of theoretical astrophysics in Russia. Corresponding member of the academy since 1939; academician since 1953. Academician of the Armenian Academy of Sciences in 1943, and President of that academy since 1947. Since 1953, academician of the Nuclear Physics Department of the academy. Since 1957, member of the academy Presidium. Since 1967, academician of the Physical and Mathematical Sciences Department of the Armenian Academy of Sciences; He is a professor at the University of Erevan. He founded the Biurakan Astrophysical Observatory of the Armenian academy in 1946 and has been its Permanent Director since. From 1948 to

1955 he served as Vice President of the International Astronomical Union, and has been its President since 1968. He won State Prizes for his work in 1946 and in 1950. He was a Deputy to the Supreme Soviet from its third through its seventh sessions. In 1988, he was appointed an advisor to the national academy's Presidium. He served on the editorial board of Science in Russia. (GSE 1, p. 327.) (Deceased 1996)

Andreev, Aleksandr F., D. PM. S. Born in 1939. Corresponding member since 1981; Academician of the General Physics and Astronomy Department of the Academy since December 1987. Since 1986, he has been Deputy Director of the S. I. Vavilov Physical Problems Institute in Moscow that was created in 1934 to do research in low temperature physics, plasma physics, theoretical physics, and power electronics. In 1984, he received the M. V. Lomonosov Prize in recognition of his scientific contributions along with K. O. Keshishev and A. Ia. Parshin. In 1985 he was awarded the Lenin Prize along with others for his work on "the tunnel transfer of matter and quantum crystallization." He currently serves on the Bureau governing body of the General Physics and Astronomy Department of the Academy.

Avrorin, Evgenii N. Corresponding member of the General Physics and Astronomy Department of the Russian Academy of Sciences and of the Urals Department since December 1987; academician in 1993. In 1992, he was listed as the Chief scientist of the Chelyabinsk-70 weapons design center located near Chelyabinsk. (NY Times News Service, 15 Feb., '92.)

Bagaev, Sergei N., D. PM. S. Born in 1941. Physicist. Corresponding member since 1990 of the General Physics and Astronomy Department; academician in 1993. Specialist in laser physics and quantum electronics. He is a lead researcher and heads a department of the Thermal Physics Institute in Novosibirsk of the Siberian Department of the RAS. He conducts experiments in optical spectroscopy, studying the quantum Doppler Effect of gases from cold to extremely high temperatures. He also acts as a consultant to the Medical Scientific Council of the Russian Academy of Sciences.

Basov, Nikolai G., D. PM. S. Born in December 1922 in Voronezh. Since 1966, academician of the General Physics and Astronomy Department of the academy. Since 1967, he has been on the Presidium of the academy. He is one of the founders of quantum radio physics. He graduated from the Moscow Engineering Physics Institute in 1950. Since 1963, he has been the Chief of the Quantum Radio Physics Division of the P. N. Lebedev Physics Institute. He was a 1964 winner of the Nobel Prize in Physics for fundamental work in the field of quantum electrodynamics. From 1973 to December 1988, he served as Director of the P. N. Lebedev Physics Institute in Moscow which is the oldest and largest institute of its kind in Russia. Among the topics of research at the institute are lasers, quantum radio physics, nonlinear optics, spectroscopy, plasma physics, theoretical astrophysics, particle physics, and theoretical biophysics. Since 1976, he has been vice Chairman of the Executive Council of the World Federation of Scientific Workers. Since 1978, he has served as Chairman of the Presidium of the Society for Knowledge in Moscow. Basov was the first to point out the possibility of using semiconductors in quantum electronics. From 1957 to 1961, he and his co-workers developed methods for fabricating semiconductor lasers. The first gallium arsenide semiconductor laser built in the USSR was made in the B. M. Vul Laboratory. He received the Lenin Prize in 1959 and the Nobel Prize in 1964. He has been a colleague and close collaborator with Prokhorov. He has been on the editorial board of Science in the USSR (GSE vol. 3, p. 58; vol. 11, p. 588; vol. 16, p. 457; vol. 21, p. 257; vol. 30, p. 146, and vol. 31, p. 318.)

Bogomolov, Aleksei F., D. Tech S. Born May 1913 in the village of Sitskoe in present-day Smolensk Oblast. Russian radio engineer. Academician of the General Physics and Astronomy Department of the Academy since 1984. He graduated from

the Moscow Power Engineering Institute in 1937 and began working there upon graduation. He became a professor in 1958. His principal works are in radio engineering and radio physics. In 1979, he was listed as a senior researcher in an unidentified laboratory of the Space Research Institute in Moscow. He helped to develop large antennae to receive transmission from a television center via artificial satellites. (GSE 3, p. 397.)

Borisevich, Nikolai A., D. PM. S. Born in September 1923 in the village of Luchnoi Most, Igumen District, in Minsk Province. Academician of the General Physics and Astronomy Department of the Academy since 1981. He graduated from the University of Byelorussia in 1950. Deputy Director and Chief of the Physics of Infrared Radiation Laboratory of the Minsk Physics Institute from 1955 to 1969. Since 1969, he has been President of the Byelorussian Academy of Sciences and an academician of the Physical and Mathematical Sciences Department of the Byelorussian Academy of Sciences. His basic scientific works are on the luminescence of complex molecules in the gaseous phase, infrared spectroscopy and quantum electronics. He developed optical methods for determining the temperature of excited molecules as well as other characteristics. He established the dependence on temperature of intensity integrals for infrared absorption bands and created a new type of dispersion filter for the infrared zone of the spectrum. He has proposed quantum generators with selective losses. Winner of Lenin Prize in 1980 for his work--with others--on the spectroscopy of free complex molecules. He was a Deputy to the 7th and 8th sessions of the Supreme Soviet. (GSE 3, p. 466.)

Borovik-Romanov, Viktor Andrei S., D. PM. S. Born in March 1920 in Petrograd. Russian Physicist. He has been a corresponding member since 1966, and an academician since 1972. He graduated from Moscow State University in 1947. He worked at the Moscow State Institute of Measures and Measuring Instruments from 1948 to 1955. From 1956 he worked at the Institute of Physical Problems. Since 1963, he has served as Deputy Director of the S. I. Vavilov Physical Problems Institute in Moscow. He was named Chief of the Low Temperature Magnetic Properties laboratory of the Vavilov Institute in 1964. His scientific work has been in experimental investigation of anti ferromagnetism. He discovered the phenomenon of piezo magnetism. Since 1984 he has been acting Director of the S. I. Vavilov Physical Problems Institute in Moscow that was founded in 1934 to research in low temperature physics, plasma physics, theoretical physics, and power electronics. He is currently one of the Deputy academician secretaries of the General Physics and Astronomy Department of the Russian Academy. (GSE vol. 3, p.479; vol. 23, p. 729, and vol. 31, p. 316.)

Boyarchuk (Boiarchuk), Aleksandr A., D. PM. S. Born in 1931. Astronomer. Corresponding member since 1976; academician since December 1987. Since 1979, he has been Deputy Director of the Crimean Astrophysical Observatory, that was organized in 1948 to conduct solar, stellar, and planetary research and to investigate gas and dust nebulae. He is currently one of the Deputy academician secretaries of the General Physics and Astronomy Department of the Russian Academy. He is currently President of the Russian National Committee of Russian Astronomers.

Bunkin, Boris V., D. Tech. S. Born in July 1922 in the village of Aksinino, Moscow Oblast. He has been a corresponding member of the General Physics and Astronomy Department of the Academy since 1968; an academician since 1974. He graduated from the Moscow Aviation Institute in 1947 going to work on the staff there immediately. Since 1950 he has been with the Moscow Engineering Physics Institute. His major works are in radio engineering and electronics. (GSE 4, p. 180.)

Bunkin, Fedor V., D. PM. S. Born in 1929 in Moscow. Radio Physicist. Corresponding member of the General Physics and Astronomy Department of the Academy since 1976; academician in 1993. He graduated from Moscow State

University in 1952. He was made a professor there in 1971. He joined the staff of the Institute of Physics of the Moscow Academy in 1955. Since 1976, he has been Chief of Theoretical Department of the Oscillation Division of the P. N. Lebedev Institute in Moscow and since 1976, Chief of "Bunkin's subdepartment" of the Theoretical Department of the Oscillation Division. Since 1983, he has served as Deputy Director of the General Physics Institute in Moscow that was established in 1983 to study lasers, solid-state physics, fusion, spectroscopy, and fiber optics. His works are in electromagnetic radiation. He has directed research in the interaction of high-intensity electromagnetic radiation with gaseous, liquid, and solid media. (GSE 30, p. 29.)

Chirikov, Boris V. D. PM. S. Born in 1928. Physicist. Specialist in theoretical and statistical physics. Corresponding member since 1984, and academician since 1992. He has authored and co-authored 100 scientific works of which 10 are monographs. From classical dynamics, he developed the theory of dynamic chaos. He graduated from the Moscow State University in 1952. He worked in the Thermal Technical laboratory of the Institute of Atomic Energy imeni I. V. Kurchatov. In 1958, he joined the staff of the Budker Nuclear Physics Institute of the Siberian Department in Akademgorodok, in 1964, he headed one of its laboratories, and in 1985 was made Head of the Theoretical Department of the Institute. He has been a professor at the Novosibirsk State University since 1974, holding the chair in general physics. He is on the editorial board of five natural science journals, including Nuclear and Statistical Physics journals. He is also on the Scientific Council for Nuclear Physics of the Siberian Department of the Russian Academy of Sciences.

Denisiuk, Iurii N., D. PM. S. Born in 1927 in Sochi. Russian physicist. Corresponding member since 1970; academician in 1993. He graduated from the Leningrad Institute of Precision Mechanics and Optics in 1954 and has worked and headed a laboratory there since 1961. His principal works are in physical optics. He developed a method of holography with recording in a three-dimensional medium. (GSE 8, p. 133.)

Deviatkov, Nikolai D., Senior Researcher in the Radio Engineering and Electronics Institute in Moscow since '73; academician of the General Physics and Astronomy Department of the Academy in 1993. He is currently President of the Russian Scientific Council on the Problems of "Physical Electronics."

Dykhne, Aleksandr M., D. PM. S. Corresponding member since December 1987; academician in 1993.

Galeev, Albert A., D. PM. S. Born in 1940. Corresponding member since December 1987; academician in 1993. From 1973 to 1988, he was assistant to the Director of the Space Research Institute in Moscow, and since 1976, he has been Chief of the Interplanetary Plasma and Ionosphere Division of that institute. In 1988, he assumed the Directorship of the Space Research Institute. Together with R. Z. Sagdeev, he has been a leader in the development of new ideas in physical kinetics. He currently serves on the Bureau governing body of the General Physics and Astronomy Department of the Academy.

Gapanov-Grekhov, Andrei V., D. PM. S. Born in 1926 in Moscow. He has been a corresponding member since 1964 and an academician since 1968. He graduated from the University of Gorkiy in 1949. From 1952 to 1955 he worked at the Gorkiy Polytechnic Institute and from 1955 he worked in the Scientific Research Radio physical Institute at the University of Gorkiy. He has written fundamental works in the fields of electrodynamics, plasma physics, physical electronics, the electrodynamics of the nonlinear medium and the theory of the variations of distributed nonlinear systems. Together with M. A. Miller, he proposed a method of the channelization and acceleration of particles and of plasma with the help of non-uniform high-frequency fields. He has conducted research on induced cyclotron radiation that has allowed the construction of masers on a cyclotronic resonance for

which he received the State Prize in 1967. Since 1977, he has served as Director of the Applied Physics Institute at Gorkiy that was created in 1977. Research in the institute includes plasma physics, hydrophysics, quantum electronics, and high power electronics. (GSE 6, p. 89.)

Ginzberg, Vitalii L., D. PM. S. Born in September 1916 in Moscow. Russian Physicist. He has been a corresponding member of the academy since 1953 and an academician since 1966. He was originally elected to the General and Applied Physics Department. He is also a member of the Nuclear Physics Department. He graduated from Moscow State University in 1938. Since 1940 he has worked at the Physics Institute of the academy and since 1945 he has been a professor on the faculty of Moscow State University. In 1940 he worked out the quantum theory of the Cherenkov-Vavilov effect and the theory of Cherenkov radiation in crystals. With L. D. Landau, he formulated a phenomenological theory of superconductivity. In 1950 and 1951, he worked on problems of thermonuclear reactions. Since 1958, he has researched problems in the theory of exciton and in crystallo-optics. He worked out the theory of magnetic-braking cosmic radio-frequency radiation and a radio astronomy theory on the origin of cosmic rays. His primary scientific contributions are in the theory of wave propagation in the ionosphere, radio astronomy, problems in the origin of cosmic rays thermodynamic theory of ferroelectric phenomena, the theory of superconductivity, optics, the theory of radiation and astrophysics. Since 1971, he has served as Chief of the Theoretical Laboratory of the Lebedev Physics Institute, and since 1976, he has headed the Theoretical Physics Department of the institute. Since 1981, he has been on the Advisory Council of the Physical Technical Institute in Moscow that trains scientists for the various academy of science research institutes. He has produced three major works and received numerous awards and prizes for his scientific contributions. (GSE vol. 6, p. 411; vol. 13, pp. 174-5; vol. 14, p. 191; vol. 23, p. 614; vol. 31, p. 318.)

Golant, Viktor E., D. PM. S. Born in 1928. Corresponding member since 1984. Since 1964; academician in 1993. He has been Chief of the Plasma Physics Laboratory under the Mathematical Physics Division of the A. F. Ioffe Physical-Mechanical Institute in St. Petersburg. He is a specialist in the field of controlled thermonuclear fusion. He is author of some 140 scientific works on this problem. He currently serves on the Bureau governing body of the General Physics and Astronomy Department of the Academy.

Gorkov, Lev P., D. PM. S. Born in 1929. Physicist. Corresponding member since 1966 and academician since December 1987. Since 1966, he has been Chief of the Superconductor Laboratory of the L. D. Landau Theoretical Physics Institute in Moscow. He was originally elected to the General and Applied Physics Department.

Kadomtsev, Boris B., D. PM. S. Born in November 1928 in Penza. Russian physicist. Corresponding member since 1962, and academician since 1970. He graduated from Moscow State University in 1951 and began working immediately at the Institute of Physics and Energetics in Oblinsk. He began working at the Atomic Energy Institute in 1956. Since 1973, he has been Chairman of the Plasma Physics Division of the State Committee for the Utilization of Atomic Energy. His principal researches are in plasma physics and in the problem of controlling thermonuclear fusion. He has predicted some types of transient plasma and has laid the foundations for the theory of the diffusion and thermal conduction in turbulent plasma (the transport phenomena). He has also provided a quantitative explanation of the anomalous behavior of plasma in a magnetic field. In 1966, he discovered the instability of plasma involving the so-called trapped particles. He has published three major theoretical works in his field. He received the State Prize in 1970 and in 1984, he was awarded the Lenin Prize for the creation of a new branch of physics--high temperature plasma physics. He is currently President of the Russian United

Scientific Council on the Complex Problems of "Plasma Physics." (GSE 11, p. 333.)

Kagan, Iurii M., D. PM. S. Born in July 1928 in Moscow. Physicist. He has been a corresponding member of the academy since 1970, and an academician since 1984. He graduated from the Moscow Physical Engineering Institute in 1950. In 1956, he began working at the Atomic Energy Institute. In 1962, he was made a professor at the Moscow Physical Engineering Institute. His major interests are in the kinetic theory of gases--he created the theory of transport phenomena in gases with rotational degrees of freedom. He has also researched problems in molecular physics, solid-state theory, and theories of metals and imperfections systems. He predicted, for instance, the existence of quasi-localized levels in the phonon spectrum. He has worked with the theory of the Mossbauer effect, and studied the interaction of nuclear radiation with matter. (GSE 11, p. 336.)

Kardashev, Nikolai S., D. PM. S. Born in 1932 in Moscow. Russian Astronomer. Corresponding member since 1976; academician in 1993. He graduated from Moscow State University in 1955. Since 1973, he has been Chief of the Radio astronomy Laboratory of the Space Research Institute. Since 1979, he has been Deputy Director of the Space Research Institute in Moscow that was created in 1965 as the Civilian Space Agency in Russia. Since 1985, he has served as Vice President of the Committee on Space Research. His research has been in experimental and theoretical astrophysics. He was the first to point out the possibility of observing radio-frequency lines of highly excited atoms of hydrogen, helium, and other elements. He has also contributed to the design of radio telescopes. He currently serves on the Bureau Governing Board of the General Physics and Astronomy Department of the Academy. (GSE 30, p. 532.)

Keldysh (Keldish), Leonid V., D. PM. S. Born in April 1931 in Moscow. Russian physicist. He has been a corresponding member of the department since 1968, and an academician since 1976. He graduated from Moscow State University in 1954, and went to work at the Institute of Physics. He became a professor at Moscow State University in 1969. His principal works have dealt with quantum many-particle theory and with solid-state physics. He is author of a number of monographs on the theory of semiconductor characteristics in strong electric fields. Since 1976, he has been Chief of "Keldysh's subdepartment" and of the Theory of Superconducting Department of the Nuclear Physics Division of the P. N. Lebedev Physics Institute in Moscow. From 1972 until 1988, Keldysh was Director of the P. N. Lebedev Physics Institute Branch in Troitsk and in 1988 he became Director of the Moscow Institute itself. From 1976, he also served as a Deputy Director of the Spectroscopy Institute in Troitsk that is subordinate to the academy's General Physics and Astronomy Department. He is currently Academician-secretary of the General Physics and Astronomy Department of the Academy. (GSE, 12, p. 395; 31, pp. 315-316.)

Khalatnikov, Isaak M., D. PM. S. Born in October 1919 in Dnepropetrovsk. Russian physicist. He has been a corresponding member of the department since 1972, and an academician since 1984. He graduated from the University of Dnepropetrovsk in 1941. From 1945 to 1965, he worked at the Physical Problems Institute of the AN SSSR and the RAS. Since 1954, he has been a professor at the Moscow Physico-Technical Institute. Working with L. D. Landau, he helped to originate the theory of quantum fluids and developed it in its application to liquid helium. He has authored works on relativistic cosmology that deal with the behavior of the universe in the early stages of its development--in these areas working with E. M. Lifshits and V. A. Belinskii. He has written, too, on the foundations of quantum electrodynamics with A. A. Abrikosov and L. D. Landau. From 1965 to 1989, he served as Director of the L. D. Landau Theoretical Physics Institute of the AN SSSR. The institute is engaged in research in all aspects of theoretical physics, especially the theory of

solids. The institute is subordinate to the academy's General Physics and Astronomy Department. He has been Chief of that institute's Gravitational Theory Laboratory since 1964. Since 1988, he has served as a Vice President of the AN SSSR. He received the State Prize in 1953. He is currently President of the Russian Scientific Council on Problems of "Relativistic Astrophysics and Gravitation." (GSE vol. 11, p. 406; vol. 14, p. 191, and vol. 28, p. 552.)

Kharadze, Evgenii K., D. PM. S. Born in 1907. Astronomer. Academician of the Physical and Mathematical Sciences Department of the Georgian academy since 1955. Member of the academy's Presidium since 1981. Academician of the General Physics and Astronomy Department of the AN SSSR and the RAS in Moscow since 1984. Since 1932, he has been the Director of the Astrophysical Observatory in Abastumani which is at the highest altitude of any astrophysical observatory in Russia. It studies the upper atmosphere, stars, planets, the sun and the moon. It also does research in the areas of modern astrophysics, and stellar astronomy. His major scientific contributions are in the study of interstellar media, the structure of the galaxy, variable and transient stars and their spectral characteristics, and the upper atmosphere of the earth. Under his direction, research on the diffusion medium in the galaxy led to the determination of the electron density of planetary nebulas and the discovery of the polarization of radiation of the Crab Nebula. He helped to develop a new astronomical device for the study of the physical properties of the surface of the moon. From 1978 to 1986, he served as President of the Georgian Academy of Sciences. (GSE 7, p. 211.)

Kotelnikov, Vladimir A., D. Tech S. Born August 1908 in Kazan'. Russian radio engineering scientist. Son of a Kazan' University professor. He graduated from the Moscow Institute of Power Engineering in 1931, and taught there, becoming a professor in 1947. Since 1953, he has been an academician of the General Physics and Astronomy Department. From 1954 to 1988, he served as the Director of the Radio Engineering and Electronics Institute in Moscow, that does basic research in radio wave propagation, new electronic devices for detection, generation, and amplification of radio signals. He has been Vice President of the academy since 1970. Since 1971, he has been a board member of the GKNT General Assembly. Since 1979, he has served as first Vice President of the Academy of Sciences of the USSR. His work has been on the improvement of radio reception. His papers on potential noise immunity are significant. He has directed work on radio location of Mars, Venus, and Mercury. He is an honorary member of the American Institute of Electrical and Electronics Engineering (1964), and a foreign member of the Czechoslovakian Academy of Sciences (1965). He was awarded USSR state prizes in 1943 and 1946, and received the Lenin prize in 1964. He was on the editorial board of Science in Russia. In 1974, he received the A. S. Popov Gold Medal that is named after the Russian physicist and electrical engineer. In 1982, he received the M. V. Lomonosov Gold Medal. Recipient of the M. V. Keldysh Gold Medal in 1987 for his scientific work. (GSE 13, p. 447.)

Kurdiumov, Georgii V., D. PM. S. Born in February 1902 in Rylsk in present-day Kursk. Russian physicist. He has been a corresponding member of the academy since 1946 and an academician since 1953. He graduated from Leningrad Polytechnic Institute in 1926. He worked at the Leningrad PhysicoTechnical Institute from 1925 to 1932. In 1932, he joined the Dnepropetrovsk PhysicoTechnical Institute. In 1944, he became Director of the Institute of Metallurgy and Metal Physics of the Central Scientific Research Institute of Ferrous Metallurgy. In 1962, he became Director of the Solid State Physics Institute of the AN SSSR and the RAS. He was elected to the German Academy of Sciences in 1970, and thereafter to other science academies throughout the world. He was originally elected to the Physical and Mathematical Sciences Department of the AN SSSR, but he was also a member of the Physical Chemistry and Technology of

Inorganic Materials Department. He has also been an academician of the Physical and Technical Problems of Materials Science Department of the Ukrainian Academy of Sciences since 1969. Since 1975, he has served as Deputy Chairman of the Noginsk Scientific Center. His studies are in the martensite transformations in crystalline materials, that are of critical importance for the development of the theory of phase transitions and for the heat treatment of steels and alloys. He and his co-workers study the mechanism and kinetics of the transformation of austenite to martensite. His contributions to the development of physical metallurgy and the physics of plastic deformations are many. He has also developed a number of new experimental methods. He has written two major monographs. He was awarded the State Prize in 1949. In 1979, he was given the D. K. Chernov Gold Medal in recognition of his work in physics. (GSE vol. 14, p. 123; vol. 15, p. 503; vol. 19, p. 703; vol. 31, p. 388.)

Larkin, Anatolii I., D. PM. S. Born in 1932. Corresponding member since 1979. Since 1969; academician of the General Physics and Astronomy Department in 1993. Chief of the Quantum Mechanics Laboratory of the L. D. Landau Theoretical Physics Institute in Moscow, whose scientists study theoretical physics--theory of solids, low temperature physics, elementary particle theory, plasma theory and laser radiation.

Mesiats, Gennadii A., C. GM. S. Born in 1936. Corresponding member since 1979; and an academician of the General Physics and Astronomy Department and of the Siberian Department since 1984. He is also a member of the Urals Department. He is a specialist in the fields of electronics and electrophysics. He received the Lenin Komsomol Prize in 1968, and the Laureate State Prize in 1978. Since 1986, as Chairman of the Urals Department, he has served as a member of the Presidium of the Academy of Sciences of the USSR. In 1988 he was named a Vice President of the Academy of Sciences for the Urals Department. From 1977 to 1986, he served as Director of the High Current Electronics Institute in Tomsk, which is subordinate to the Urals Department. The institute researches thermonuclear and accelerator physics and laser technology and was created in 1977 from the High Current Electronics laboratory of the Atmospheric Optics Institute. Since 1986, he has been Chairman of the Urals Department, and from November of 1986 to 1988, he served as the Director of the Electrophysics Institute in Ekaterinburg (Sverdlovsk) that was established in 1986. He is currently the President of the Russian Scientific Council on Problems of "Relativistic and Heavy-Current Electronics."

Migulin, Vladimir V., D. PM. S. Born in July 1911 in Sereda--present-day Furmanov--in Ivanovo Oblast. Russian radio physicist. He has been a corresponding member of the academy since 1970, and an academician and Deputy Academician Secretary since 1984. He graduated from Leningrad Polytechnic Institute in 1932. He worked at the Institute of Physics of the academy from 1934 to 1941, and at the Heat Engineering Laboratory of the academy from 1946 to 1951. From 1951-54 he was Director of the Physico-Technical Institute in Sukhumi. He has taught at the Moscow State University since 1935--becoming a professor in 1948--and he served as Deputy General Director of the International Atomic Energy Agency from 1957-59. Since 1972, he has been Vice President of the International Radio Union. From 1969 to 1988, he served as Director of the Terrestrial Magnetism, Ionosphere, and Radio Wave Propagation Institute at Troitsk that was established in 1939. It is a leading facility in the USSR for the study of magnetism and the ionosphere. It also investigates spherics, radio astronomy, solar physics, and cosmic rays. He has published seven major works dealing with the theory of oscillation, the propagation of radio waves and other problems of radio physics. He was awarded State Prizes in 1946 and 1953 and has received numerous other awards of recognition for his scientific work. He is currently one of the Deputy academician secretaries of the General Physics and Astronomy Department of the Russian Academy. He is

currently President of the Russian National Committee of The International Scientific Radio Union. (GSE, 16, p. 287.)

Nesterikhin, Iurii E., D. PM. S. Born in October 1930 in Ivanovo. Russian physicist. He has been a corresponding member of the General Physics and Astronomy Department of the academy and of the Siberian Department since 1970 and an academician of both departments since 1981. He graduated from Moscow State University in 1953, worked at the Atomic Energy Institute from 1954 to 1961 and at the Budker Nuclear Physics Institute of the Siberian Department from 1961 to 1967. From 1968 to 1987, he served as Director of the Automation and Electrometry Institute in Novosibirsk. The institute develops model problem-oriented systems based on computer aided measurement, automation, and control standards. It was founded in 1957. His major work has been in measuring the parameters of a plasma by using lasers and optical interferometry of image converters. He also has developed equipment for measuring the density, temperature and other characteristics of a plasma. He was on the Presidium of the Siberian Department from 1976 to 1987. He is editor in Chief of Avmetriia that is published by the Siberian Department. (GSE 17, p. 474.)

Osiko, Viacheslav V., D. PM. S., Born in 1932. Russian physicist. Academician of the department since 1987. Since 1981, he has been a corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the academy. From 1969 to 1976 he was Chief of the Solid State Physics Department of the Oscillation Laboratory of the P. N. Lebedev Physics Institute in Moscow. Since 1976 he has headed his own subdepartment in the Integrated Optics Department of the Lebedev Physics Institute. In 1983, he was appointed Deputy Director of the General Physics Institute in Moscow that was established in 1983 to research lasers, solid state physics, fusion, spectroscopy and fiber optics.

Osipian, Iurii A., D. PM. S. Born in 1931 in Moscow. Russian physicist. He was made a Vice President of the academy in 1988. He has been a corresponding member of the General Physics and Astronomy Department of the AN SSSR and the RAS since 1972, and, an academician since 1981. He graduated from Moscow Institute of Steel in 1955. From 1955 to 1962 he was on the staff of the Institute of metal physics of the Central Scientific Research Institute of Ferrous Metallurgy. From 1962-63, he was Deputy Director of the Crystallography Institute of the AN SSSR. In 1970 he was appointed professor at the Moscow Physico-Technical Institute. His main work has been in solid state physics. He has investigated the interaction of dislocations and electrons in solids and discovered new phenomena in solids, for example: the photo plastic effect, electron paramagnetic resonance in dislocations, and dislocation conductivity. His work forms the basis of a new field--"dislocation solid state physics." Since 1973, he has been Director of the Solid State Physics Institute in Moscow that was created in 1962 and whose main branch is in Chernogolovka. It does research in the fields of crystallography, high pressure physics, metallurgy, semiconductors, superconductors, and magnetic fields. He was co-winner of the 1978 Lenin Prize for studies on "New Means of Synthesis and Study of the Structure of Organic Phosphorus Compounds" (1954-75.) In 1984, he received the P. N. Lebedev Gold Medal for his research in physics. He currently serves on the Bureau governing board of the General Physics and Astronomy Department of the Academy. (GSE 30, p. 600.)

Pariiskii, Iurii N., D. PM. S. Born in 1932. Astronomer. Corresponding member since 1979;; academician in 1993. Since 1975, he has been Deputy Director of the Main Astronomical Observatory in St. Petersburg, that was founded in 1839 and that investigates problems of celestial mechanics and gravimetrics and conducts classical astronomical research.

Prokhorov, Aleksandr M., D. PM. S. Born in June 1916 in Atherton, Australia. Russian Physicist. He has been a corresponding member of the General Physics and

Astronomy Department of the Academy since 1960, and an academician since 1966. He has been Academician Secretary of the General Physics and Astronomy Department of the Academy since 1973. He graduated from the Leningrad State University in 1939 and from 1939-1941 and from 1944 to 1946 he was an "aspirant" at the Institute of Physics of the AN SSSR. He began working at the institute in 1946, becoming Head of a laboratory in 1954 and Deputy Director of the institute in 1968. In 1959, he became a professor at Moscow State University. In 1961, he was Chief of the Oscillation laboratory and in 1965, Chief of the P. N. Lebedev Physics Institute's Oscillation Division in Moscow. He won the 1964 Nobel Prize in Physics for fundamental work in the field of quantum electrodynamics. Together with N. G. Basov, he developed a fundamentally new method of Generating electromagnetic waves using quantum systems, devising the first molecular Generator using beams of ammonia molecules--a beam-type maser--in 1954-55. With his colleagues he also developed methods for creating paramagnetic masers (1957-58). Since 1968, he has been Deputy Director of the Lebedev Physics Institute in Moscow. Since 1969, he has been editor-in-Chief of the Great Soviet Encyclopedia. He has been on the Presidium of the academy since 1970. In 1971 he became Director of a subdepartment at the Moscow Physico-Technical Institute. Since 1983, he has served as Director of the General Physics Institute in Moscow that was set up in 1983 to research lasers, solid-state physics, fusion, spectroscopy, and fiber optics. It is subordinate to the academy's General Physics and Astronomy Department. He received the Lenin Prize in 1959. He has been a member of the American Academy of Arts and Sciences since 1971. He is currently President of the Russian United Scientific Council on the Complex Problems of "Optics." He is also currently President of the Russian National Committee of the International Optics Commission. (GSE vol. 21, p. 257; vol. 3, p. 684; vol. 11, p. 587 and 607; vol. 16, p. 457; vol. 30, p. 146, and vol. 31., p. 318.)

Rebane, Karl., D. PM. S. Born in 1926 in Parnu. Physicist. Corresponding member of the General Physics and Astronomy Department of the Academy since 1976 and academician since 1987. Since 1973, he has been the President of the Estonian Republic Academy of Sciences. Academician of the Physics and Astronomy Department Of the Estonian Academy of Sciences since 1967. He graduated from the Leningrad State University in 1952, and was a staff member of the Institute of Physics and Astronomy of the Estonian Academy of Sciences, becoming its Director in 1973. He was made a professor at the Tartu University in 1968. His principal works are in crystal spectroscopy. He has contributed to the theory of electronic-vibrational spectra of impurity centers and to the theory of the secondary luminescence of such centers. He has carried out experimental studies of the optical spectra of crystals activated by molecular impurities and of the spectra of biologically important molecules. In 1981, he received the coveted P. N. Lebedev Gold Medal given by the Presidium of the Academy for his work in physics. He also holds a number of other orders and medals for his scientific work. (GSE 30, p. 616.)

Riutov, Dmitrii D., D. PM. S. Born in 1940 in Moscow. Russian Physicist. Specialist in plasma and theoretical physics and in the physics of powerful rays from charged particles. Corresponding member of the General Physics and Astronomy Department of the AN SSSR from 1976, and academician since 1992. He has authored or co-authored some 125 scientific works of which five are monographs. He has participated in the development of the theories of plasma phenomena, solid state electronics, ionic rays, and the physics of the development of thermonuclear power. He graduated from the Moscow Physico-Technical Institute in 1962. He was a staff member of the Institute of Atomic Energy from 1962 to 1968 when he joined the Institute of Nuclear Physics of the Siberian Department of the Academy. Since 1974, he has been Chief of the Plasma Physics Laboratory of the Budker Nuclear

Physics Institute at Akademgorodok-Novosibirsk, and he has served as one of the institute's Deputy Directors since 1981. In 1989, he was named the Chief Scientific Secretary of the Budker Nuclear Physics Institute in Akademgorodok-Novosibirsk, whose scientists research controlled nuclear thermonuclear reactions, particularly magnetic confinement fusion, and accelerator technology. His works are in plasma physics, particle-beam heating of a plasma in open magnetic traps, high current electron beams, and thermal insulation of dense plasma. Since 1973, he has held the chair in plasma physics at the Novosibirsk State University. He is a member of the European Plasma Physics Society. He is on the editorial board of "Nuclear Fusion," "Plasma Physics and Controlled Fusion," "Laser and Particle Beams," and "Plasma Devices and Operation." He is holder of the Badge of Honor for his work. (GSE 30, p. 619.)

Sagdeev, Roald Z., D. PM. S. Born in 1932 in Moscow. Russian physicist. He has been a corresponding member since 1964 and an academician since 1968 of the General Physics and Astronomy Department of the Academy and of the Siberian Department. He graduated from Moscow State University in 1955, worked at the Atomic Energy Institute from 1956 to 1961, and from 1961 to 1970, he was Head of a laboratory at the Institute of Nuclear Physics of the Siberian Department, that was created in 1957 to research controlled nuclear reactions, particularly magnetic confinement fusion and to study accelerator technology. From 1970 to 1973, he was at the Institute of High Temperature Physics of the Academy that was founded in 1962 to study thermophysical and electrophysical properties of matter at high temperatures. From 1973 to 1988, he was Director of the Space Research Institute in Moscow, subordinate to the Academy's General Physics and Astronomy Department. The Space Research Institute was established in 1965 to centralize and coordinate Soviet civilian space programs and is the principal research facility for such studies. Sagdeev's main researches are in plasma physics. He has studied fluctuations and instabilities in plasma and has discovered the existence of so-called collisionless shock waves. He has developed the theory of transfer processes in Tokamaks. Since 1986, he has been the Director organizer of the Systems Research Institute of the Academy. He received the Lenin Prize in 1984--with others for helping to create high temperature plasma physics. And in 1986, he received the Laureate Lenin Prize. R. Z. Sagdeev has also been a leader in the development of new ideas in physical kinetics. He is holder of the Badge of Honor for his work. (GSE 22, p. 548.)

Shchegolev, Igor F., D. PM. S. Born in 1929. Corresponding member since December 1987; academician in 1993. Since 1974, he has acted as Chief of the Low Temperature Physics Laboratory of the Structure of Matter Division of the Chemical Physics Institute in Moscow.

Siuniaev, Rashid A., D. PM. S. Corresponding member since 1984; academician in 1993. Since 1975, he has been the Chief of the Relativistic Astrophysics Department of the Space Research Institute in Moscow that was established in 1965 and that coordinates the civilian space program in Russia.

Sobolev, Viktor V., D. PM. S. Born in August 1915 in Petrograd. Russian Astronomer. He has been a corresponding member of the department since 1958, and an academician since 1981. He graduated from Leningrad State University in 1938, and became a professor there in 1948. His principal works have dealt with theoretical astrophysics. He has developed a theory of the spectra of variable stars. He has introduced new methods into the theory of radiation transfer and applied them to the solution of many astrophysical problems. He has investigated physical processes in gaseous nebulae and in the atmosphere of stars and planets. He is currently President of the Russian Scientific Council on the Complex Problems of "Astronomy." (GSE vol. 24, p. 218, and vol. 2, p. 450.)

- Talanov, Vladimir I.**, D. PM. S. Born in 1933. Corresponding member since December 1987; academician in 1993. Since 1960 he has been a senior researcher in the Radio Physics Scientific Research Institute at the Gorkiy State University, that was established to research in plasma physics, spectroscopic systems and microwave devices.
- Tsidilkovskii, Isaak M.**, D. PM. S. Russian physicist. Corresponding member of the General Physics and Astronomy Department and of the Urals Department since December 1987; academician in 1993. In 1964, he was listed as a senior researcher of unknown affiliation at the Metal Physics Institute in Ekaterinburg (Sverdlovsk) that was established in 1932 to work in magnetism and metal physics. In 1978, he received the A. F. Ioffe Physics Prize.
- Vainshtein, Boris K.**, D. PM. S. Born in July 1921 in Moscow. Russian crystallographer. He has been a corresponding member of the academy since 1962, and an academician since 1976 of the General Physics and Astronomy Department. He was originally elected to the Physical and Mathematical Sciences Department. He graduated from Moscow State University in 1945, and from the Institute of Steel in 1947. He began work at the A. V. Shubnikov Crystallography Institute in 1949. He headed a laboratory there from 1958, and became the institute's Director in 1962. His principal works are in the field of structural analysis of crystals, the theory of the diffraction of electrons and roentgen rays, and research on the structure of albumen molecules. Vainshtein, Z. G. Pinkser and others developed a method of structural electronography and worked out its theoretical foundations. He was the first to define the position of hydrogen atoms in a series of crystals and to analyze the structures of many complex and organic compounds. The A. V. Shubnikov Crystallography Institute in Moscow was established in 1944 to investigate the structure and physical properties of crystals. He is currently President of the National Committee of Russian Crystallographers. (GSE 4, p. 470.)
- Velikhov, Evgenii P.**, D. PM. S. Born in 1935 in Moscow. Russian theoretical physicist. Since 1974, he has been an academician of the General Physics and Astronomy Department of the Academy and since 1984, he has acted as Academician Secretary of the Information Science, Computer Technology, and Automation Department of the Academy. He graduated from Moscow State University in 1958 and began working in the Institute of Atomic Energy becoming Head of one of its departments in 1962. He has been a professor at Moscow State University since 1968. From 1971 to 1988, he served as Deputy Director of the I. V. Kurchatov Atomic Energy Institute in Moscow. In 1988, he was named Director of this important institute that was created in 1943 to develop nuclear weapons. It is the largest institute in Russia that concentrates on nuclear research that includes all aspects of atomic energy, including plasma and solid state physics, fission and fusion reactors, and lasers. The institute is directly subordinate to the State Committee for Utilization of Atomic Energy. Since 1977, he has served as Vice President for the Physical and Mathematical Sciences Section of the Academy. Since 1978, he has headed the Geophysical Laboratory of the High Temperatures Institute in Moscow, and has served as a member of the Board of the General Assembly of the GKNT. Since 1984, he has been Deputy Director for science of the Industrial Lasers Scientific Research Center in Troitsk subordinate to the Academy. The center is comprised of scientific research divisions, a design bureau, and an experimental production facility that develops and introduces laser tools and methods into industry. His works are in low-temperature physics, plasma and magnetic hydrodynamics. Since 1984, he has also served as a Deputy Director for Science of the Archive of the Academy of Sciences in St. Petersburg. In 1986, he was the recipient of the M. D. Millionshchikov Prize in atomic power engineering. (GSE 4, p. 565.)

Vonsovskii, Sergei V., D. PM. S. Born in August 1910 in Tashkent. Russian physicist. He has been a corresponding member of the Academy since 1953, and an academician since 1966 of the General Physics and Astronomy Department. He was originally elected to General and Applied Physics Department. He graduated from Leningrad State University in 1932, and from 1932 to 1939, he worked at the Urals Engineering Physics Institute in Ekaterinburg (Sverdlovsk). From 1939 to 1947, he worked at the Metallography Institute, and at the Physics of Metals and Metallurgy of the Urals branch of the Academy. His principal works have dealt with the theory of the magnetic and electric properties of metals and semiconductors, the theory of ferromagnetism, and the theory of superconductivity. He proposed the so-called polar mode (with S. P. Shubin) and the s-d model of ferromagnetics. On the basis of these models, Vonsovskii and his colleagues constructed a general theory of ferromagnetics close to the Curie point, and he has explained fractional atomic moments and some characteristics of kinetic properties as well as describing the effect of the multiplicity of the magnetic ions of these substances. Since 1967, he has been Deputy Director of the Metals Physics Institute in Ekaterinburg (Sverdlovsk). From 1971 to 1986, he served as Chairman of the Urals Scientific Center. In 1988, he was appointed an advisor to the Academy's Presidium. He received the Laureate S. N. Vavilov Gold Medal for physics in 1982. (GSE vol. 31, p. 315, and vol. 5, p. 590.)

Zakharchenia Boris P., C. PM. S. Born in 1928 in Orsha, now Vitebsk Oblast. Russian physicist. Corresponding member since 1976; academician in 1993. He graduated from Leningrad State University in 1952, and joined the staff of the Physico-Technical Institute of the academy. Since 1967, he has been the Chief of the Magneto-optical and Electro-optical Phenomena in Crystals Laboratory of the A. F. Ioffe Physical Technical Institute in St. Petersburg. In 1972, he became of professor at the Leningrad Electrical Engineering Institute. His works are in the optics of solids. Lenin Prize, 1966; Recipient of the State Prize, 1976. (GSE 30, p. 740.)

Zakharov, Vladimir E., D. PM. S. Corresponding member since 1984; academician in 1993. Since 1977, he has been Chief of the Plasma Physics Laboratory of the L. D. Landau Theoretical Physics Institute in Moscow. He is currently the President of the Russian Scientific Council on the Problems of "Nonlinear Dynamics."

Zhurkov, Serafim N., D. PM. S. Born in May 1905 in the village of Trubitkino, Lebedian District, Tambov Province. Russian physicist. He has been a corresponding member of the Academy since 1958, and an academician since 1968. He graduated from the University of Voronezh in 1929, and in 1930, began working at the Leningrad Physico-Technical Institute. He became a professor at Leningrad State University in 1947. His work has dealt primarily with the mechanical properties of solids and polymers. He has studied the nature of the strength of brittle materials and polymers and the general regularities governing the processes of temperature-dependent mechanical breakdown and the duration of the action of mechanical stress. He has studied the vitrification process of polymers and amorphous substances. He has also developed a theory of the plasticization of polymers. (GSE 9, p. 652.)

Corresponding Members

Abalakin, Viktor K., D. PM. S., Born in 1930. Corresponding member since December 1987. Since 1970 he has been Chief of the Astronomical Yearbook Department of the Theoretical Astronomy Institute in St. Petersburg. Since 1984, he has served as Director of the Main Astronomical Observatory in St. Petersburg that studies celestial mechanics and gravimetrics. (LDA 89-11378.)

Afrosimov, Vadim V., D. PM. S. Born in 1930. Physicist. Corresponding member since December 1987. Since 1972, he has served as Chief of the Atomic Collision

Physics Laboratory of the A. F. Ioffe Physical Technical Institute in St. Petersburg.

Anisimov, Sergei I. He has been a corresponding member since December 1987. Since 1975, he has served as Chief of the Physical Hydrodynamics Laboratory of the L. D. Landau Theoretical Physics Institute in Moscow that was created in 1965 from the Physical Problems Institute, and whose scientists research theoretical physics including the theory of solids, low temperature physics, elementary particle theory, plasma theory, and laser radiation. (LDA 89-11378.)

Bakhrakh, Lev D., D. Tech S. Born in 1921 in Rostov-on-Don. Russian Physicist. Corresponding member since 1966. He was originally elected to the General and Applied Physics Department. He began working at the Moscow Research Institute of Instrument Making in 1945, joining the Radio Engineering Institute in 1947. His works are in the field of the theory and technique of aerials. Recipient of the State Prize, 1951; Lenin Prize, 1961. (GSE 3, p. 15.)

Bogdanov, Sergei V., D. PM. S. Born in 1921. Physicist. Specialist in acousto-electronics and acousto-optics. Corresponding member of the General Physics and Astronomy Department of the Academy since 1979. He graduated from Moscow Engineering Institute in 1947, and began working at the P. N. Lebedev Physics Institute of the Academy. Since 1963, he has headed the Electro-acoustics Laboratory at the Semiconductor Physics Institute of the Siberian Department of the Academy. He is also a member of the Siberian Department of the Academy. He has been a professor at Novosibirsk State University since 1973. He served as the coordinator for research in acousto-electronics and acoust-optics for the Academy from 1971 to 1975. He is an Honored Scientist of the former Soviet Union, and holds several medals in recognition of his research. He is a recipient of the Order of the Red Banner Badge of Honor Medal.

Bonch-Bruievich, Aleksei M., D. PM. S. Born in 1916. Corresponding member since 1984. Specialist in the field of quantum electronics and physical optics. Holder of the USSR State Prize for his research in laser physics and development of solid state quantum generators.

Bugaev, Sergei P., D. PM. S. Born in 1936. Physicist. He has been a corresponding member of the Siberian Department and of the General Physics and Astronomy Department of the RAS since 1992. He is a specialist in electronics and electrophysics. He has authored and co-authored some 130 publications of which three monographs on electronics are well-known. He is also credited with nine discoveries or inventions. He graduated from the Tomsk Polytechnic Institute imeni S. M. Kirov in 1959. He worked at the Nuclear Physics Institute of the Tomsk Polytechnic University from 1966 to 1973, and headed a laboratory in atmospheric optics of the Physical Electronics Institute from 1973 to 1978. Since 1977, he has been the Chief of the Electron Beams Laboratory of the Heavy-Current Electronics Institute in Tomsk and since 1986, he served as its Director. Institute scientists study the emission and formation of the intense fluxes of charged particles, the generation of heavy-current high voltage pulses and their influence on the condensed media, the study of the gas-discharge plasma, and technologic applications of heavy-current electronics. The institute does research on thermonuclear and accelerator physics and laser technology. The institute was created in 1977 to research thermonuclear and accelerator physics and laser technology. He has been a professor since 1984 holding a chair in the Tomsk Institute on automation of management systems in radio electronics, where he has guided the work of one doctoral student and six aspirants for the candidate degree. He is on the Scientific Council on Electronic Physics. He received a State Prize in 1986, and holds other medals for his scientific work. He is a recipient of the Order of the Red Banner Badge of Honor Medal

Chernov, Aleksandr A., D. PM. S. Born in 1931. Corresponding member since December 1987. Since 1965, Chief of the Growth Theory and Fundamental Studies

Laboratory of the A. V. Shubnikov Crystallography Institute in Moscow that was established in 1944 to investigate the structure and physical properties of crystals.

Didenko, Andrei N., D. Tech. S. Born in 1932. Specialist in Accelerator and Physics Electronics. Corresponding member since 1984. He graduated from the Tomsk State University in 1955 and began working at the Tomsk Polytechnic Institute imeni C. M. Kirov in 1970 where he was designated a professor. He was given the chair in electron physics in 1977. From 1968 to 1987, he was the Director of the Scientific Research Institute of Nuclear Physics, and in 1988 he became Chairman of the Scientific Council on Electronics and Automation. He is on the Presidium's Commission on Atomic Energy and was designated an Honored Scientist of the Soviet Union. He was Deputy Chairman of a Scientific Council under the purview of the GKNT dealing with the processing of construction materials. He is a recipient of the Order of the Red Banner Badge of Honor Medal.

Dikanskii, Nikolai S., D. PM. S. Born in 1941. Physicist. Specialist in accelerator physics. Corresponding member of the Siberian Department and of the General Physics and Astronomy Department of the Academy in 1990. Since 1973, he has been one of the Deputy Directors of the Budker Nuclear Physics Institute in Akademgorodok-Novosibirsk, which was established in 1957 to conduct research on thermonuclear reactions, particularly on magnetic confinement fusion, and accelerator technology. This is the leading nuclear research facility in Siberia. He is author of 80 scientific publications and teaches nuclear physics at the Novosibirsk State University in Akademgorodok.

Dimov, Gennadii I., D. PM. S. Born in 1927. Physicist. Specialist in experimental physics. Corresponding member since 1981. He graduated from the Tomsk Polytechnical Institute imeni S. M. Kirov in 1951 and began work at the Nuclear Physics, Electronics, and Automation Institute of the Tomsk Polytechnical Institute (1951-1960.) In 1961, he was made Head of a laboratory of the Budker Nuclear Physics Institute of the Siberian Department in Akademgorodok, that was created in 1957 to concentrate its research on controlled thermonuclear reactions and on accelerator technology. Since 1974, he has been Chief of "Dimov's Department" of that Institute. He has been a professor holding the chair in General Physics at the Novosibirsk State University since 1970. He holds a medal in recognition of his scientific work.

Dzialoshinskii, Igor E., D. PM. S. Born in 1931 in Moscow. Russian Physicist. Corresponding member since 1974. He graduated from Moscow State University in 1953. From 1957-65 he was on the staff of the Institute of Physical Problems in Moscow. In 1965 he joined the staff of the Institute of Theoretical Physics of the Moscow academy. Since 1969, he has been Chief of the Magnetism Laboratory of the L. D. Landau Theoretical Physics Institute in Moscow where research concentrates on Theoretical Physics, particularly on the theory of solids, low temperature physics, elementary particle theory, plasma theory and laser radiation. In 1984, he was awarded the USSR State Prize for his work--with others--on "The Magnetism and Electron Structure of Rare Earth and Uranium Compounds," published from 1959-1982. His main work has been in quantum statistics and the theory of weak ferromagnetism in anti ferromagnetic substances. (GSE 30, p. 50.)

Fabelinskii, Immanuel., D. PM. S. Born in 1911. Corresponding member of the General Physics and Astronomy Department of the Academy since 1979. Since 1967, he has been Chief of the Brillouin Scattering Department of the Spectroscopy Laboratory of the Nuclear Physics Division of the P. N. Lebedev Physics Institute in Moscow. (LDA 89-11378.)

Galanin, Mikhail I., D. PM. S. Born in 1915. Corresponding member since 1984. Since 1969, Chief of the S. I. Vavilov Luminescence Laboratory of the Nuclear Physics Division of the P. N. Lebedev Physics Institute. In 1976, he was the recipient of the S. I. Vavilov Gold Medal for his work in botany and genetics.

- Gaponov, S. V.**, D. PM. S. Russian Physicist. Corresponding member of the General Physics and Astronomy Department of the Academy in 1993. He is the current Director of the Institute of Micro structure Physics located in Niznii Novgorod 603666.
- Gurevich, Aleksandr V.** Corresponding member since 1984. In 1976, he was listed as a junior researcher in Theoretical Physics Department that was headed by Vitalii L. Ginzberg. That department was a part of the Nuclear Physics Division of the P. N. Lebedev Physics Institute in Moscow. In 1980, he received the L. D. Landau Prize in Theoretical Physics.
- Kaplianskii, Aleksandr A.**, D. PM. S. Corresponding member of the General Physics and Astronomy Department of the Academy since 1987. Since 1972, he has headed the Solid State Optics Laboratory of the A. F. Ioffe Physical Technical Institute in St. Petersburg. (LDA 89-11378.)
- Karlov, Nikolai V.**, D. PM. S. Born in 1929. Corresponding member since 1984. Since 1976, he has been Chief of the Application of Molecular Lasers Department of the P. N. Lebedev Physics Institute in Moscow. In 1988, he became rector of the Physical Technical Institute in Moscow that was created in 1952 to train scientists in the areas of physics, biology, chemistry, cybernetics, mathematics, quantum electronics, aerodynamics, and flight mechanics. Academy members and other leading specialists serve on its faculty. He currently serves on the Bureau governing board of the General Physics and Astronomy Department of the Academy.
- Kisun'ko, (Kisunko) Grigorii V.** Born in 1918 in Kuibyshev Raion, Zaporozhe Oblast. Russian scientist in radio electronics. Corresponding member of the General Physics and Astronomy Department of the Academy since 1958. He graduated from the Voroshilovgrad Pedagogical Institute in 1938. Originally elected to the Technical Sciences department. His principal works are in radio engineering and electronics. Deputy to the 7th and 8th convocations of the Supreme Soviet. (GSE 12, p. 526.)
- Kovtunencko, Viacheslav M.**, D. Tech S. Born in 1921. Corresponding member since 1984. Also a corresponding member of the Mathematics, Mechanics and Cybernetics Department of the Ukrainian Academy of Sciences.
- Krimskii, Germogen F.**, D. PM. S. Born in 1937. Physicist. Specialist in nuclear physics and the physics of cosmic rays. Corresponding member of the General Physics and Astronomy Department of the RAS since 1987 and reconfirmed in 1992. He has authored or co-authored 207 scientific works of which three are major monographs. He graduated from the Yakutsk State University in 1959. From 1959, he worked at the Laboratory for Cosmic Rays, of the Space Physics Research and Aeronomy Institute in Yakutsk as a laboratory assistant, a laboratory technician, a junior and senior researcher, and Head of a sector of the Theoretical Department, and in May of 1988, he was named Director of the Space Physics Research and Aeronomy Institute in Irkutsk that had been established in 1962 and is a center for the study of cosmic rays. He became a member of the Siberian Department's Presidium in 1988. He is an Honored Scientist of the former Soviet Union. He was named Chairman of the Yakutsk Scientific Center in April 1989. In 1990, the Siberian Department of the AN SSSR established the Siberian Center of Solar-Terrestrial Physics in Siberia--a new international research center that combines the work of scientists in two major institutes: the Terrestrial Magnetism, Ionosphere and Radio Wave Propagation Institute in Irkutsk and the Institute of Cosmophysical Research and Aeronomy in Yakutsk in the establishment of this new international entity. As Director of the Siberian Institute of Cosmophysical Research and Aeronomy located in Yakutsk, Dr. Krimskii will play a major role in the development of this new scientific international research effort.
- Krokhin, O. N.** Corresponding member of the General Physics and Astronomy Department of the Russian Academy in 1993. He is currently Director of the P. N. Lebedev Physical Institute located in Moscow--the largest and most famous physics

institute in Russia. In 1979, he was a senior researcher in an unidentified department in the institute--apparently part of the G. S. Landsberg Optical Laboratory.

Krugliakov, Eduard P., D. PM. S. Born in 1934. Russian physicist. Specialist in Plasma Physics and in the research problems associated with Thermonuclear Synthesis. Corresponding member of the General Physics and Astronomy Department of the Russian Academy of Sciences and of the Siberian Department since 1987. He graduated from the Moscow Physico-Technical Institute in 1958. He began work in 1958 at the Budker Nuclear Physics Institute of the Siberian Department, and in 1976 he has headed the Plasma Physics Laboratory of the Budker Nuclear Physics Institute in Novosibirsk and has been Head of "Krugliakov's Department." The institute is the leading nuclear research facility in Siberia. He was one of the principal organizers of the physics and mathematics "school" at the University of Novosibirsk--for which students are carefully screened, tested, and selected from across all of the former Soviet Union for entrance. He is on the Scientific Council on Plasma Physics of the Academy, and a permanent member of the national standing commission on atomic energy of the national government. He received the State Prize in 1986. He is a recipient of the Order of the Red Banner Badge of Honor Medal. (LDA 89-11378.)

Kurbatov, Leonid N. Born in 1913 in Fergana. Russian Physicist. Corresponding member since 1972. He graduated from the Leningrad Polytechnical Institute in 1936, and from 1936 to 1940 and from 1956 to 1960, he worked at the Leningrad State University. In the 1940s and 1950s he also worked at the Naval Medical Academy and at the S. I. Vavilov State Optical Institute while acting as Director of an SRI. He has been a professor at the Moscow Physico-Technical Institute in Moscow since 1961. He was on a team of scientists in the Lebedev Physics Institute whose work on tunable semiconductor lasers and high-resolution molecular spectroscopy was nominated in 1985 for a Lenin or USSR State Prize for Science and Technology. His works deal with the phenomena of absorption and photo conductivity and the recombination radiation of semi-conductors. He has developed a number of photoelectric instruments and optical semiconductor quantum generators. Recipient of the State Prize, 1970. (GSE 14, p. 120-121.)

Lidorenko, Nikolai S., D. Tech. S. Born in 1916 in Kursk. Russian scientist in electrical and power engineering. Corresponding member since 1966. Principal membership in the Physical Technical Problems of Power Engineering Department. He graduated from the Novochoerkassk Polytechnic Institute in 1940. Since 1950, He has been Director of the Current Sources Scientific Research Institute in Moscow that is subordinate to the Ministry of Instrument Building, Automation Equipment and Control Systems. It is in this institute that the solar and electrochemical power sources for the Russian Space program are developed. In 1963 he gained professorial status and became a Head of a subdepartment of the Moscow Polytechnical Institute in 1965. His main work is in the conversions of energy and the design of physical models of information. Lenin Prize, 1960. (GSE 14, pp. 482-83.)

Meshkov, Igor' N., D. PM. S. Born in 1936. Distinguished research fellow of the Budker Nuclear Physics Institute in Akademgorodok-Novosibirsk. Physicist. Specialist in the field of the physics of charged particles and accelerator techniques. Corresponding member since 1991. He has authored more than 60 scientific works and collaborated in the production of ten others. He has been very active in scientific conferences. He has written one major monograph. His research has concentrated on the physical processes of electron acceleration and the development of methods of cooling heavy particles of electrons. He has studied electron optics. He has pioneered in nuclear atomic physics and in a better understanding of elementary particles. He is on the dissertation committee of the Institute of Nuclear Physics. As a professor he has supervised the dissertations of three candidate-degree students.

He holds the chair of General Physics at the Novosibirsk State University in Akademgorodok-Novosibirsk.

- Neizvestnii, I. G.,** D. PM. S. Born in 1931. Physicist. Specialist in semiconductor physics. Corresponding member since 1990. Deputy Director of the Semiconductor Physics Institute in Novosibirsk. Co-author of some 92 scientific works, of which "The Characteristic Structure of Metal-dielectric Semiconductors (transistors)" published in 1976 was most significant. He has taught in the Novosibirsk Electro-Technical Institute guiding the work of three doctoral candidates and 10 aspirants for the candidate degree. He is on the Scientific Council on the physics, chemistry, and mechanics of surface tension and for problems of the physics and chemistry of semiconductors.
- Perel' (Perel), Vladimir I.,** D. PM. S. Born in 1928. Corresponding member of the General Physics and Astronomy Department since 1981. In 1978, he was a junior researcher in a laboratory of the Theoretical Division of the A. F. Ioffe Physical Technical Institute in Leningrad. The Theoretical Division was headed at that time by Oleg V. Konstantinov.
- Pis'mennii, (Pismennii) Viacheslav D.,** D. PM. S. Born in 1932. Corresponding member of the General Physics and Astronomy Department of the Academy since 1984. Winner--with others--of the 1978 State Prize for the development of physical principles, establishment and research in a gaseous laser, generated with the use of ionized radiation. Since 1979, He has been Director of Troitsk Branch of the I. V. Kurchatov Atomic Energy Institute of Moscow.
- Pistol'kors, (Pistol Kors) Aleksandr A.** Born in 1896 in Moscow. Russian Radio Engineer. Corresponding member of the General Physics and Astronomy Department of the Academy since 1946. He graduated from the Moscow Higher Technical School in 1927. From 1926-28 he worked at Nizhny Novgorod Radio Laboratory. In 1929, at the Central Radio Laboratory and in other SRIs in the Leningrad area. Originally elected to the Technical Sciences department. He developed a theory of antennas and the method of phase telegraphy. He is the recipient of many honors. (GSE 19, p. 563.)
- Pitaevskii, Lev. P.,** C. PM. S. Born in 1933 in Saratov. Corresponding member since 1976. He graduated from the University of Saratov in 1955. In 1958, he joined the staff of the Institute of Physical Problems of the national academy. Since 1969, he has been a senior researcher in the Superconductors Laboratory of the S. I. Vavilov Physical Problems Institute in Moscow. In 1971, he became a professor at the Moscow Polytechnical Institute. His works have dealt largely with low-temperature physics, plasma physics, quantum mechanics, electrodynamics, and the theory of metals. In 1980, he received the L. D. Landau Prize in Theoretical Physics. (GSE 30, p. 605.)
- Pokrovskii, Yaroslav Ie.,** D. PM. S. Born in 1928. Corresponding member of the General Physics and Astronomy Department of the Academy since 1987. He currently serves on the Bureau governing board of the General Physics and Astronomy Department of the Academy.
- Rautian, Sergei G.,** D. PM. S. Born in 1928. Physicist. Specialist in laser physics, quantum electronics, and spectroscopy. Corresponding member of the Siberian Department and of the General Physics and Astronomy Department of the AN SSSR and the RAS since 1979--reconfirmed in 1992. He has authored and co-authored 216 scientific works of which three are significant monographs on nonlinear spectroscopy resonance, etc. He graduated from the Moscow State University in 1952 and began work at the P. N. Lebedev Physics Institute. From 1965 to 1977, he headed a laboratory at the Semiconductor Physics Institute of the Siberian Department. In 1977, he became Deputy Director of the Institute of Automation and Electrometry of the Siberian Department, founded in 1971 to develop automated control systems theory and to apply it to solving problems for

regional industry and agriculture. He has been a professor at the Novosibirsk State University since 1978, holding a chair in quantum optics. As a professor, he has overseen the doctoral work of ten persons and the research of 24 aspirants for the candidate degree. He is on the Scientific Council on the problems of the spectroscopy of atoms and molecules and of the Council on laser physics. He received the Laureate Prize *imeni* D. S. Pozhdestvensk in 1986. In 1986, he also received the D. S. Rozhdestvenskii Prize named after the well-known Russian physical scientist. He is holder of the Badge of Honor for his work.

Rebrov, Aleksei K., D. PM. S. Born in 1933. Physicist. Specialist in thermal physics and gas dynamics. Corresponding member since 1990. He is author of 17 and co-author of 191 scientific works. He is Head of a laboratory at the Institute of Thermal Physics in Novosibirsk. He has taught at the Novosibirsk State University for 16 years directing the work of six doctoral students and 29 candidate degree aspirants. He is Deputy Director of the Siberian Scientific Council on thermal physics and thermal energy; Chairman of the Novosibirsk section of the Scientific Technical Organization "Priborproi" and a member of the Scientists Consulting Panel, and Chief editor of the journal "Applied Mechanics and Technical Physics" and the "Russian Journal of Engineering Thermophysics."

Shabanov, Vasilii F., D. PM. S. Born in 1940. Physicist. Specialist in the fields of optics-electronics and molecular spectroscopy. Corresponding member since 1990. In 1988, he was named a member of the Presidium of the Krasnoyarsk Scientific Center of the Siberian Department of the RAS. He is Head of a laboratory of the Kirenskii Physics Institute in Krasnoyarsk. He has co-authored 165 scientific works of which three are monographs. His work has contributed greatly to an expansion of knowledge of the physical characteristics of molecular microelectronics. He is a professor at the Irkutsk State University where he has overseen the work of ten aspirants for the candidate degree. He is a consulting specialist to the Technical Construction Bureau "Nauka" of the Siberian Department, heads the Council on automation of scientific research in the Krasnoyarsk Scientific Center, and is on the Scientific Council of the RAS on problems of the Spectroscopy of Atoms and Molecules.

Shafranov, Vitalii D., D. PM. S. Born in 1929. Corresponding member of the General Physics and Astronomy Department of the Academy since 1981. In 1984, he was awarded--with others--the Lenin Prize for his work in the development of a new branch of physics, high temperature plasma physics which served as basis for the creation of a prototype for an experimental industrial thermonuclear reactor. In 1974, he headed the Low Temperature Physics Laboratory of the Chemical Physics Institute in Moscow.

Shalagin, Anatolii F., D. PM. S. Born in 1943. Experimental physicist. Specialist in nonlinear spectroscopy. Corresponding member of the General Physics and Mathematics Department since 1990. He has written eight major scientific works and co-authored another 108, of which two are monographs. He is Head of a laboratory of the Automatic and Electrometry Institute of the Siberian Department in Novosibirsk. He has assisted in the development of the kinetic theory of nonlinear resonance, and in his research has experimentally found a method for polarizing nonlinear resonance with spectroscopy. He has discovered and researched a new class of incandescent phenomena in a laser radiation field. He is a professor at the Novosibirsk State University where he has overseen the doctoral research of two persons and the research of four aspirants for the candidate degree. He was on the Scientific Council on Spectroscopy, and a consultant to the Institute of Automation and Electrometry of the Siberian Department. He is an editor of the journal, "Autometry."

Shtein-Shleiger, Volf B. (Shteynshleyger, Volf B.), D. Tech. S. Corresponding member since December 1987.

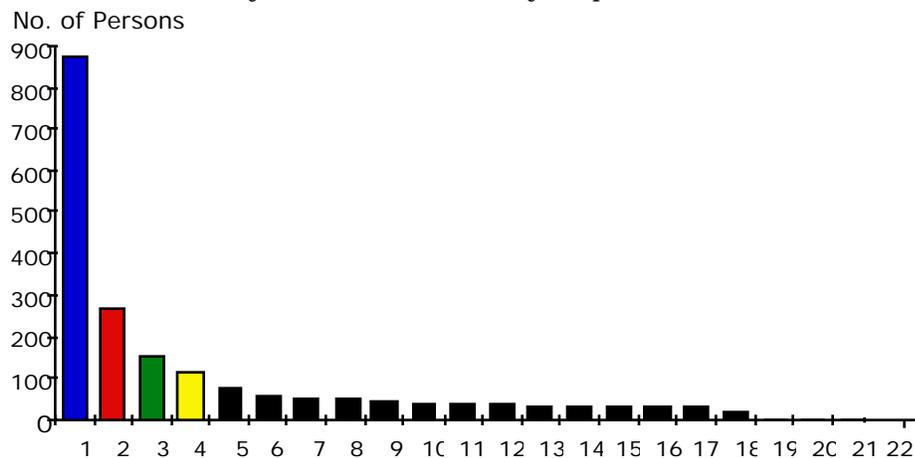
- Stishov, Sergei M., D. PM. S.** Corresponding member of the General Physics and Astronomy Department of the Academy in 1993. He is currently acting Director of the L. F. Vereshchagin High Pressure Physics Institute at Troitsk in the Moscow region.
- Tatarskii, Valerian Ilich.** Born in 1929 in Kharkov. Russian specialist in radio physics. Corresponding member since 1976. He graduated from Moscow State University in 1952. In 1954, he joined the staff of the Institute of Atmospheric Physics of the national academy. He developed a theory of the propagation of waves of differing physical nature in a randomly homogeneous medium, particularly in a turbulent medium. (GSE 30, p. 667.)
- Timofeev, Petr V.** Born in 1902 in Moscow. Corresponding member since 1953. He was originally elected to the Technical Sciences Department, and his principal membership is in the Mechanics and Control Processes Department. He graduated from Moscow State University in 1925. In 1928 he joined the staff of the ARO Electro-Technical Institute. He taught at the Moscow Higher Technical School from 1925 to 1928, at Moscow State University from 1926 to 1941, at the Moscow Power Engineering Institute from 1933 to 1941, and at the N. E. Zhukovskii Air Force Academy from 1945 to 1948. He has held professorial status since 1935. His works are in the photoelectric effect, secondary electron emissions, gas discharges, and electron optics. Recipient of the State Prize in 1946 and 1951. (GSE 25, p. 658.)
- Timofeev, Vladislav B., D. PM. S.** Corresponding member General Physics and Astronomy Department of the Academy in 1993. He is currently President of the Scientific Council on Problems of the "Physics of Semiconductors."
- Troitskii, Vsevolod S., D. PM. S.** Born in 1913 in Tula Oblast. Astronomer. Corresponding member since 1974. He graduated from the University of Gorkiy in 1941 and joined the staff of the Gorkiy Radio physical Institute in 1948. Since 1956, he has been Deputy Director of the Radio Physics SRI in Gorkiy. Since 1973, he has acted as Chief of the Radio Astronomy Observatory of the Radio Physics Scientific Research Institute at Gorkiy that was established in the 1950s. The institute is located at Gorkiy State University and has done research in plasma physics, spectroscopic systems, and high powered microwave devices--and is also involved in the search for life in outer space. His works are in radio astronomy. Holder of the A. S. Popov Prize, 1974. (GSE 26, p. 373.)
- Zeldovich, Boris Ia., D. PM. S.** Corresponding member of the General Physics and Astronomy Department and of the Urals Department since December 1987. In 1978, he was a senior researcher in the Phase Coniugation Department of the Quantum Radio Physics Laboratory of the Radio Physics Division of the P. N. Lebedev Physics SRI in Moscow. Since 1979, he has been a senior researcher in the Mechanical Action of Laser Beams Laboratory of the Problems of Mechanics Institute in Moscow that was established in 1955 to conduct research on gas dynamic processes, combustion instabilities, plasma, laser beams and shock waves.
- Zhelezniakov, Vladimir V.** In 1984, he received the A. A. Belopolskii Prize in Astronomy for his research in the astronomical sciences. Corresponding member since 1987. In 1977, he was listed as a junior researcher at the Radio Astronomy Observatory of the Radio Physics Scientific Research Institute in Gorkiy. He currently serves on the Bureau governing body of the General Physics and Astronomy Department of the Academy.
- Zverev, Vitalii A., D. PM. S.** Born in 1924. Corresponding member since 1979. Since 1960, he has been a senior researcher in the Radio Astronomy Observatory of the Radio Physics Scientific Research Institute in Nizhnii Novgorod which was established in 1956 as part of Gorkiy State University.

General Physics and Astronomy Department Research Institutes

Retrospect: In 1980, the General Physics and Astronomy Department controlled 21 institutes; by 1987, it had added two more: the Applied Physics Institute in Gorkiy and the General Physics Institute in Moscow. As Figure 22 shows, the number of scientists assigned to the institutes under the General Physics and Astronomy Department drops after the first four institutes are taken into account. Of the approximately 2000 scientists working in the institutes under the General Physics and Astronomy Department about 75 percent are concentrated in the four leading institutes under the department: the P. N. Lebedev Physics Institute, the A. F. Ioffe Physical Technical Institute, the Space Research Institute, and the Radio Engineering and Electronics Institute--allocated in Moscow. These four scientific research institutes absorbed approximately 70 percent of research expenditures of the entire General Physics and Astronomy Department of the AN SSSR. The mixture of basic and experimental research in the laboratories listed here, the careful organization of research activity by major subject-matter fields, and the inclusion of the latest fields of knowledge concerning the nature of matter and energy--all these attest to the sophistication of the research work in space, physics and astronomy.

Fig. 12

Research Personnel Assigned to Institutes of the General Physics and Astronomy Department, 1980



Key to the 21 SRI's Under the General Physics and Astronomy Department

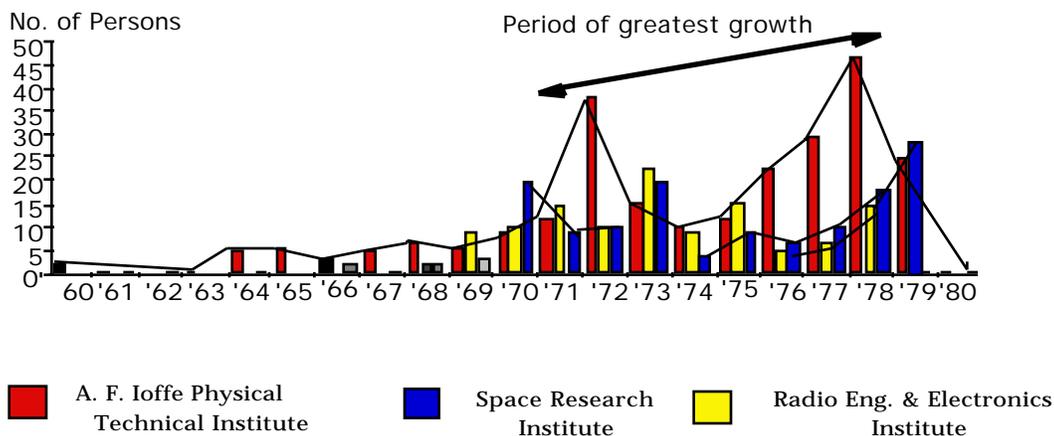
1. P. V. Lebedev Physics Institute in Moscow;
2. A. F. Ioffe Physical Technical Institute in Leningrad;
3. Space Research Institute in Moscow;
4. Radio Engineering and Electronic Institute in Moscow;
5. Radiophysics Institute in Gorkiy;
6. Spectroscopy Institute in Krasnaya Pakhra;
7. Acoustics Institute in Moscow;
8. A. V. Shubnikov Crystallography Institute in Moscow;
9. L. D. Landau Theoretical Physics Institute in Moscow;
10. Astronomical Observatory in Leningrad;
11. Optical Physical Measurements Institute in Moscow;
12. S. I. Vavilov Physical Problems Institute in Moscow;
13. D. I. Mendeleev Metrology Institute in Moscow;
14. High Pressure Physics Institute in Krasnaia Pakhra;
15. Applied Physics Institute in Gorkii;
16. Terrestrial Magnetism, Ionosphere and Radio Wave Propagation Institute in Akademgorodok;
17. Solid State Physics Institute in Moscow;
18. Theoretical Astronomy Institute in Moscow;
19. Radio Engineering Institute in Moscow;
20. Crimean Astrophysical Observatory;
21. S. A. Lebedev Precision Mechanics and Computation Techniques Institute in Moscow, and
22. Problems of World Economics and International Relations Department.

Compiled from: CR 80-13202, pp. 171-417.

Period of Greatest Growth: The period of greatest growth of these four major research institutes in the General Physics and Astronomy Department of the academy occurred from 1970 to 1979--a pattern common to the other SRIs of the department. In terms of numbers of scientists and laboratories, the General Physics and Astronomy Department is the largest of the subject-matter departments in the Russian Academy of Sciences.

Figure 13

Assignment of Personnel to Three Institutes of the General Physics and Astronomy Department, 1960-1980



Compiled from: CR 80-13202, pp. 320-330, 383-387, and pp. 398-403.

The Scientific Research Institutes Subordinate to the General Physics and Astronomy Department: The listing of the research institutes directly subordinate to the General Physics and Astronomy Department in the order of their founding is given below:

1. P. N. Lebedev Physical Institute in Moscow.

Located at 53 Leninskii ave., Moscow U-333, GSP-1, 117924. Tel. 135-42-64; Telegrams: Moscow U-333 Neodim Teletype: 113308; Fax: 135-78-80; E-mail: postmaster@sci.fian.msk.su Under the direction of Corresponding Member Oleg N. Krohin. Tel. 135-24-30.

{Krohin, Oleg N. Corresponding member of the Academy in 1993. He is presently the director of the P. N. Lebedev Physical Institute (PIAS) located in Moscow, one of the most prestigious of Russian Institutes and one of the oldest.}

Retrospect: This institute arose from the physical cabinet of the St. Petersburg Academy of Sciences that was created in 1725. It was reorganized in 1918 as the Physico-Mathematical Institute, from which a Physics Department was developed in 1934 and elevated to the status of an institute and moved to Moscow in 1934. It is the oldest, largest and most important institute in the Russian Federation. Its research includes lasers, quantum radio physics, nonlinear optics, spectroscopy, plasma

physics, theoretical astrophysics, particle physics, and theoretical biophysics. Currently the institute is being directed by Oleg N. Krokhin. Historically the Structure and Scientific Personnel looked like this: Leonid V. Keldysh, (Keldish) D. PM. S., was director of the institute from 1988 until his elevation to the Academician-Secretaryship of the Department of General Physics and Astronomy of the Russian Academy. Deputy directors have been: Kovsh, Ivan B., C. PM. S., since '83; Nikolskii, Sergei I., D. PM. S., since '86; Plotnikov, Anatoli F., D. PM. S., since '85; and Zubkov, Vladimir M., D. Tech. S., since '84; Scientific Secretary: Oraevskii, Anatoli N., D. PM. S., since '76.

This is perhaps the most complex Institute in the Russian Academy. In restructuring, former divisions and or departments have been given institute status, yet remain a part of the P. N. Lebedev Physical Institute. The process of restructuring is continuing.

Nuclear Physics Division: head, Nikolskii, Sergei I., D. PM. S., since '73; Cosmic Ray Laboratory, head, Sergei I. Nikolskii, D. PM. S., since '77; Deputy head, Khromikh, Nikolai E., since '76.

Kazakh Cosmic Ray Department : head, Iakovlev, Vladimir I., C. PM. S., since '66.

Cosmic Ray Physics Department

Chief of the Department Professor V. Tsarev (Tsarev@sci.fian.msk.su)

Laboratory of elementary particles.

Chief of the Laboratory Professor V. Tsarev (Tsarev@sci.fian.msk.su)



The main fields of research:

High energy physics (person in charge Professor V. Tsarev)

Designing of the large-scale transition radiation tracker (TRT) for the experiment ATLAS at LHC, CERN (in collaboration with CERN and other world high-energy institutions). Contact person - A. Shmeleva

Study of long base-line neutrino oscillations (in collaboration with a number of world scientific institutions within the framework of the MINOS program). Contact person - E. Kuznetsov

Study of super-high energy nucleus-nucleus collisions by the method of photo-emulsion chambers. Contact person - K. Kotelnikov.

Development of new experimental methods of particle detection. Contact person - V.M. Grishin

Cosmic ray physics (person in charge Professor V. Tsarev)

Development of the AMS RICH detector (in the framework of the AMS project:

physical problems of the AMS experiment. Contact person - V. Tsarev
development of the RICH detector. Contact persons - G. I. Merzon and V. A. Ryabov

Laboratory of Hadron Interaction

Chief of the Laboratory: Professor S. Slavatinski (muhamed@sgi.lpi.msk.su)

Main Installations:

Emulsion Chamber Emax =3D 100 PeV

(Pamir Experiment) Emin =3D 1 PeV

Large Complex Installation for Investigation Extensive Air Showers on Tien-Shan Station
of FIAN

Main Fields of Research:

Super High Energy Physics (person in charge - S. Slavatinski)

Study of the main characteristics of the Strong Interactions (in the framework of
collaboration with Japan, Poland and Georgia, Tadiikistan, "Pamir Collaboration").
Contact person - V. Puchkov

Study of the Energy Dependence the Probability of the different unusual Phenomena in
Cosmic Rays on experiment "Hadron" with Emulsion Chamber on Tien-Shan
Station of FIAN. Contact person - S. Shaulov

Extensive Air Showers of 10^{15} - $2 \cdot 10^{18}$ eV Cosmic Rays. Study of EAS various
Components Dependencies from Cosmic Rays Primary Energies by means of Tien-
Shan experiments. Contact person - N. Nesterova

The Investigation of EAS delay Muons for the Purpose to receive the Information about
Mass-composition and Peculiarities of Interactions at super high Energy. Contact
person - Iurii Vavilov

Laboratory of Cosmic Rays.

Chief of Laboratory: V. Pavluchenko (pavict@sgi.lpi.msk.su)

Deputy chief: M. Chernyavsky (skii) (chernyav@sgi.lpi.msk.su)



The main fields of research:

Investigation of Primary Cosmic Rays at Extremely High Energies (> 1 EeV): energy
spectrum, mass composition, arriving directions, main parameters of interactions.

Project HORIZON - detecting of Cerenkov light of the very inclined EAS at extremely high
energies. EAS simulation, inverse problems solution in the cosmic rays

experiments, maximization of physical information extracting from experimental data. Contact person - V. Pavluchenko

Cosmic ray physics at Tien-Shan Mountain Station.

Study of hadronic cascades with energies above 5 TeV in thick ionization calorimeter. Long flying component. Study of primary cosmic ray energy spectrum at energy range $3 \cdot 10^{14}$ - $3 \cdot 10^{16}$ eV by using of Cherenkov calorimetry in the atmosphere. Comparison of Extensive Air Shower parameters by shower selection according to their size or energy. Excess of EAS detected at big zenith angles. Contact person - V. Yakovlev

Neutron Physics in Cosmic Rays; Extensive Air Showers. Neutron Super monitor with time resolution ≤ 100 msec. Development and creation of the subsystems for detecting the hadron, muon and neutron components of EAS at HADRON-3 Tien-Shan installation. Contact person - A. Chubenko

High energy gamma radiation in the space (energy interval 10-1000 GeV). GAMMA-400 Collaboration. Investigation the nature of the diffuse radiation of the discrete sources energy spectra, search for the dark matter, designing of the gamma telescope for satellite. Contact person - L. Kurnosova

Investigation of cosmic rays modulation processes in low energy range on board of satellites. Contact person - V. Kovalev

Investigation of Hadron and Relativistic Heavy Ion Collisions by nuclear photo emulsion method. EMU01-Collaboration. Contact person - G. Orlova

Laboratory of Solar and Cosmic Ray Research

Chief of the Laboratory: Professor Iurii Stozhkov (stozhkov@fiand.msk.su)

Main Experiment:

Cosmic Ray Balloon Measurements in the Atmosphere

Main Fields of Research:

Long-term Measurements and Investigation of Ionizing Radiation in the Earth's Atmosphere (person in charge - Y. Stozhkov)

Energetic ($E > 100$ MeV) Solar Proton Events in the Stratosphere (person in charge G. Bazilevskaia (aya))

Time and Spatial Cosmic Ray Variations due to Solar Activity Changes. Contact person - A. Svirzhevskaja (aya)

The Heliosphere Models and Cosmic Rays in the Heliosphere. Contact person - M. Kraïnev

Cosmic Ray Variations in the lower Atmosphere. Contact person - N. Svirzhevsky (skii)

Solar Flare Models. Contact person - A. Podgorny

Neutrons in the Earth's Atmosphere. Contact person - A. Kvashnin

Cosmic Ray Modulation Models. Contact person - M. Kalinin

(1996 update)

Laboratory of High Energy Electron Physics

Chief of the Laboratory: Professor A. Komar email: **komar@sci.lpi.ac.ru**

Main Installations:

Electron Synchrotron $E_{max} = 600 \text{ MeV}$ $I_{av} = 100 \text{ mA}$ (on the orbit) $D = 0,1$ (duty factor)

Source of Light Nucleus Ions $E_{max} = 50 \text{ Kev}$ $I_{max} = 40 \text{ mA}$

The main fields of research:

Area of High Energy Physics (person in charge-- A. Komar)

Study of Charm and Beauty Hadro production (in the framework of collaboration with CERN) contact person-- Iurii Alexandrov email: **alexandr@sgi.lpi.msk.su**

Study of ep-- Scattering on Polarized Targets (in the framework of collaboration with DESY) contact person-- V. Kozlov email: **kozlov@sgi.lpi.msk.su**

Building of the Hadronic End-Cap Calorimeter for ATLAS Detector at LHC (in the framework of collaboration with MPI, Muenchen) contact person-- A. Komar email: **komar@sci.lpi.ac.ru**

Area of Synchrotron Radiation Physics (person in charge-- M. Yakimenko), email: **yakimenk@sci.lpi.ac.ru**

Investigation of the Spectroscopical Properties of Crystals contact person-- V. Makhov email: **makhov@sci.lpi.ac.ru**

Investigation of the Spectroscopical Properties of Biological Objects (various proteins etc.) contact person-- T. Syreishchikova email: **syrei@sci.lpi.ac.ru**

Investigation and Testing of the X-ray Optics Devices, contact person-- R. Fedorchuk email: **fedorch@sci.lpi.ac.ru**

Area of Material Physics (person in charge-- M. Negodaev) email: **negod@sci.lpi.ac.ru**

Study of Material Properties by Ion Bombarding Thin Film Formation by Ion Sputtering Method

Area of Theoretical Physics (person in charge-- A. Komar) email: **komar@sci.lpi.ac.ru**

Quantum Field Theory and Gravity contact person-- G. Vilkovisky (skii) email: **vilkov@sgi.lpi.msk.su**

Quantum Mechanics and Optics contact person-- V. Man'ko email: **manko@sgi.lpi.msk.su**

Nonlocal Effects in Quantum Mechanics contact person-- V. Skarzhinsky (skii) email:
vdskarzh@sgi.lpi.msk.su

Theory of Quantum Measurements contact person-- M. Mensky (skii) email:
mensky@mbm.fian.msk.su

Last updated: 19.06.96 by **webmaster@lpi.msk.su**

(1996 update)

New Accelerators Problems Laboratory

Chief of the Laboratory: **Dr. A. Agafonov (agafonov@sci.lpi.ac.ru)**

Main Installations:

High-Power Pulsed Electron/Ion $E_{max} = 2 \text{ MeV}$ (Blumlein PFL)
Accelerator ERG $I_{max} = 100 \text{ kA}$ (Single PFL)
 $T_{pulse} = 200 \text{ ns}$ High-Current Pulsed
 $U_{max} = 450 \text{ kV}$ Generator BIN $I_{max} = 300 \text{ kA}$
 $T_{pulse} = 100 \text{ ns}$ Electron Linear RF-Accelerator
 $E_{max} = 4 \text{ MeV}$ (under construction)
 $I_{peak} = 50 \text{ A}$ $T_{micropulse} = 150 \text{ ps}$
 $T_{pulse} = 150 \text{ mks}$

The main fields of research:

Development of IR FEL (person in charge--A. Agafonov)

Theory of FEL-- contact person A. N. Lebedev "lebedev@sci.lpi.ac.ru"

Photo cathodes and laser-illuminators for photo injectors of RF-accelerators--contact person S. M. Zakharov "Zakharov@sci.lpi.ac.ru"

Theoretical and experimental studies of undulators of various types for FEL--contact person V. A. Papadichev "papadich@sci.lpi.ac.ru"

Beam dynamics in RF-guns and accelerators-contact person A. V. Agafonov "agafonov@sci.lpi.ac.ru"

Computer simulation-- contact person V. S. Voronon "voron@sci.lpi.ac.ru"

RF-accelerator for FEL-- contact person E. G. Krastelev "krastele@sci.lpi.ac.ru"

High current beams and accelerators (person in charge- A. Agafonov)

Intense beam dynamic and collective methods of acceleration-contact person A. V. Agafonov "agafonov@sci.lpi.ac.ru"

Experimental study of high current beams generation, transport and control. High current accelerators. Pulsed Power contact person E. G. Krastelev "krastele@sci.lpi.ac.ru"

High-power RF-generation (person in charge-V. A. Papadichev) Particle and beam dynamics in free electron lasers and masers-contact person V. A. Papadichev "papadich@sci.lpi.ac.ru"

Experimental studies of millimeter and submillimeter generation-contact person I. V. Sinil'schikova (Sinil'schikova) "ira@lpnu.fian.msk.su"

Physics of fast Z-pinches, X-ray Spectroscopy of Multicharged Ions (person in charge-- S. Pikus) Study of X-pinch (in the framework of collaboration with Cornell University, Itahca, USA)-- contact person T. A. Shelkovenko "shelk@sci.lpi.ac.ru"

X-ray Spectroscopy of Plasma Focus (in the framework of collaboration with IFPiLM, Warsaw, Poland)-- contact person V. M. Romanova "romanova@sci.lpi.ac.ru"

X-Ray Optic (in the framework of collaboration with Sandia Lab. , Albuquerque, USA)-- contact person S. A. Pikuz "pikuz@sci.lpi.ac.ru"

MGD Theory of Pinching Plasma (in the framework of collaborationwith IFPiLM, Warsaw, Poland)-- contact person G. V. Ivanenkov"ivanenko@sci.lpi.ac.ru"

Theoretical physics (person in charge-- A. N. Lebedev)
Coherent electromagnetic radiation from high-current electronbeams-- contact person A. N. Lebedev"lebedev@sci.lpi.ac.ru"



(1997 update)

2. Institute of Quantum Radiophysics of LPI

Director:

Nobel prize winner, Academician, N. G. Basov

**Address: P. N. Lebedev Physical Institute,
Russian Academy of Sciences,
Quantum Radiophysics Institute,
Leninskii Pr. 53, 117924,
Moscow, GSP-1, Russia**

Short history

The Institute of Quantum Radiophysics was founded in December 1989. It originated from the Sector of Molecular Generators (established in 1956 and headed by Professor N.G. Basov) of the Laboratory of Oscillations of the P. N. Lebedev Physical Institute. In January 1963, the Sector of Molecular Generators was reorganized into the Laboratory of Quantum Radiophysics. In the subsequent years, some more laboratories had been organized on its basis, They formed the Institute of Quantum Radiophysics of the P. N. Lebedev Physical Institute, and the affiliate Branch in the town of Samara (the Samara Branch of P. N. Lebedev Physical Institute, in 1980). The Institute of Quantum Radiophysics is headed by academician N.G.Basov, the Nobel, Lenin and State Prizes winner.

Structure of the Institute:

Quantum Radiophysics Department
Optoelectronics Department
Laser Fusion Department
Laboratory of Molecular Photonics

Current activities

The scientists of the Institute of Quantum Radiophysics are engaged in the following fields of research:

Quantum radiophysics;

New types of quantum generators, ultra-short-pulse lasers;

Laser interaction with matter;

Nonlinear optics;

Optical frequency standards;

Laser fusion;

Optoelectronics;

Laser applications in chemistry, biology and medicine;

Laser technologies;

Laser ranging of cosmic objects;

Neural Networks;

Documentation & Manuals for software

Local Manual & Documentation gateway

Last updated: February 10, 1997 by Serge Kompanets

DEPARTMENT OF LASER THERMONUCLEAR FUSION

Plasma Diagnostics Lab

Head Professor A. Shikanov
(Staff 18 persons)

Diagnostics of X-ray, optical, and corpuscular radiation of high-temperature plasma with spatial, temporal and spectral resolution.

Lasers for Thermonuclear Fusion Lab

Head Dr. Iurii Senatsky (skii)
(Staff 15 persons)

R & D and exploitation of high-power multi- channel laser systems.

Laser Plasma Theory Lab

Head Professor V. Rozanov
(Staff 6 persons)

Theoretical studies of laser heating and compression of the targets, conversion of X-ray radiation and improvement of target irradiation homogeneity. Physics of thermonuclear burning of prospects of thermonuclear energetics.

Theory of Radiation Interaction with Matter Lab

Head Professor Iurii Afanasiev
(Staff 7 persons)

High-power laser beam interaction with plasma within a wide energy range.

Group of Dr. V. Avtonomov

Generation of harmonics for high-power laser systems.

Group of Dr. O. Semenov

Physical processes in micro pinch current installations.

Beam Target Interaction Theory Department: Vladislav B. Rozanov, D. PM. S., since '78; Senior researchers: Afanasiev, Iurii V. C. PM. S., since '78; Gamalii, E. G. C. PM. S., since '77;

(update)

**INSTITUTE OF QUANTUM RADIO PHYSICS (Now with Institute Status)
DIRECTOR Professor N. BASOV**

Presently, the staff of the Institute of Quantum Radiophysics includes 3 members of the Russian Academy of Sciences, 9 members of other Academies of Russia, 27 Doctors of sciences (professors) and 101 candidates of Sciences (PhD).

The staff of the Institute of Quantum Radiophysics also includes six Lenin-prize winners, 23 State-prize winners, and 11 laureates of the Lenin komsomol prize.

Department of Quantum Radio Physics.

Head Professor N. Basov

Administration:

(1997 update)

Department of Quantum Radiophysics

Theoretical Radiophysics Lab systems, Non-classical optics, X-ray	Dynamics of nonlinear optics.
Head Prof . A. Oraevskii superpower light flows with beams.	Laser Plasma Lab Interaction of plasma and
Head Prof. G. Sklizkov lasers with electroionization and beam pumping (COCO, N O,	Gas Lasers Lab High-power electron-
Head Prof. A. Suchkov High-energy gas lasers with optical new mechanisms of shortwave quality.	Photochemical Processes Lab pumping:
Head Dr. L. Mlkheev Lab Laser radiation conversion methods of nonlinear optics; high-power solid-state compressors.	Nonlinear Optical Phenomena by the scattering summators and
Head Prof. I. Zubarev and visible-range pulse lasers.	Chemical Lasers Lab R&D of near IR chemical lasers. Ultrashort
Head Prof. P. Kriukov optical measurements and the quantum frequency lasers.	Frequency Standards Lab Precision enhancement of
Head Prof. M. Gubin Raman lasers and their	Laser Applications Lab Excimer and applications.
Head Prof. A. Grasiuk interaction with biological objects.	Laser Surgery Lab Laser

Head Prof. R. Ambartsumian
Laser location

Laser Ranging of Space Objects Lab
of geodynamic artificial

Head Prof. Yu. Kokurin

Earth satellites.

Last Updated: February 10, 1997 by Serge Kompanets.

DEPARTMENT OF OPTOELECTRONICS

Diode Laser Lab
Head Prof. P. Eliseev

Development of diode heterostructure lasers:
widening of the, spectral range of operation,
optimal operation of multi-channel laser
arrays, low-noise diode light amplifiers,
diode pumping of solid-state lasers.

E-beam Pumped Semiconductor
Laser Lab
Head Prof. A. Nasibov

R & D of laser electron-beam tubes with high
radiative fluxes in the TV scanning regime.

Optoelectronic Processors Lab
Head Prof. I. Kompanets

Optical data, processing by spatial time light
modulators, and R & D of fast-operation
high-contrast high-resolution modulators
for this purpose.

Superfast Optoelectronics
and Data Processing Lab
Head Dr. A. Putilin

Integral illuminators for processors,
commutators, and display elements for
optical, computers on the base of picosecond
laser diodes and waveguiding holograms.
Spatial time and spectral densification of
optical signals for superdense data transfer
systems.

Group of Prof. V. Seleznev

investigation of multi-layer films ,
nanostructures at the surface of
semiconductors, quantum-well effects in a
Si radiation and conductivity.

Last Updated: February 11, 1997 by Serge Kompanets.

Department of Laser Thermonuclear Fusion.

Head. Professor L. Feoktistov

Plasma Diagnostics Lab
Lasers for Thermonuclear Fusion Lab
Laser Plasma Theory Lab
Radiation Interaction with Matter Lab

Laboratory of Molecular Photonics

Headed by academician N. A. Borisevich
e-mail: borisev@sgi.lpi.msk.su
Phone: (7095)135-8649 Fax: (7095)938-2251

Dye laser group

Iet cooled molecular group

Stoilov Yu. Yu.
stoilov@sci.lpi.msk.su

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abel@sci.lpi.msk.su

Cho Sung-Ioo.
sicho@sci.lpi.msk.su

Savinov Yu. V.
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Dyatchenko G. G.
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Vortchek D. B.
vortch@sci.lpi.msk.su

Zhukovcky K. V.

Shabalin Yu. V.
shabal@sci.lpi.msk.su

Theoretical Radio Physics Lab

Head Professor A. Oraevskii (skii)
(Staff 19 persons)

Dynamics of nonlinear systems, Non-classical optics, X-ray optics.

Laser Plasma Lab

Head Prof-G. Skllzkov
(Staff 10 pews.)

Interaction of superpower light flows with plasma and beams.

Gas Lasers Lab

Head Professor A. Suchkov
(Staff 37 persons)

High-power lasers with electro-ionization and electron-beam pumping (CO, N O, KrF, noble gases)

Photochemical Processes Lab

Head Dr. L. Mikheev
(staff 25 persons)

High-energy gas lasers with optical pumping: new mechanisms of short-wave lasing, and improvement of radiation quality.

Nonlinear Optical Phenomena Lab

Head Professor I. Zubarev
(Staff 27 persons)

Laser radiation conversion by the methods of nonlinear optics; high-power solid-state laser systems on the base of simulated-scattering summators and compressors.

Chemical Lasers Lab

Head Professor P. Kriukov
(Staff 20 persons)

R&D of near IR and visible-range chemical lasers Ultra short pulse lasers.

Frequency Standards Lab

Head Professor M. Gubin
(Staff 18 persons)

Precision optical measurements and enhancement of the quantum frequency standard accuracy. R&D of high-stability lasers.

Laser Applications Lab

Head Professor A. Grasiuk
(Staff 20 persons)

Excimer and Raman lasers and their applications.

Laser Surgery Lab

Head Professor R. Ambartsumian
(Staff 17 persons)

Laser interaction with biological objects.

Laser Ranging of Space Objects Lab

Head Professor Iurii Kokurin
(Staff 56 persons)

Laser location of geodynamic artificial Earth satellites.

(For the latest 1997 edition, I have removed the unidentified laboratories and those which carried individual scientists' names as well as all of the older material in previous editions of this guide.)

(1996 update)

3. The P. N. Lebedev Physical Institute in Troitsk. (FIAN)

Retrospect: This institute was moved to Troitsk in 1963. The total number of personnel in the institute in 1990 was about 1000. The Director of the institute since 1988 has been L. V. Keldysh, (Keldish) a Lenin prize winner. The institute has more than 10 departments and laboratories engaged in energetic particle physics and quantum electronics. The major part of the Institute's Quantum Radio Physics Department is sited in Troitsk where work on laser construction, the development and use in technology, medicine, data processing and other fields of science and engineering is carried out. The institute also maintains a special design office, the largest in the Academy system, that provides equipment, scientific instruments, optics, crystals with special characteristics, semiconductor and Opto-Electronics devices for the physical experiments that are carried out in the institute.

Department of High Energy Physics of the institute from 1963 to 1990 was headed by P. A. Cherenkov, the Nobel Prize winner--it is currently being headed by Dr. E. I. Tamm--who formerly was Deputy head of the Photo-Meson Processes Laboratory which, at that time was headed by Cherenkov. Laboratories of the present High Energy Physics Department include: 1) the Photo-Meson processes Laboratory; 2) the Electromagnetic Interactions Laboratory; 3) the High Energy Nuclear Investigation Laboratory; 4) the Laboratory of Accelerators, and 5) the Sector of Elementary Particles Physics. The Electron Synchrotron "Pakhra" is located under this Department.

High Energy Physics Department, Leninskii (skii) Prospect 53, 117924 Moscow B-333, Russia

High Energy Physics Department was organized by Academician P.A. Cherenkov, Nobel Prize Winner. The Department scientists maintain wide international contacts with world leading scientific centers carrying out investigations in high energy physics by taking part in joint scientific projects at CERN and DESY.

Most of the Department (including Electron Synchrotron "Pakhra") is located in Troitsk.

Head of Department: Professor E. I. Tamm

Manager vice-head: V. S. Karpov
Research vice-head: E. I. Malinovski
Chief engineer: S. N. Kotov
Scientific Secretary: A. I. Lvov

Laboratories

Photo-meson processes Laboratory (head-- E. I. Tamm)
Electromagnetic interactions Laboratory (head-- E. I. Malinovski)
High energy Nuclear Investigation Laboratory (head-- G. G. Taran)
Laboratory of Accelerators (head-- K. A. Belovintsev)
Sector of Elementary particles Physics (head-- M. I. Adamovich)
Group of Tagged photons (head-- B. B. Govorkov)

Synchrotron Radiation Physics

(person in charge-- M. Yakimenko),

email: yakimenk@sci.lpi.ac.ru

Investigation of the Spectroscopical Properties of Crystals

contact person-- V. Makhov
email: makhov@sci.lpi.ac.ru

Investigation of the Spectroscopical Properties of Biological Objects
(various proteins etc.)

contact person-- T. Syreishchikova
email: syrei@sci.lpi.ac.ru

Investigation and Testing of the X-ray Optics Devices,

contact person-- R. Fedorchuk
email: fedorch@sci.lpi.ac.ru

High Energy Physics

(person in charge-- A. Komar)

Study of Charm and Beauty Hadro production (in the framework of collaboration with CERN)

contact person-- Iurii Alexandrov
email: alexandr@sgi.lpi.msk.su

Study of ep-- Scattering on Polarized Targets (in the framework of collaboration with DESY)

contact person-- V. Kozlov
email: kozlov@sgi.lpi.msk.su

Building of the Hadronic End-Cap Calorimeter for ATLAS Detector at LHC (in the framework of collaboration with MPI, Muenchen)

contact person-- A. Komar
email: komar@sci.lpi.ac.ru

Department of Semiconductor Material Technology is engaged in crystal growing technologies and semiconductor laser and Opto-Electronics device construction technologies.

Optics Research Department is engaged in designing instrumentation for laser radiation diagnostics.

Radio Electronic Instrumentation Department is engaged in designing various scientific instruments.

(Information provided by letter 2 October from Dr. O. A. Tumanov, scientific secretary of the Spectroscopy Institute. Troitsk: *ego istoricheskoe proshloe i nastoiashchee*, Moscow: Moscow Typographis No. 5, 1991, 48 pp. A brochure printed in both English and Russian. See pp. 22-23 for information on the Institute.)

4. Nuclear Physics and Astrophysics Department (Institute Status) (NPAD)

Email: NPAD@LPI.MSK.SU

Nuclear Physics and Astrophysics Department (NPAD) is one of the parts of Lebedev Physical Institute and has the rights of the Institute of Russian Academy of Sciences. It is located in two areas-- in Moscow and Troitsk near Moscow-- and has among the major equipment two electron accelerators. Also NPAD has under its scientific supervision a number of scientific stations in different Republics of CIS.

Email: NPAD@SGI.LPI.MSK.SU

Director of NPAD

Sergei I. Nikolskii, Corresponding member of RAS, Prof.Dr.

Phone: (007) (095) 135 50 11, Fax: (007) (095) 132 65 67

E-mail: nikols@sgi.lpi.msk.su (personal), npad@sgi.lpi.msk.su (office)

Research vice-director of NPAD

Andrei N. Lebedev, Prof.Dr.

Phone: (007) (095) 132 55 82, Fax: (007) (095) 132 65 67

E-mail: lebedev@sci.lpi.msk.su (personal), npad@sgi.lpi.msk.su (office)

Research vice-director in Troitsk

Lev V. Fil'kov, Prof.Dr.

Phone: (007) (095) 135 87 39, Fax: (007) (095) 132 65 67

Email: filkov@sgi.lpi.msk.su (personal), npad@sgi.lpi.msk.su (office)

Manager vice-director of NPAD

Andrei V. Chernov, Dr.

Phone: (007) (095) 135 14 23, Fax: (007) (095) 132 65 67

E-mail: chernov@sgi.lpi.msk.su (personal), npad@sgi.lpi.msk.su (office)

Scientific Secretary of NPAD

Vladimir D. Skarzhinskii, Prof.Dr.

Phone: (007) (095) 132 63 14, Fax: (007) (095) 132 65 67

E-mail: vdskarzh@sgi.lpi.msk.su (personal), npad@sgi.lpi.msk.su (office)

Departments and laboratories

High Energy Physics Department (Troitsk)

Cosmic Ray Physics Department

Laboratory of High Energy Electrons Physics

New Accelerator Problems Laboratory

Ultra High Energy Astrophysics Laboratory

Theoretical Nuclear Physics Sector

(1997 update)

Theoretical Astrophysics Department

*** Lukash Vladimir Nikolaevich , Prof., Head of Department**

Scientific staff

Beloborodov Andrei Mikhailovich , Dr.

Budnick Sergei Vasilievich ,

Burdyuzha Vladimir Vladimirovich , Prof.

Chernyakova Maria Alexandrovna , post-graduate student

Dubovikov Mikhail Mikailovich, Dr.

Illarionov Andrei Feodorovich , Dr.

Ivanov Pavel Borisovich , Dr.

Kauts Vladimir Leonidovich , Dr.

Komberg Boris Valentinovich , Prof., Head of Laboratory

Kompaneets Dmitriy Alexandrovich , Dr., Head of Laboratory

Larchenkova Tatyana Ivanovna , post-graduate student

Mikheeva Elena Vladimirovna ,

Novikov Dmitrii Igorevich ,

Novikov Igor Dmitrievich , Prof.

Polnarev Alexandre Grigorievich , Prof.

Polyshuk Rostislav Feofanovich , Dr.

Straut Lyudmila Georgievna , secretary

Optics Division Of the Lebedev Physical Institute

Director:

Igor I. Sobelman, Corresponding member of RAS, Prof. Dr.

Phone: (007) (095) 135 20 28

E-mail:

Manager vice-director:

Valery M. Vinogradov

Phone: (007) (095) 132 63 74

Fax: (007) (095) 135 24 08

E-mail:

Research vice-director:

Maria A. Mazing

Phone: (007) (095) 132 67 15

E-mail:

Scientific Secretary:

Valentina F. Kitaeva

Phone: (007) (095) 135 12 37

E-mail:

Departments:

Department for Luminiscence

Optics Department

Prof. Vladimir. S. Gorelic

Department for Optics of Low Temperature

Plasmas Spectroscopy Department

Prof. Igor I. Sobelman

Spectroscopy department

Director: Igor I. Sobelman, Corresponding member of
RAS, Prof. Dr.

Phone: (007) (095) 135 20 28

Optics Department

Director:

Prof. Vladimir. S. Gorelic

Phone: (007) (095) 135 87 73, 132 23 50

Fax: (007) (095) 135 24 08

E-mail:

Department for Optics of Low Temperature Plasmas

Department for Luminiscence

Last updated: 05 Mar, 1997

Laboratories and groups:

Laboratory of Coherent Optics

Dr. of Sc. Vladimir A. Zubov

Laboratory of Combinational Scattering

Prof. Vladimir. S. Gorelic

Laboratory of Physical Optics

Prof. Georgy G. Petrash

Laboratory of Space IR-Spectrometry

Dr. Valery V. Ivanov

Theoretical Sector

Dr. of Sc. Vladimir A. Sheglov

Laboratory of Coherent Optics

Head:

Dr. of Sc. Vladimir A. Zubov

Phone: (007) (095) 132 58 71

Fax: (007) (095) 135 24 08

Laboratory of Combinational scattering

Head:

Prof. Vladimir. S. Gorelic

Phone: (007) (095) 135 87 73, 132 23 50

Fax: (007) (095) 135 24 08

Laboratory of Physical Optics

Head:

Prof. Georgy G. Petrash

Phone: (007) (095) 132 50 88

Fax: (007) (095) 135 24 08

Laboratory of Quantum Optics

Laboratory of Space IR-Spectrometry: Head: Dr. Valerii V. Ivanov
Phone: (007) (095) 135 58 72
Fax: (007) (095) 135 24 08
E-mail: ivanov@sci.lpi.msk.su

Background:

The Laboratory of Space Infrared Spectrometry is engaged in investigation of the Earth's atmosphere thermal radiation in the spectral region from 2 to 20 micron. This investigation is very important for understanding the solar-terrestrial connections, fundamental physical-chemical processes in nonequilibrium gases of the upper atmosphere, for solution of climatological and ecological problems.

During the last fifteen years the laboratory participated in three space experiments on the "SALUT" orbital station and carried out above fifteen experiments with the using the on-board IR-spectral instruments, which were worked out and produced by itself. For the detailed theoretical modeling of kinetic processes in the upper atmosphere are developed also in the laboratory.

Now the laboratory with the participation of groups of foreign scientists develops the new type of infrared instrument-- multichannel spectro-radiometer ISTOK-1 for determination the spatial distribution of minor gas constituents in stratosphere and mesosphere from the orbital station MIR during 1996-1999. The instrument has been launched on the orbit in the 26 April 1996. The modification of this instrument will be used also for the new scientific project on global monitoring of the ozonosphere, which is planned to be realized on the International Space Station ALPHA in 1999. Last updated: 8.10.96

siliakov@sgi.lpi.msk.su

Theoretical Sector

Head:

Dr. of Sc. Vladimir A. Sheglov
Phone: (007) (095) 132 87 83
Fax: (007) (095) 135 24 08

Last updated: 05 Mar, 1997

High Energy Physics Department (Troitsk)
Cosmic Ray Physics Department
Laboratory of High Energy Electrons Physics
New Accelerator Problems Laboratory

Ultra High Energy Astrophysics Laboratory

Chief of the Laboratory: Sergei I. Nikolsky (skii) , Corresponding member of RAS,
Professor Dr.

Phone: (007) (095) 135 50 11, Fax: (007) (095) 132 65 67
E-mail: nikols@lpi.msk.su

Main Installations

Observatory SHALON-- ALATOO (Tian-Shan, Kazakhstan),

two mirror telescopes for Tev gamma-astronomy.

Mountain level-- 3338 m
Full mirror area-- 11 sq.m
Full angle-- 8'
Pixels-- 144

ANI (Aragats, Armenia), experimental complex for investigation of hadron-nucleon interaction at energy $> 10^{15}$ eV

Main Fields of Research

Cosmic rays physics and Tev gamma-astronomy

(person in charge-- S. I. Nikolsky (skii) , nikols@lpi.msk.su)

Ultra-high energy gamma-astronomy

(contact person-- V. G. Sinitsyna (Sinitsina), sinits@sgi.lpi.msk.su)

Investigation of energy and mass spectra of primary cosmic radiation and nuclear interactions at energy $> 10^{13}$ eV by means of stratospheric X-ray chambers.

(contact person-- A. V. Apanasenko, romahin@sgi.lpi.msk.su)

Theoretical Nuclear Physics Sector

Theoretical Physics Division

Director: L. V. Keldish

Theoretical Physics Division:

Head: Dr. of Sc. Vladimir A. Sheglov

Phone: (007) (095) 132 87 83

Fax: (007) (095) 135 24 08

Solid State Physics Division

Director: V. P. Silin

Astro Space Center (separate server)

(1997 update):

Astro Space Center of the P. N. Lebedev Physical Institute of the Russian Academy of Sciences

117810, Russia, Moscow, Profsoyuznaya st.84/32

Tel: 7 (095) 333 2301 (Office)

Fax: 7 (095) 333 2378

E-mail: question@dpc.asc.rssi.ru

Administration

Director of the Astro Space Center of the Lebedev Physics Institute

Kardashev Nicolay, Candidate of Sciences, Doctor of Sciences

Full Member of Russian Academy of Sciences (1994),

Field of research interest

Theoretical astrophysics, Radio astronomy, cosmology, high energy astrophysics.

Position

Director ASC,
Professor of Moscow Institute,

Postal Address

Astro Space Center of the P. N. Lebedev Physical Institute of the Russian Academy of Sciences 117810, Russia, Moscow, Profsoyuznaya st. 84/32

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Deputy Director: Slysh V. I.

Deputy Director: Kurt V. G.

Director, Pushchino RAS: Dagkesamanskii R. D.

Director, Radio Astronomy Station Saffa: Zabolotnyi V. F.

Deputy Director (finances): Likchacheva L. N.

Scientific secretary: Bychkova V. S.

(1997 update)

Data Processing Department

The Data Processing Department was founded at the ASC in 1991, with the primary goal of providing support for the Space VLBI project, Radioastron. Our main tasks are the development of digital equipment, and the development of computing and applied mathematical methods for the Radioastron mission.

The Data Processing Department consists of a Computing Center, and three Research Laboratories. The Data Processing Department has a staff of 20 scientists, mathematicians and computer engineers.

Head of Data Processing Department ; Dr. Sergey F. Likhachev.

(e-mail: slikhach@platon.asc.rssi.ru).

Computing Center: The Computing Center provides the ASC with all its computational and networking needs, such as local access net, Internet connection, e-mail, data exchange and file exchange. The Center is also responsible for all the Radioastron mission data exchange.

Head of Computing Center; Alexander S. Pimakov. (e-mail: pim@dpc.asc.rssi.ru).

Laboratory of Mathematical Methods (ASL Team): The Laboratory was founded in 1992. The Laboratory develops new applied methods for VLBI imaging with specific emphasis and orientation towards SVLBI (Radioastron and Millimetron missions). Currently, the main project at the Laboratory is the Astro Space Locator

(ASL). This is a major, new, highly sophisticated VLBI imaging, object-oriented software project.

Head of Laboratory: Sergey F. Likhachev. (e-mail: slikhach@platon.asc.rssi.ru).

Correlation Processing Laboratory: The Laboratory was founded in 1996. Its main goal is the manufacturing and testing of the correlator for ground testing of the Radioastron Antenna in Puschino. The Lab will be using the VLBA Correlator technology.

Head of Laboratory; Konstantin G. Belousov. (e-mail: belousov@avitsena.asc.rssi.ru).

Registration System Laboratory: The Laboratory was founded in August, 1996 with the mission of supporting the VLBI (including SVLBI) Registration System, and making ground-based VLBI observations with Russian radio telescopes located at Evpatoria, Medvezhyi Oзера, and Ussuriysk . At present the Laboratory manufactures sophisticated SVLBI Decoder used for decoding the various radio astronomy data obtained from Radioastron observations.

Head of Laboratory; Igor E. Molotov. (e-mail: molotov@dpc.asc.rssi.ru).

Information and Navigation Systems Radioastronomy Project of the Lebedev Physics Institute.

Staff

Kirill Kochetkov ,
Boris Kreisman , Dr.
Yuri Ponomarev , Dr., Head of Laboratory
Pavlo Tichina
E-mail: question@dpc.asc.rssi.ru

1997 update
Astro Space Missions Ground Support Department

Main Interests:

Space-Ground radiocommunication systems
Methods and equipment of VLBI, SVLBI, mm-VLBI
Frequency and phase synchronization systems
Dynamic of nonlinear radiosystem with feedback and time delay line
Theory of oscillations
Radiowaves propagation
System software
Registration systems
Low noise amplifiers
Ultra high frequency receiving and transmitting devices
Radio devices with optic line
Interferometry observations
Cosmology



5. Astro Space Center of P. N. Lebedev Physical Institute of Russian Academy of Sciences 117810, Russia, Moscow, Profsoyuznaya st.84/32

Tel: 7 (095) 333 2301

Fax: 7 (095) 333 2378

E-mail: question@dpc.asc.rssi.ru



6. The P. N. Lebedev Physical Institute in Troitsk. (FIAN)

Retrospect: This institute was moved to Troitsk in 1963. The total number of personnel in the institute in 1990 was about 1000. The Director of the institute since 1988 has been L. V. Keldysh, (Keldish) a Lenin prize winner. The institute has more than 10 departments and laboratories engaged in energetic particle physics and quantum electronics. The major part of the Institute's Quantum Radio Physics Department is sited in Troitsk where work on laser construction, the development and use in technology, medicine, data processing and other fields of science and engineering is carried out. The institute also maintains a special design office, the largest in the Academy system, that provides equipment, scientific instruments, optics, crystals with special characteristics, semiconductor and Opto-Electronic devices for the physical experiments that are carried out in the institute.

Department of High Energy Physics of the institute from 1963 to 1990 was headed by P. A. Cherenkov, the Nobel Prize winner--it is currently being headed by Dr. E. I. Tamm--who formerly was Deputy Head of the Photo-Meson Processes Laboratory which, at that time was headed by Cherenkov. Laboratories of the present High Energy Physics Department include: 1) the Photo-Meson processes Laboratory; 2) the Electromagnetic Interactions Laboratory; 3) the High Energy Nuclear Investigation Laboratory; 4) the Laboratory of Accelerators, and 5) the Sector of Elementary Particles Physics. The Electron Synchrotron "Pakhra" is located under this Department.

**High Energy Physics Department,
Leninsky (skii) Prospect 53, 117924 Moscow B-333, Russia**

High Energy Physics Department was organized by Academician P.A. Cherenkov, Nobel Prize Winner. The Department scientists maintain wide international contacts with world leading scientific centers carrying out investigations in high energy physics by taking part in joint scientific projects at CERN and DESY.

Most of the Department (including Electron Synchrotron "Pakhra") is located in Troitsk.

Head of Department: Professor E. I. Tamm

Manager vice-Head: V. S. Karpov
Research vice-Head: E. I. Malinovski
Chief engineer: S. N. Kotov
Scientific Secretary: A. I. Lvov

Laboratories

Photo-meson processes Laboratory (Head-- E. I. Tamm)
Electromagnetic interactions Laboratory (Head-- E. I. Malinovski)
High energy Nuclear Investigation Laboratory (Head-- G. G. Taran)
Laboratory of Accelerators (Head-- K. A. Belovintsev)
Sector of Elementary particles Physics (Head-- M. I. Adamovich)
Group of Tagged photons (Head-- B. B. Govorkov)

Synchrotron Radiation Physics

(person in charge-- M. Yakimenko),
email: yakimenk@sci.lpi.ac.ru

Investigation of the Spectroscopical Properties of Crystals
contact person-- V. Makhov
email: makhov@sci.lpi.ac.ru

Investigation of the Spectroscopical Properties of Biological Objects
(various proteins etc.)
contact person-- T. Syreishchikova
email: syrei@sci.lpi.ac.ru

Investigation and Testing of the X-ray Optics Devices,
contact person-- R. Fedorchuk
email: fedorch@sci.lpi.ac.ru

High Energy Physics

(person in charge-- A. Komar)

Study of Charm and Beauty Hadro production (in the framework of collaboration with CERN)
contact person-- Iurii Alexandrov
email: alexandr@sgi.lpi.msk.su

Study of ep-- Scattering on Polarized Targets (in the framework of collaboration with DESY)
contact person-- V. Kozlov
email: kozlov@sgi.lpi.msk.su

Building of the Hadronic End-Cap Calorimeter for ATLAS Detector at LHC (in the framework of collaboration with MPI, Muenchen)
contact person-- A. Komar
email: komar@sci.lpi.ac.ru

Department of Semiconductor Material Technology is engaged in crystal growing technologies and semiconductor laser and Opto-Electronic device construction technologies.

Optics Research Department is engaged in designing instrumentation for laser radiation diagnostics.

Radio Electronic Instrumentation Department is engaged in designing various scientific instruments.



7. Troitsk Institute of Innovation and Fusion Research (TRINITI)

Address: 142092, Troitsk, Moscow region, Russia

Telex: 911664 LINER RU

Fax: 7 (095) 334-57-76

E-mail: liner@triniti.troitsk.ru

Director of the TRINITI

[Viacheslav D. Pismennyi (Pis'mennii (Pismennii), Viacheslav D., D. PM. S.

He was born in 1932; graduated from the physics department in the Moscow State University. He is an expert in the field of quantum electronics and plasma physics, being the author of more than 100 science works and inventions. For outstanding contribution to the R&D on lasers intended for physics and technology applications he was awarded the State Prizes. V. Pismennyi is editorial board member for the "Plasma Physics" journal, also participating in RAS councils on plasma physics and thermophysics problems. He is Professor of the Moscow Physics-Technology Institute. V. Pismennyi takes an active part in international programs contacting with a number of scientists. Corresponding member of the General Physics and Astronomy Department of the Academy since 1984. Winner--with others--of the 1978 State Prize for the development of physical principles, establishment and research in a gaseous laser, generated with the use of ionized radiation. Since 1979, He has been of Troitsk Branch of the I. V. Kurchatov Atomic Energy Institute of Moscow.]

The Institute for Innovation and Fusion Research (TRINITI) in Troitsk is one of the leaders in scientific research and high technology in Russia. Formerly TRINITI was the branch of Kurchatov Institute of Atomic Energy.

Plasma physics, lasers, engineering applications of superconductivity, and magnetic hydrodynamic (MHD) generators were among the subjects of their scientific investigation. Theoretical basis for new areas of science and technology was constructed by joint efforts of both physicist and engineers. It is worth noting, however, that from its early days, the Troitsk Institute for Innovation and Fusion Research was primarily focused on applications.

Experimental facilities of the Institute had been growing very rapidly and in a few years the series of principally new and unique installations were completed.

Facilities for studies of nuclear fusion are the most advanced installations for fundamental research at the TRINITI. The most prominent among them is the Tokamak-14, often called the Strong Field Tokamak (SFT) and well known to physicists all over the world, which has become operational in 1987. Especially interesting experiments on inertial confinement fusion have been made at another big facility, the Angara-5. Experiments made using both these systems are the essential part of the ongoing exploration of ignition and burning of fusion reaction.

Several lasers (Mishen, TIR and others) have been created at the Institute for laser fusion experiments. Important studies of processes in hot plasmas are conducted at specialized facilities, Compact Torus and MK-200. Both theoretical and applied aspects of laser physics and laser technology are always paid a special attention at the Troitsk Institute. Wide range of lasers and laser systems are being developed at the Institute over the years. Among them are carbon dioxide, carbon monoxide,

excimer and solid-state lasers operating in different modes (continuous wave, single pulse, high repetition-rate pulses) and featuring different characteristics. These lasers have been and currently are used for various purposes, ranging from fundamental physics experiments to patented industrial technologies working at many plants.

Recently, new techniques for diagnostics and treatment of cancer and heart diseases have been developed in TRINITY. Other biomedical spin-offs of the physical research are also investigated. Proprietary software and computerized experts systems for medicine have been created by our scientists.

MHD generators built by the Troitsk Institute scientists are used for geophysical research: electrical probing of the Earth's crust, search for minerals and fossils, and earthquake forecasts.

Supporting facilities of the TRINITY include the Computer Center and the Experimental Workshops. Both feature unique equipment and high professional skills of the staff. Four thousands employees work for the Institute, including three Members of the Academy and 300 scientists with Dr. Sc. or Ph.D. degrees. Many of the Institute personnel are the winners of various government or scientific awards.

Over recent years, close attention is paid to commercialization of the TRINITY scientific achievements and wide contacts with foreign scientists.

Till 1978 academician Eugenii P. Velikhov was at the head of the Institute. After him and at the present time Corresponding Member of the Russian Academy of Science Viacheslav D. Pysmennyi is at the head of TRINITY.

The institute is situated at picturesque town, Troitsk by name, at a distance of 20 kilometers from Moscow.

Divisions of TRINITY

Division of Perspective Researches
Department of Fusion Researches
Center of Theoretical Physics and Computational Mathematics
Department of Fast processes
Division of Current Driven Plasma Physics
Department for Magnetic and Optical Researches
Computer Division



8. Institute of Astronomy of the Russia Academy of Sciences.

**48, Piatnitskaya (aya) st., Z-17, Moscow, 109017, tel. 231-54-61,
teletype: Geos 11585, fax: 230-20-81
E-mail: root@iras.msk.su
Acting Director Academician Aleksandr Al. Boyarchuk (Boiarchuk), tel.
231-09-24**

Scientific base, Zvenigorod, tel. 592-12-07

Space Geodesy Department of INASAN

Head: Dr. Suriya K. Tatevian

System Administrator: Aleksei I. Pavlov

Engineer: Luba V. Milyaeva

Senior Research Scientist: Nikolai A. Sorokin

Junior Research Scientist: Oleg A. Bauyk

Senior Research Scientist: Sergei P. Kuzin

Junior Research Scientist: Svetlana P. Oraevskaya

Zweinogord Satellite Ranging Staff:

Valery P. Trusov, Evgeny (Evgenii) A. Yuorov, Ludmila A. Yurova

Address: 48 Pyatnitskaya st. Moscow, Russia 109017

Phone: (7-095)-233-1624

Fax: (7-095)-230-2081

e-mail: statev@inasan.rssi.ru

Department of Geodynamics and Applied Geophysics

**Chair: Lidia V. Rykhlova, D.PM. S., Head of Space Geodesy Department of
INASAN, Institute of Astronomy of Russian Academy of Sciences**

48 Pyatnitskaya Str.

Moscow 109017

R u s s i a

Phone: (7-095)-231-7375

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Igor M. Podgorny

Mikhail A. Smirnov

Valerii I. Shematovich

Nikolay P. Erpylev

Firuz H. Sakhibov

Galina T. Bolgova

Tatiana V. Kasimenko

Dmitrii V. Bisikalo

Oksana A. Dorodnitsyn (Dorodnitsin)a (Dorodnitsina)

Mohammed O. Suliman

48 Piatnitskaia (aya) ul.

Moscow, Russia 109017

FAX: (7095) 230-20-81

tel: (7095) 231-73-75

e-mail: rykhlova@inasan.rssi.ru

Department of Physics of Stellar and Planetary Systems

**The Physics of Stellar and Planetary Systems (PSPS) is a department of the
Institute of Astronomy of the Russian Academy of Sciences.**

48 Pyatnitskaya st.,

Moscow, Russia 109017

TEL: (7095) 231-39-80

FAX: (7095) 230-20-81

e-mail: afridman@inasan.rssi.ru

Personnel

Chair: Prof. Alexei M. Fridman
Secretary: Dr. Alexandr (Aleksandr)a K. Terent'eva
Dr. Valerii L. Polyachenko
Dr. Oleg V. Khoruzhii
Dr. Valentin V. Lyakhovich

Some important scientific results which were obtained during the last decade:

Prediction and discovery of new structures in spiral galaxies: giant anticyclones.

Physics of planetary rings: celestial mechanics of continuous medium.

Physics of gravitating systems: collective processes and structures.

Determination of the 3D distribution function in stellar clusters and relaxation mechanisms of stellar population in the solar neighbourhood.

Major-priority programs of the department

Spiral-Vortex structures of galaxies
Mini-Bars
Galactic Center Dynamics

Research activities:

Formation and dynamics of spiral-vortex structures
Formation and dynamics of bars
Galactic gaseous disks
Planetary disks
Accretion disks
Asteroids

Personnel

The PSPS staff comprises of 5 researchers.
Chair: Professor Alexei M. Fridman

Prof. Alexei Maximovich Fridman, Corresponding member of the Russian Academy of Sciences, State Prize winner of the USSR. Head of Department of Physics of Stellar and Planetary Systems

Address:

48 Pyatnitskaya Str.
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R u s s i a

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Lectures

FUNDAMENTAL LAWS OF PHYSICS

**INTRODUCTION TO CLASSICAL GRAVITY PHYSICS
NONLINEAR WAVES, VORTICES, TURBULENCE**

Projects

The project "Vortex"

Secretary: Dr. Alexandr (Aleksandr)a K. Terent'eva (Terenteva)

Phone: (7-095)-231-3980

Fax: (7-095)-230-2081

E-mail: ater@inasan.rssi.ru

Dr. Valerii L'vovich Polyachenko, born on 31 December 1940

Phone: (7-095)-231-3980

Fax: (7-095)-230-2081

E-mail: vpolyach@inasan.rssi.ru

Senior Research Scientist, Astronomical Council, USSR Academy of Sciences, Moscow, 1981-1988.

Senior Research Scientist, Institute of Terrestrial Magnetism, Ionosphere and Propagation of Radiowaves, USSR Academy of Sciences, Irkutsk, 1978-1981.

Junior Research Scientist, Institute of Terrestrial Magnetism, Ionosphere and Propagation of Radiowaves, USSR Academy of Sciences, Irkutsk, 1972-1975.

Post-graduate, Institute of Terrestrial Magnetism, Ionosphere and Propagation of Radiowaves, USSR Academy of Sciences, Irkutsk, 1971-1972, Institute of Nuclear Physics, USSR Academy of Sciences, Novosibirsk, 1969-1971.

Engineer, Automatics and Telemechanics Institute, 1963-1969.

Dr. Oleg V. Khoruzhii, born in April 24, 1963

Phone: (7-095)-231-3980

Fax: (7-095)-230-2081

E-mail: okhor@inasan.rssi.ru

Place of birth: Tchernovtsy, Ukraine

1979-1985 Moscow Institute of Physics and Technology, Physics and Energy Problems Dept., student;

1987-1985 I.V.Kurchatov Atomic Energy Institute, Moscow, U.S.S.R., Post-graduate

Research activity:

1985-1993-- I. V. Kurchatov Atomic Energy Institute, Moscow, U.S.S.R.

Awards:

1987-The Best Young Specialist Award I. V. Kurchatov Atomic Energy Institute

Professional interest: gas and fluid dynamics, plasma physics, astrophysical jets and shocks, stellar dynamics

Author of: about 30 scientific works.

Ph.D. "Parametric processes in inhomogeneous plasma and gases"-- 1993

Dr. Valentin Victorovich Lyakhovich, born in 1967, on September 24 in Odessa, Ukraine

E-mail: lyakhov@inasan.rssi.ru

Research Scientist , Institute of Astronomy of the Russian Academy of Sciences, Moscow, Russian, 1996-

HONORS AND AWARDS

The Sakhorov prize fellowship, Odessa State University, 1990-1991

5-6 places in physical all-Union (USSR) olympiad of students (held in Kishinev, Moldavia), 1989

Major-priority program of the department

Spiral-Vortex structures of Galaxies

Mini-Bars

Galactic Center Dynamics

Department of variable stars and stellar spectroscopy

48 Pyatnitskaia (aya) ul.

Moscow, Russia 109017

FAX: (7095) 230-20-81

tel: (7095) 231-39-80

e-mail: nchugai@inasan.rssi.ru

Head: Dr. Nikolai N. Chugai, D. PM. S, Head of Department of variable stars and stellar spectroscopy, Institute of Astronomy of Russian Academy of Sciences. Fields of interest: supernovae, diagnostics of astrophysical plasma, radiative transfer. Variable stars, globular clusters, maintenance and edition of General Catalogue of Variable Star (GCVS)

Leading Scientist, Astronomical Council, USSR Academy of Sciences, 1985-1986.

Senior Research Scientist, Astronomical Council, USSR Academy of Sciences, Moscow, 1979-1985.

Head of Laboratory, Institute of Terrestrial Magnetism, Ionosphere and Propagation of Radiowaves, USSR Academy of Sciences, Irkutsk, 1971-1979.

Senior Research Scientist, Institute of Nuclear Physics, USSR Academy of Sciences, Novosibirsk, 1969-1971.

Junior Research Scientist, Institute of Nuclear Physics, USSR Academy of Sciences, Novosibirsk, 1966-1969.

HONORS AND AWARDS

State Prize of the USSR, 1989.

Corresponding member of Russian Academy of Sciences, 1994-

PROFESSIONAL SOCIETIES AND RELATED ACTIVITIES

Member, International Astronomical Union, 1979-

Member, Organizing Committee of the IAU Commission No 33. 1991-

Nikolai N. Samus (variable stars, globular clusters, editor-in-Chief of GCVS and "Variable Stars")

Michail S. Frolov (short period pulsating stars, GCVS)

Evgeniya A. Karitskaia (aya) (optical variability of X-ray binaries, nova-like, GCVS)

Aleksandr P. Ipatov (photometry of globular clusters, GCVS)

Elena V. Kazarovets (variable stars in open clusters, GCVS)

Nataliya A. Gorinya (Cepheids, spectroscopic binaries, GCVS)

Nataliya N. Kireeva (variable stars, globular clusters, GCVS)

Galina I. Medvedeva (transient phenomena, GCVS)

Elena N. Pastukhova (Cepheids, GCVS)

Tatyana M. Tsvetkova (variable stars in globular clusters, GCVS)

Margarita F. Novikova (GCVS)

Stellar spectroscopy, stellar atmospheres, chemical abundances Department

Aleksandr V. Tutukov, PhD, Professor Head of Department

Scientific activity; Physics and evolution of stars, evolution of galaxies, formation of planet systems.

Publications: More than 220 items.

E-mail : atutukov@inasan.rssi.ru

Members of the Department:

Ludmila I. Antipova (Novae, chemical abundances of red giants)

Margarita E. Boyarchuck (chemical abundances of red giants)

Vera L. Khokhlova (abundances and Doppler imaging of CP stars)

Tatyana A. Ryabchikova (abundances and Doppler imaging of CP stars)

Elena S. Davidova (abundance of CP stars)

Vera M. Pavlova (abundance of CP stars)



9. Center of Astronomical Data, INASAN,

Pyatnitskaya str., 48,

Moscow 109017,

Russia

E-mail : olgad@inasan.rssi.ru

Staff

**Head: O. B. Dluzhnevskaya, (aia) born on 27 January 1936 in Moscow
Education. Graduated from Moscow State University in 1958 (M.Sc.
in Astronomy)**

Ph.D in Astronomy in May 1966.

Scientific Interests

Astronomical Data : Collecting and Dissimination

**Senior Research Scientist
Research Scientist**

**Dr. A. Eh. Piskunov
V. S. Avedisova**

Head of Software and Systems Group:

Dr. Oleg Yu. Malkov, born on September 14, 1961, Head of Software and Systems Group

Institute of Astronomy of the Russian Academy of Sciences

48 Pyatnitskaya St., Moscow, 109017, Russia

Phone: (7-095) 233-1702

FAX: (7-095) 230-2081

Telex: 411576 ascon su

E-mail: malkov@inasan.rssi.ru

Ph.D. (1993, Pulkovo Observatory)

PROFESSIONAL AFFILIATION:

International Astronomical Union Commission 5

European Astronomical Society

Euro-Asian Astronomical Society

RESEARCH INTERESTS:

Creation and examination of astronomical data bases; creation of catalogues; star designations problems; astronomical data analysis (about 20 publications). Initial mass function (particularly for low-mass stars); local luminosity function; history of star formation; structure of mass-luminosity relation; binary stars; brown dwarfs; local missing mass (about 20 publications).

Members of Group:

Junior Research Scientist

L. V. Sat

Junior Research Scientist

V. M. Myakutin

Junior Research Scientist

D. A. Kovaleva

**Head Science Research Group
on Astronomical Databases**

Dr. S. V. Vereshagin

Senior Research Scientist

Dr. N. D. Kostiuk

Junior Research Scientist

N. V. Shupina

Engineer

Dmitry (Dmitrii) Bely

Electrical engineer

Leonid Kokourine

Engineer

Elena Kilpio

Electrical engineer

Sergey Kruchkov

Electrical engineer

Oleg Lakhtionov

Engineer

Oleg Smirnov

Junior Research Scientist

Valentin Reva

Engineer

Alla Pirogova



10. The Central Astronomy Observatory in Pulkovo, St. Petersburg (CAO)

Located at 65, Building 1, Pulkovskoie ave., M-140, St. Petersburg, 196140. (Tel. 123-44-14; telegrams: St. Petersburg Pulkovo, GAO; teletype: 122-614 Fenix; E-mail: root@gao.spb.su) The current acting Director of the observatory is Corresponding Member of the Academy Viktor K. Abalakin.

This observatory was founded in 1839; the observatory was destroyed during W.W.II, but was restored by 1953. Its scientists study celestial mechanics and gravimetrics, prepare astronomical ephemerides, and follow the movement of comets and planetoids. They conduct classical astronomical research and compile star position catalogues. The observatory conducts work also at the Nikolaev Astronomical Observatory, that is now part of the Crimean Astrophysics Observatory. It maintains an Astronomical Station in the Kislovodsk Mountains. Historically the organization and structure of the observatory was as follows: Director Viktor K. Abalakin, D. PM. S., has directed the observatory since 1984; Iurii N. Gredin, was a Deputy Director in 1986; Iurii N. Pariyskii, D. PM. S. was a Deputy Director in 1975; and, Mitrofan S. Zverev, D. PM. S. was a Deputy Director in 1972; Scientific Secretary of the observatory has been Iurii I. Vitinskii, C. PM. S. since 1970.



11. D. I. Mendeleev Metrology Research Institute in St. Petersburg.

Retrospect: Founded in 1842, this institute is jointly subordinate to the State Committee for Standards and the General Physics and Astronomy Department of the RAS. It is a scientific center of metrology and standardization, standards and calibration facilities, an engineering and technological center of research, development and manufacturing of unique measuring devices of the highest accuracy. It operates an experimental factory. The institute maintains a "joint research and manufacturing establishment" that is charged with providing foreign firms, companies, associations, governmental and non-governmental organizations of various levels, scientific and technological information of its multifarious activities and those of other scientific and industrial organizations in Russia and in the former republics of the former Soviet Union.

In 1991, the institute established six enterprises or "small businesses" for the purpose of developing contractual relations with foreign firms and organizations. These bodies are empowered to engage in joint foreign economic and scientific activities. They are:

- (1.) **IMATRON:** a State research and manufacturing small enterprise headed by Director Iurii V. Laptev. Its personnel provide consulting and intermediary services in engineering, marketing, advertising, product exhibitions, businessmen training, and research, development, and the production of industrial equipment and consumer goods in Russia.
- (2.) **MASSA:** a state small enterprise under Director A. G. Korobkin, that is involved in the designing and production of modern electronic balances. It provides accelerated research, development and technological work on models of measuring instruments and other products.
- (3.) **MERA:** a design enterprise that is under Director A. A. Gusev and that designs measuring apparatus, sensors, systems, complexes, and equipment of the most modern kinds.

- (4.) **MAGMA**: a state small research and manufacturing enterprise that does R &D of systems for measuring magnetic field parameters. It also provides metrological and mediation services and designs consumer goods. It is under Director A. S. Pazyuk.
- (5.) **VIRT**: a state small enterprise under Director A. V. Barinov, that develops, fabricates, and delivers hardware and software for personal computers and provides repair and maintenance services.
- (6.) **"Tsentremontpribor"**: a mixed association services instrumentation and household appliances of foreign and domestic manufacture and is headed by Director N. M. Ryzhkov.

The Metrology institute itself has very sophisticated and unique facilities that may be made available for joint use under contractual arrangements. These include: a large underground complex at a depth of 45 m with a total area of 1100 square meters with a special 350 ton interference-immune aerostatically suspended foundation, an international gravimetric station, laboratories for investigating and certifying seismometers of the highest resolution, and a life support system; special surface interference-immune spring-suspended foundation 2500 tons in mass and 40X12X3 m in dimensions with its life support system; a special shielded room to protect from the Earth magnetic field; a cryogenic complex; nonmagnetic complexes in suburb localities with low levels of natural and industrial electromagnetic interference; a large hydrophysical basin with a free submerged jet; sets of special foundations for static and dynamic measurements in mechanics; a complex of standards for dynamic measurements. Director Iurii V. Tarbeev, C. Tech. S. has headed the Metrology Scientific Research Institute since 1975. Drs. V. A. Scheglov and V. N. Khazhuev are Deputy Directors General for Science, and N. I. Khanov is Deputy Director-General for Economy and Management. The physical grounds of the institute in St. Petersburg cover some 52.2 hectares of space and houses some 1600 research workers.

There are 14 departments in the institute:

- 1) **the General Metrology Department** under V. S. Aleksandrov;
- 2) **the Ionizing Radiation Department** under V. I. Fominykh;
- 3) **the Electricity and Magnetism Department** under I. D. Koltik;
- 4) **the Mechanics Department** under A. P. Scholkin;
- 5) **the Thermodynamics Department** under A. I. Pokhodun;
- 6) **the Physico-Chemical Measurement Department** under M. G. Kozlov;
- 7) **the High-Speed Mechanical Process Measurement Department** under V. A. Balalayev;
- 8) **the Linear Motion Parameter Department** under A. I. Sinelnikov;
- 9) **the Hydrophysical Measurement Department** under L. Iurii Kofman;
- 10) **the Metrological Assurance of Measurement of Electrical and Magnetic Field Parameters Department** under G. P. Tsivirko;
- 11) **the Dimensional Measurement Department** under L. F. Vitushkin;
- 12) **the Quantum Metrology Department** under V. V. Kukhar;
- 13) **the Scientific and Technical Information and International Relations Department** under T. N. Korzhakova, and
- 14) **the Certification and State Tests of Measuring Instruments Department** under V. L. Zhtovskii.

Computer Center: under Demakov, I. P., C. Tech. S., '72.

Institute measurement standards are maintained in the fields of mechanics, thermodynamics, physico-chemistry, electromagnetism; ionizing radiation; motion parameters, and aerohydrophysics. Its scientist are doing extensive applied research in problems of high temperature superconductivity, gravimetry, calorimetry, liquid and gas flow

rate, on the creation of highly stable lasers and laser measurement systems, ecological devices, special precision alloys with unique properties, high precision sensors for various physical quantities, and up-to-date equipment for calibration of measuring instruments used to measure dynamic parameters and others.

(Information supplied by letter dated 29 October 1991 from V. A. Scheglov Deputy Director General for Science of the Mendeleev Metrology Scientific Research Institute in St. Petersburg. See also: *The Joint Research and Manufacturing Establishment: D. I. Mendeleev Research Institute for Metrology*. St. Petersburg: VNIIM, 1991, 14 pp.)



12. A. F. Ioffe Physical Technical Institute (PTI) in St. Petersburg.

Located at 26, Politechnicheskaya (aya) st., K-21, St. Petersburg, 194021. (Tel. 247-18-73, Teletype 121735 Rebus fax: (812) 247-10-17; E-mail: root@pti.spb.su) Under the direction of Academician Zhores I. Alferov, tel. 247-21-45.

Alferov, Zhores I., D. PM. S. Born in 1930. Russian physicist. He has been an academician of the General Physics and Astronomy Department of the AN SSSR and the RAN since 1979. In 1963, he proposed that heterostructures be used for semiconductor lasers. The CO₂ gas dynamic laser that resulted was proposed by Prokhorov and V. K. Koniukhov in 1967 and built in 1970. Since 1968, he has headed the Contact Phenomenon in Semiconductors laboratory of the A. F. Ioffe Physical Technical Institute. In 1984, he was awarded the U.S.S.R. State Prize for his work--with others--on "Isoperiodic Heterostructures of Multi-component (Quaternary) Solid Solutions of the Semiconductor Compounds A₃B₅," published from 1971-1981. In December 1987, he was made director of the Ioffe Physical Technical Institute. In April of 1989 he became Chairman of the St. Petersburg Scientific Center and was elected a member of the Presidium of the academy. At present, he continues to direct the research of the Ioffe Institute. (GSE, 31, p. 318.)

1997 update: Zhores Ivanovich ALFEROV was born in Vitebsk (Byelorussia, USSR) on March 15, 1930. He graduated (1952) from the Department of Electronics of V. I. Ulyanov (Lenin) Electrotechnical Institute in Leningrad. From 1953 to date he has been a member of the Scientific staff of the Ioffe Physico-Technical Institute. He earned scientific degrees: candidate of science in technology (1961) and doctor of science in physics and mathematics (1970); both from Ioffe Institute. In 1970-1971 he spent 6 months as visiting scientist at the University of Illinois. Since 1962 he has been working in the area of III-V semiconductor heterostructures. For his research in this area Alferov was awarded with many national and international awards, and honorary memberships. Zh. Alferov is the author of three books, more than 300 scientific articles and 50 inventions in semiconductor technology.

Current positions:

Director of the Ioffe Institute (1987)

Vice-President of the Russian Academy of Sciences (1991)

President of the St Petersburg Scientific Center of the Russian Academy of

Sciences (1991)

Awards:

Franklin Institute Ballantyne Medal (U.S.A., 1971)

Lenin Prize (USSR, 1972)

Hewlett-Packard Europhysics Prize (1978)

State Prize (USSR, 1984)

GaAs Symposium Award (1987)

H. Welker Medal (1987)

A. P. Karpinskii Prize (Germany, 1989)

Honorary Memberships:

Academician (a full member) of the Russian Academy of Sciences (1979)

Life Fellow of the Franklin Institute (U. S. A., 1971)

Foreign Member of the German Academy of Sciences (1987)

Honorable Professor of the Havana University (Cuba, 1987)

Foreign Member of the Polish Academy of Sciences (1988)

Foreign Associate of the National Academy of Engineering (U. S. A., 1990)

Foreign Associate of the National Academy of Sciences (U. S. A., 1990).

Retrospect: Created on the basis of the physico-technical division of the Roentgenologic and Radiological Institute founded in 1918, the Physical Technical Institute in St. Petersburg was created in 1921 and initially headed by A. F. Ioffe. It became part of the Academy of Science system in 1939, and in 1960 was named in honor of its first Head, A. F. Ioffe. The institute has, from its beginning, been one of the leading centers of Russian Physics. Its research includes solid state physics, semiconductor physics, nuclear physics, mathematical physics, plasma physics and astrophysics.

Today the institute is headed by Zhores I. Alferov, D. PM. S., who has headed the Contact Phenomenon in Semiconductors Laboratory of the institute since 1968. His two deputies are: Iurii S. Gordeev, D. PM. S., who has headed the Elementary Processes in Hot Plasma Department since 1977; and, Gennadii V. Mikhailov, D. PM. S. The Executive Secretary of the Institute is Igor A. Merkulov. The Institute address is 26 Polytekhnicheskaya (aya), St. Petersburg 194021. Fax (812) 247 10 17.

As presently organized, the institute has five research divisions:

- (1.) Physics of Semiconductor Heterostructures;
- (2.) Solid State Electronics;
- (3.) Solid State Physics;
- (4.) Plasma Physics, Atomic Physics and Astrophysics; and
- (5.) the Physics of Dielectric and Semiconductors.

(1996 update)

Division of Physics of Semiconductor Heterostructures

Division Officers

Director: Zhores I. Alferov, alferov@lead.pti.spb.su

Deputy Director: Nikolai A. Bert, nbert@charm.pti.spb.su

Executive Secretary: Aleksandr B. Zhuravlev, emc@sse.pti.spb.su

Research areas:

physics and technology (LPE, MBE, MOCVD) of silicon and III-V semiconductors, semiconductor heterostructures

characterization of materials and structures (transmission and scanning electron microscopy, electron probe, X-ray diffraction, Auger electron spectroscopy, DLTS)

Opto-Electronics, nanoelectronics (low-dimensional heterostructures)

solid state theory

amorphous semiconductors

ultrafast processes and nonlinear optical phenomena

semiconductor laser diodes (CW, DFB, and picosecond heterostructure lasers), photodetectors and solar cells, power semiconductor devices

Staff: 234 researches, including 28 Doctors and 110 Candidates of Sciences

Publications: About 280 papers were published in 1995. Part of the most significant papers is displayed in the list of publications.

1997 update:

Division of Solid State Electronics

Division Officers

Director: Robert A. Suris, suris@theory.ioffe.rssi.ru

Deputy Director: Aleksandr Shik, shik@shik.ioffe.rssi.ru

**Executive Secretary: Vladimir B. Konstantinov
konst@holo.ioffe.rssi.ru**

Research areas:

ultrafast processes and nonlinear optical phenomena

impurities and defects in crystalline semiconductors and semiconductor structures

amorphous semiconductors

solid state and solid state devices theory

applied mathematics and mathematical physics

Opto-Electronics, nanoelectronics

holography (physics, materials, and application)

power semiconductor devices

semiconductor photodetectors

high-Tc superconductor technology

Staff: 261 researches, including 43 Doctors and 141 Candidates of Sciences

Publications: About 450 papers were published in 1995. Part of the most significant papers is displayed in the list of publications.

1997 update:

Division of Solid State Physics

Division Officers

Director: Boris P. Zakharchenya, bpz@solid.pti.spb.su

Deputy Director: Vladimir Zakrevskii, vaz@oftt.pti.spb.su

**Executive Secretary: Aleksandr N. Reznitsky (skii) ,
ran@oftt.pti.spb.su**

Research areas:

**optical properties and condensed-matter spectroscopy
(infrared and Raman spectra and scattering, photoluminescence including hot luminescence, optical orientation of charge carries, magneto optical effects, super lattices and hetero iunctions, excitons and related phenomena, impurity and defect absorption in solids)**

photo conduction

electron paramagnetic resonance, nuclear magnetic resonance

phonon and vibrations in crystal lattices

narrow gap and vitreous semiconductors

kinetic theory

(transport phenomena in low-dimensional and mesoscopic systems, non-equilibrium phonons, noise processes and phenomena)

phase transitions in solids

(metal-insulator transitions)

superconductivity

data handling and computation

mechanics and rheology of solids

(fracture and cracks, polymers and plastics, reinforced polymers, and polymer-based composites)

physics of crystal growth

defects in crystals

treatment of materials and its effect on microstructure and properties

Staff: 266 researches including 61 Doctors and 146 Candidates of Sciences

Publications: About 370 papers were published in 1995. Part of the most significant papers is displayed in the list of publications.

1997 update:

Division of Plasma Physics, Atomic Physics, and Astrophysics

Division Officers

Director: Victor E. Golant, golant@ift.ioffe.rssi.ru

Deputy Director: Iurii P. Golovachov, golovachev@numer.ioffe.rssi.ru

Executive Secretary: Andrei D. Lebedev, aleb@plasmadiv.ioffe.rssi.ru

Research areas:

high-temperature plasma (tokamak, plasma-wave interaction, diagnostics)

**low-temperature plasma (gas discharge, plasma technology,
MHD-phenomena, dense plasma dynamics, shock waves)**

supersonic flows and motion of bodies

atomic collision processes and ion-beam-surface interactions

atomic spectroscopy

**gas-surface interaction (adsorption, desorption, ionization, elementary
structures)**

theory of quasars, neutron stars, and the interstellar medium

**solar physics, comet and cosmic ray physics, gamma- and X-ray astronomy
mass-spectrometry techniques**

Staff: 332 researches, including 46 Doctors and 182 Candidates of Sciences

Publications: About 350 papers were published in 1995. Part of the most significant papers is displayed in the list of publications.

Division of Physics of Dielectrics and Semiconductors

Division Officers

Director: Robert V. Parfen'ev, parfen@frost.shuv.pti.spb.su

Deputy Director: Iurii A. Kumzerov, kumz@dir.shuv.pti.spb.su

Executive Secretary: Pavel A. Markovin, mark@dir.shuv.pti.spb.su

Research areas:

physics of ferroelectricity and magnetism

electromagneto-optics

nonlinear optics in fibers and optical computing

neutron scattering in disordered ferroelectrics

solid state theory (hopping conductivity, multiphonon processes in semiconductors, critical properties of layered superconductors and weakly disordered systems, critical states of Iosephson and CDW structures, superconductivity in heavy fermion systems)

silicon carbide

physics of rare earth semiconductors and semiconductor compounds

ultra dispersed and low dimensional systems

electrostriction-based devices and stable devices based on silicon carbide

characterization of materials and real crystal structure

solids at low temperature, high-Tc superconductors

thermoelectric energy conversion

Staff: 208 researches including 36 Doctors and 97 Candidates of Sciences

Publications: About 350 papers were published in 1995. Part of the most significant papers is displayed in the list of publications.



13. Theoretical Astronomy Institute in St. Petersburg (ITA)

Located at 10 Kutuzova Quay, St. Petersburg, 191187.

Tel. 278-88-10; fax: (812) 272-79-68; teletype: 321150 TEDRIIA; telex: 121578 ITA SU; E-mail: sokolsky@iipah.spb.su

Under the direction of acting Director Professor Andrei G. Sokolskii, tel. 279-06-67.

Retrospect: The institute was founded in 1919 and its work was expanded in 1923 to include celestial mechanics, astrophysics, and gravimetry. The institute was reorganized in 1943. It is the only specialized institution in Russia for theoretical and applied questions of celestial mechanics. The current acting Director is Professor Andrei G. Sokolskii.

Historically, the organization and structure of the institute is as follows: **Structure and Scientific Personnel:** Sviatoslav S. Lavrov, D. Tech. S., was Director from 1978 until replaced by Professor Sokolskii; Iurii V. Batrakov, C. PM. S., was Deputy Director in 1970; Deputy Director Ivan D. Zhongolovich, D. PM. S., was a Deputy Director in 1957;

Astronomical Yearbook Department: Head Abalakin, Viktor K., C. PM. S., from 1970 to 1984--current Head of The Central Astronomy Institute in St. Petersburg;

Celestial Mechanics Department: Senior researchers Brumberg, Viktor A., C. PM. S., since '63; Izvekov, V. A., since '68; Merman, G. A., since '75; Petrovskaia (aya), M. S., since '64; Sharaf, Shafika G., since '65;
Minor Planets Department: Head Iakhontova, Natalia S., since '58;



14. P. L. Kapitsa Physical Problems Institute (IPP) in Moscow. (Formerly the S. I. Vavilov Physical Problems Institute.)

Located at 2, Kosygina st. Moscow, U-334, GSP-1, 117973. (Tel. 137-32-48; telegrams: Moscow AT 113451; Magnit teletype: 113451; Magnit fax: (095) 938-20-30; E-mail: root@magnit.msk.su) Under the direction of Academician Aleksandr F. Andreev, tel. 938-20-29.

Retrospect: Established in 1934 by P. L. Kapitsa who was its Director from 1934-1946 and again from 1955-1987. The institute does research in low temperature physics, plasma physics, and power electronics. It was named in honor of S. I. Vavilov in 1951. Viktor-Andrei S. Borovik-Romanov, D. PM. S. was named Director in 1984. Currently the institute is under the direction of Aleksandr F. Andreev, D. PM. S. who was a Deputy Director previously. Historically the structure of the institute looked like this: Iurii V. Sharvin, D. PM. S., was named a Deputy Director in 1984; Mikhail P. Malkov, D. Tech. S. had been a Deputy Director since 1958.

Structure and Scientific Personnel: Accelerator Laboratory: Chief Kapitsa, Sergei P., D. PM. S. '61; Senior researcher Melekhin, Vladimir N. '73;

High Frequency Properties of Metals Laboratory: Chief Khaikin, Moisei S., D. PM. S. '61; Senior researcher Edelman, V. S. '71;

Intermediate States in Semiconductors Laboratory: Chief Sharvin, Iurii V., D. PM. S. '63; Senior researchers Krilov, Igor P. '71; Landau, Igor L., '71;

Liquid Helium Laboratory: Peshkov, Vasili P., D. PM. S., CPSU, '57; Senior researcher Zinovieva, Klavdia N., C. PM. S. '57;

Low Temperature Instruments Laboratory: Chief Malkov, Mikhail P., D. Tech. S. '71; Deputy Chief Danilov, Igor B., D. Tech. S. '71;

Low Temperature Magnetic Properties Laboratory: Borovik-Romanov, Viktor-Andrei S., D. PM. S. '64;

Magnetic Properties of Superconducting Alloys Laboratory: Chief Alekseievskii, Nikolai Ye., D. PM. S., '57;'

Quantum Crystals Laboratory: Chief Shalnikov, Aleksandr I., D. PM. S. '48;

Superconductors Laboratory: Deputy Chief Filimonov, A. I. '74; Senior researcher Pitaievskii, Lev P. '69;

Theoretical Laboratory: Chief Lifshits, Ye. M., D. PM. S. '72;

Transport Properties of Normal Metals Laboratory: Chief Zavaraitskii, Nikolai V., D. PM. S. '76;



15. Terrestrial Magnetism, Ionosphere, and Radiowave Propagation Institute (ITMIRAS) in Troitsk.

Located in the Moscow region at Troitsk, 142092. (Tel. 334-02-00. Telegrams: Moscow IZMIRAN; teletype: 112405 Spoloh; fax: 334-01-24; E-mail: root@izmiran.troitsk.su) Under the direction of Professor Viktor N. Oraevskii, tel. 334-01-20. A branch of this institute is located in St. Petersburg at 23, 2-nd line, V.O., V-53, 199053, tel. 213-k00-89. Directed by Dr. Iurii A. Kopyitenko, tel. 213-44-97.

Retrospect: Established in January, 1940, and since 1944, located in Troitsk. It was organized and presided over by N. V. Pushkov, a Lenin Prize winner, from 1940 to 1969. From 1969 to 1988 its Director was V. V. Migulin. It is currently being directed by Professor Viktor N. Oraevskii--former Director of the branch of the institute located in St. Petersburg. In 1990, its staff totaled 1200 of whom there were 40 doctors (13 professors) and 200 candidates of science. Its scientists included eight Lenin and State Prize winners. The institute holds 5 diplomas and 46 Gold Medals for contributions to the Russian economy. It is a leading facility in Russia for the study of magnetism and the ionosphere. Research also includes spherics, radio astronomy, solar physics, and cosmic rays. Among its numerous scientific contributions are: the measurement of the geomagnetic field over the ocean area; the construction of a self-tuning total vector magnetometer on Sputnik 3 in 1958; the use of high currents in the electromagnetic sounding of the earth; a major and successful collaboration with the Russian Space Research Institute in the "Venus-Haley's comet" experiment; the construction of "Interkosmos-19" and "Kosmos-1809" for a global system of environmental control ; the development of new diagnostic radio physical instruments for ionosphere studies; the development of a solar vector-magnetograph for measuring the magnetic field components around the Sun, and the construction of an out-of-eclipse chronograph for observations of the Sun. A branch of this institute is also located in St. Petersburg. Professor V. N. Oraevskii was its Director from January 1989 until his appointment as Director of the Troitsk institute. His position as Director of the Branch located in St. Petersburg is currently filled by Dr. Iurii A. Kopyitenko, D. PM. S. The address of that branch is 23, 2nd line, V.O., U-53, St. Petersburg, 199053, telephone: 213-00-89.

The historical organization and structure of the institute is as follows:

Director Ruzmaikin, A. A., November '88; Deputy Director Pochtarev, Viktor I., D. PM. S., since '71;

Cosmic Ray Laboratory: Chief Dorman, Leib I., D. PM. S. '64;

Geomagnetism Laboratory

Heliophysics Laboratory: Chief Mogilevskii, Emanuil., D. PM. S. '58;

Ionosphere Laboratory: Chief Lobachevskii, Lev. A. '78;

Long-Range Forecast Laboratory: Kerblai, Tamara S. '71;

Magnetic Fields in Space Laboratory: Dolginov, Shmaia (aya) S., C. PM. S. '46;

Magnetometry Laboratory: Chief Bobrov, Viktor N., C. PM. S. '65;

Propagation of Intermediate Radio Waves Laboratory: Chief Kashprovskii, Vadim Ye. '58;

Solar Activity Laboratory: Chief Nikolskii, Gennadi M. '69; Senior researcher Guliaiev, Rudolf A. '69;

(See: Troitsk: ego istoricheskoe proshloe i nastoiashchee, Moscow: Moscow Typographis No. 5, 1991, 48 pp. A brochure printed in both English and Russian. See pp. 8-9 for information on the Institute.)



16. Kaliningrad Magnetic Ionospheric Observatory (KMIO).

Located in the Kaliningrad region at 41 Pobedni ave. It is directed by Dr. Vadim P. Ivanov.



17. Arkhangelsk Complex Magnetic Ionospheric Observatory (ACMIO).

Located in the Voznenie Village, Arkhangelsk region, Primorskii district, p/o 164420. The observatory is under the direction of Evgenii F. Kozlov.



18. A. V. Shubnikov Crystallography Institute (ICAS) in Moscow.

Located at 59, Leninskii ave., Moscow, U-333, 117333. (Tel. 135-63-11; fax: 135-10-11; E-mail: root@crystal.msk.su) Under the direction of Academician Boris K. Vainshtein, tel. 135-65-41.

Vainshtein, Boris K., D. PM. S. Born in July 1921 in Moscow. Russian crystallographer. He has been a corresponding member of the academy since 1962, and an academician since 1976 of the General Physics and Astronomy Department. He was originally elected to the Physical Mathematical Sciences Department. He graduated from Moscow State University in 1945, and from the Institute of Steel in 1947. He began work at the A. V. Shubnikov Crystallography Institute in 1949. He headed a laboratory there from 1958, and became the institute's Director in 1962. His principal works are in the field of structural analysis of crystals, the theory of the diffraction of electrons and roentgen rays, and research on the structure of albumen molecules. Vainshtein, Z. G. Pinkser and others developed a method of structural electronography and worked out its theoretical foundations. He was the first to define the position of hydrogen atoms in a series of crystals and to analyze the structures of many complex and organic compounds. The A. V. Shubnikov Crystallography Institute in Moscow was established in 1944 to investigate the structure and physical properties of crystals. Dr. Vainshtein continues to be its

director. He is President of the National Committee of Russian Crystallographers. (GSE 4, p. 470.)

Retrospect: Established in 1943 from the Crystallographic Laboratory of the academy that had opened in 1937. Its scientists investigate the structure and physical properties of crystals. In 1971 it was named in honor of A. V. Shubnikov. Currently the Director of the institute is Boris K. Vainshtein, D. PM. S. He has been the Director since 1962.

Structure and Scientific Personnel: Director Vainshtein, Boris K., D. PM. S., '62; ; Deputy Director Simonov, Valentin I., D. PM. S. '76; Chief Eng. Glazunov, Viacheslav N., '64; Sci. Secty. Kuznetsov, Viktor A., C. GM. S. '77;

Crystal Growth Division: Chief Belov, Nikolai V., D. Chem. S '38;

Growth Theory and Fundamental Studies Laboratory: Chief Chernov, Aleksandr A., D. PM. S. '65;

High Temperature Growth Laboratory: Chief Bagdasarov, Kh. S., D. PM. S. '66; Senior researcher Timofeieva, Valentina A. '66;

Hydrothermal Growth Laboratory: Chief Lobachev, Anatoli N. '72; Senior researchers Kuzmina, Irina P. '66; Kuznetsov, Viktor A., C. GM. S. '72; Malenkov, A. A. '72; Melnikov, O. K. '75; Shternberg, Aleksei A. '66;

Crystal Growth Division:

Water Solution Growth Laboratory: Unknown;

Construction Laboratory: Chief Sukhodolskii, V. V. '76;

Electron Diffraction Laboratory: Semiletov, Stepa A. '71; Senior researcher Imamov, R. M., D. PM. S. '71;

Liquid Crystallography Laboratory: Chief Chistiakov, Igor G., D. PM. S. '77;

Mechanical Properties of Crystals Laboratory: Chief Klassen-Nekliudova, Marina V., D. PM. S. '58;

Optical Properties Laboratory: Chief Dobrzhanskii, Georgi F. '66; Sen Res. Perekalina, T. M. '73;

Texture Problems Laboratory: Chief Distler, Grigorii I., D. Chem. S. '66;

X-Ray Diffraction Laboratory Chief Simonov, Valentin I., D. PM. S. '72;



19. Crimean Astrophysical Observatory in Nauchni (Krimaskaia (aya) Oblast).

Retrospect: Organized in 1948. Conducts solar, stellar, and planetary research and investigates gas and dust nebulae. Today under the Ukraine Committee for Science and

Technology. Structure and Scientific Personnel: Director Severni, Andrei B., since '79; **Deputy Director Boiarchuk, Aleksandr A., since '79**; Deputy Director Stishenko, Nikolai V., since '79; Scientific Secretary: Mozhzherin, Veniamin M., since '77.

Boiarchuk, Aleksandr A., D. PM. S. Born in 1931. Astronomer. Corresponding member of the General Physics and Astronomy Department of the Academy since 1976; academician since December 1987. Since 1979, he has been Deputy Director of the Crimean Astrophysical Observatory, that was organized in 1948 to conduct solar, stellar, and planetary research and to investigate gas and dust nebulae. He is presently Acting Director of the Institute of Astronomy (IAAS) located in Moscow. He is also President of the National Committee of Russian Astronomers.



(1996 update)

20. Radio Engineering and Electronics Institute (IRE) in Moscow.

Located at 18, Mohovaia (aya) st., Center, Moscow, GSP 103907.
(Telephone 203-52-93; fax: 203-84-14; E-mail: root@ire.uucp.free.msk.su) Under the direction of Academician Iurii V. Galiaev.

A branch (SIBRE), located at 21 Sakko and Vantsetty st., 410120, is directed by Dr. Gennadii T. Kazakov, tel. 24-58-23.

A branch (UBIRE), located at 48, Goncharov st., Ulianovsk, 432700, is under acting Director Dr. Anatolii A. Shirokov, tel. 31-45-04.

Director, Acad. Yury (Iurii) V. Gulyaev,
e-mail: gulyaev@ire216.msk.su.
Phone: +7(095) 203 4993, +7(095) 526 9048
Fax: +7(095) 203 8414

Deputy Director, Prof. Vladimir E. Lyubchenko,
e-mail: lyubch@ire216.msk.su.
Phone: +7(095) 526 9217
Fax: +7(095) 203 8414

General Information

The Institute of Radio Engineering and Electronics (IRE) of Russian Academy of Sciences was founded in 1953. It is situated in the building of former Physics Department of Moscow State University at Mokhovaia (aya) street not far from Kremlin. In 1955 a new part of the Institute in the city of Fryazino, 40 km from the center of Moscow, and then two branches in Saratov and Ulyanovsk were founded.

Outstanding scientists in radio science and electronics-- academicians A. I. Berg, N.D. Devyatkov, Iurii B. Kobzarev, V. A. Kotelnikov, V. V. Migulin, B. A. Vvedensky (skii) ,- were organizers of the Institute and leaders of it's first research divisions. The main scientific directions of the IRE are fundamental researchers in radio science, physical and quantum electronics, radio engineering, computer science. The Institute carries out applied researchers in the field of development of high technologies and designing of new scientific instruments. A large number of

scientific and applied researches of the Institute are awarded the States Prizes and documented as discoveries and inventions.

Now total staff of the Institute consists of 2500 employees. Scientific staff is 900 including 120 Dr. Professor and 410 Ph.D. The Institute consists of several research divisions, it has a Special design bureau and two engineering centers.

The honorary Director of the Institute is academician V. A. Kotelnikov, the Director of the Institute is academician Iurii (Iurii) V. Gulyaev (Guliaev).

Guliaev, Iurii V., D. PM. S. Born in 1935. Corresponding member of the General Physics and Astronomy Department of the academy since 1979, and academician of the Information Science, Computer Technology, and Automation Department since 1984. From 1972 to 1988, he was deputy director of the Radio Engineering and Electronics Institute in Moscow that does basic research in radio wave propagation, new electronic devices for detection, generation, and amplification of radio signals. In 1988, he was named Director of the Radio Engineering and Electronics Institute in Moscow. In 1988, he was also named Chairman of the Saratov Scientific Center under the AN SSSR and continues in that position under the Russian Academy of Sciences. He continues to head the Institute of Radio Engineering and Electronics (IRE) located in Moscow.

Departments and laboratories:

Department of technology.

Laboratory of thin films technology.

Laboratory of integrated optics.

Laboratory of MOCVD growth

Main activities of laboratory:

MOCVD growth of II-VI and III-V semiconductor films.

MOCVD and MBE growth of superlattice and QD II-VI semiconductor structures.

Chemical analysis.

Dr. Vladimir V. Shemet-- head of laboratory.

III-V epilayers growth group:

Dr. Vladimir I. Sergeev-- leader of III-V MOCVD group.

MOCVD growth of III-V semiconductor films.

MOCVD growth of superlattice and QW III-V semiconductor structures.

II-VI epilayers growth group:

Dr. Peter I. Kuznetsov-- leader of II-VI MOCVD group.

For the past years we have been working on growth by MOCVD and photo-MOCVD of ZnS, ZnSe, ZnSse heteroepitaxial layers. The influence

of weak radiation in the visible spectral range on the growth rate and quality of layers was observed. The change of composition of ZnSSe solid solution was found. The composition difference can achieve of value 0.1. This fact was used to growth the superlattice with periods of 60-1500 Å under pulse radiations on substrate . The zero and the first two satellite peaks were presented on X-ray diffractometer scans.

Low-loss (less then 0,3 dB/cm) short wavelength optical waveguides using ZnSSe heterostructure were fabricated on GaAs substrates by means of parabolic change of vapor phase composition. The dependence of the propagation loss on TE and TM polarisation was investigated.

Now the research group is working with the problems of growth of ZnSe/CdSe superlattices. We are growing and investigating ZnSe/ZnS strained-layer superlattices and quantum well structure.
(pik218@ire216.msk.su).
Galina G.Yakusheva.

Galina G.Yakusheva, researcher of the Institute of Radioengineering and Electronics.

research divisions:

acousto electronics
acousto optics
biomedical diagnostic systems
computational physics
electromagnetic waves selection
fiber-optical light guides
measurement and terminal equipment of fiber-optical systems
microelectronics technology
microwave electronics
monocrystallic materials
physical electronics
physical problems of microelectronics
quantum radio science
radio-astronomical investigations
radio wave propagation
remote sensing of the Earth and atmosphere
semiconductor electronics
wave-guiding systems

The Institute has two engineering centers:

engineering center for scientific research on automation systems
scientific-engineering center of electronic diagnostic systems

Institute Officers

Director:

Iurii V. Gulyaev, academician of Russian Academy of Science (RAS)
gulyaev@cplire.ru

Honorary Director:

V. A. Kotelnikov, academician of RAS

Deputy Directors:

S. N. Ivanov, professor ivanov@mail.cplire.ru
V. G. Mokerov, corresponding member of RAS, professor
V. I. Pustovoyt, corresponding member of RAS, professor
N. A. Armand, professor
Ye. N. Bazarov, professor
V. Ye. Lyubchenko, professor vel@mail.cplire.ru

Scientific Secretary:

I. I. Chusov, professor

Saratov Branch Director:

G. T. Kazakov, dr. Professor

Ulyanovsk Branch Director:

A. A. Shirokov, dr. Professor

Retrospect: The institute was founded in 1953. The Director of the institute from 1954 to 1988 was Vladimir A. Kotel'nikov. The current Director is Academician Iurii V. Guliaev. Basic research in radio wave propagation, new electronic devices for detection, generation, and amplification of radio signals. There is also a branch of this institute in Saratov in the Urals presently headed by Dr. Gennadii T. Kazakov, and a branch located in Ulianovsk under the direction of Acting Director Dr. Anatolii A. Shirokov.

(older material)

Structure and Scientific Personnel: Dr. Iurii (Iurii) V. Gulyaev (Guliaev), D. PM. S. has directed the institute since February 1988--he served as a Deputy Director from 1972 until his appointment as Director; Deputy Director Armand, Neon A., D. Tech. S., since '67; ; Deputy Director Sokolov, Andrei V., D. Tech. S., since '61; Scientific Secretary: Palatov, Konstantin I., C. Tech. S., since '62;

Scientific Information Department: Head Landsberg, Genrikh S., since '72;

Functional Electronics Laboratory: Head Perov, Poliyevkt I., since '80;

Generation, Amplification, and Conversion of Millimeter and

Submillimeter Waves Laboratory: Head Vistavkin, Aleksandr N., D. Tech. S., since '70; Deputy Head Gubankov, Vladimir N., since '73; Senior researchers Diakov, V. P., since '76; Listvin, V. N., since '71; Margolin, K. K., since '73; Egorova, N. M., since '73;

Magnetic Phenomena Laboratory: Head Monosov, Ia. A., D. PM. S., since '70; Senior researchers Kiriukhin, N. N., since '70; Maksimenkov, P. P., since '70;

Nabokin, P., since '70; Shavrov, V. G., since '70; Shcheglov, V., since '70; Surin, V. V. D. PM. S., since '70; Tulikova, A. A., since '70; Zubkov, V. I., since '70;

Microelectronics Physical Foundations Laboratory: Head Elinson, Mordukh I., D. PM. S., since '78;

Optical Fibers Laboratory: Head Persikov, Maksim V., since '70;

Optical Transmission Waveguide Laboratory: Head Katsenelenbaum, Boris Z, D. PM. S., since '73;

Photo Conductivity and Superconductivity Laboratory: Head Lifshits, Teodor M., C. Tech. S., since '73; Senior researchers Divin, Iurii V., since '73; Kogan, Sh. M., C. PM. S., since '73; Latishev, Iurii I., since '76; Nad, F. Ia., since '76; Polioanskii, O. Iurii, since '73; Volkov, A. F., since '73;

(1997 update)

Division of Quantum Electronics and Quantum Radioscience

The division consists of several laboratories and research groups. Some of them are:

Research group Magnetic Resonance and Spin Relaxation in Solids

Head: Prof. Dr. V. A. Atsarkin,
e-mail: atsarkin@mail.cplire.ru
phone: (7095) 2030156

Dr. V. V. Demidov, e-mail: demidov@mail.cplire.ru

Dr. G. A. Vasneva

The research group has wide experience in ESR and NMR spectroscopy. Scope of research: spin dynamics and relaxation in solids; study of internal fields, structure, magnetic properties, electronic states and phase transitions in oxide superconductors and fullerenes. Equipment: an original home-made apparatus for studying extremely fast electron spin relaxation; Bruker ER-200 ESR spectrometer; facilities for performing experiments at 4.2-- 300K.

Research group of Molecular Engineering in Quantum Electronics, Lanthanide Spectroscopy, Powdered Lasers,

Research group of Laser Physics and Nonlinear Optics.

(Older material)

Quantum Electronics Laboratory: Zhabotinskii, Mark E., D. Tech. S., since '70; Senior researcher Vasneva, G. A., since '73;

Quasi-Optics and Waveguides Laboratory: Head Shushpanov, O. E., since '73;

Radio physical Measurements Laboratory: Potapov, Vladimir T., since '79;

Semiconductor and Acoustics Laboratory: Head Kalashnikov, Sergei G., since '72;
Senior researcher Riabova, Lidia A. C. Tech. S., since '78;



21. N. N. Andreev Acoustics Institute in Moscow.

Retrospect: Created in 1953 from the Acoustics Laboratory of the Lebedev Physics Institute. Research in all areas of acoustics, including bioacoustics, hydroacoustics, quantum acoustics, and ultrasonics. **The institute is subordinate to the Ministry of Industry of the Russian Federation although the academy (RAS) continues to direct its scientific efforts.** Since 1990, the Director of the institute has been Nikolai A. Dubrovskii, D. PM. S.

(Older Material)

Structure and Scientific Personnel: Director Kriazhev, Fedor I., C. PM. S., from 1983 to 1990; Deputy Directors: Liamshev, Leonid M., D. PM. S., since '80; and, Sukharevskii, Iurii M., D. Tech. S., since '64;

Bioacoustics Department: Dubrovskii, Nikolai A., since '68; Senior researchers Andreeva, I. B. D. PM. S., since '76; Reznik, Aleksandr M., since '68;

Bioacoustics Laboratory: Dubrovskii, Nikolai A., since '68;

Physio Acoustics Department: Chernov, Lev A., D. PM. S., since '68;

Flow Noise Laboratory: Rimskii-Korsakov, Andrei V., D. PM. S., since '68;

Air Flow Department: Liamshev, Leonid M., D. PM. S., since '68;

Transducers Laboratory: Roi, N. A., since '68;

Ceramics Department: Ananieva, Alevtina A., since '68;

Electric Discharge Department: Roi, N. A., since '68;

Ultrasonics Laboratory: Krassilnikov, Vladimir A., D. PM. S., since '72;

Magnetostriction Department: Goliamina, Irina P., since '68;

Semiconductor Department: Viktorov, Igor A., C. PM. S., since '60;

Vibration Propagation Laboratory: Tartakovskii, Boris D., C. Tech. S., since '68;

Nonlinear Acoustics Department: Naugolnikh, Konstantin A., C. PM. S., since '57;

Propagation Department: Liasanov, Iurii P., C. PM. S '68; Senior researchers Sechkin, Viktor A., since '64; Volosov, V. I., since '74;

Statistical Department: Gershman, Serafina G., since '68; Senior researchers Ageeva, Naadizhda S., D. PM. S., since '58; Bardishev, Vladimir I., since '71; Vasiliev, Nikolai A., since '74;

Underwater Acoustics Department: Brekhovskikh, Leonid M., D. PM. S., since '64; Senior researcher Zhitkovskii, Iurii, since '76;



22. Radio Physics Scientific Research Institute in Nizhnii Novgorod

Retrospect: The institute was established in 1956 as part of the Gorkiy State University. The Russian Academy guides the scientific research methodology of the institute. University scientists research in plasma physics, spectroscopic systems, and high powered microwave devices. The institute operates as a radio astronomy laboratory that is involved in the search for life in outer space. Director Razin, Vladimir A., D. PM. S., since 1980.

(older material)

Structure and Scientific Personnel: Director Razin, Vladimir A., D. PM. S., '80; Deputy Director Troitskii, Vsevolod S., D. PM. S., '56;

Quantum Electronics Laboratory: Chief Bepalov, Viktor I. '68;

Radio Astronomy Laboratory: Chief Gateliuk, E. V. '75;

Radio Astronomy Observatory: Chief Troitskii, Vsevolod S., D. PM. S., '73; Senior researchers Aleshin, V. I. '70; Beliaiev, P. P. '74; Benediktov, Ye. A. '60; Bernshtein, I. L. '74; Cherepovitskii, Vladimir A. '63; Dementieva, T. A. '69; Denisov, Nikolai G., D. PM. S. '58; Dmitrenko, D. A. '73; Furashov, N. I. '73; Grekhova, Maria T., D. PM. S. '61; Gurvich, A. S. '70; Kanevskii, M. B. '73; Kapustin, P. A. '71; Karavanov, Valeri S. '70; Khizhniakova, I. P. '73; Khrulev, V. V. '65; Kiselev, A. M. '73; Kobrin, Mikhail M., D. PM. S., CPSU, '61; Korobkov, Iurii S. '60; Krotikov, Viacheslav D., C. PM. D. '62; Kubarev, A. M. '68; Kukina, Ye. P. '73; Kuzmin, A. O. '71; Lastochkin, V. P. '63; Malishev, Simon K. '70; Matiugin, S. M. '75; Miller, Mikhail A., D. PM. S. '60; Mironenko, L. F. '75; Mitiakov, N. A. '61; Naumov, Albert P. '71; Naumov, Aleksandr I. '61; Nikonov, V. N. '73; Orlov, Ye. F. '60; Papilova, I. A. '72; Pasmanik, G. A. '68; Petrovskii, A. '73; Plechkov, V. M. '58; Pritkov, N. M. '75; Puzirev, I. M. '70; Rakhlin, A. V. '74; Rapoport, V. O. '70; Riadov, V. Ya. '73; Sharanov, G. A. '73; Shliuger, I. S. '74; Skrebkova, L. A. '75; Skvortsov, V. D. '71; Smirnova, T. V. '73; Stankevich, V. S. '73; Strezhneva, K. M. (n.d.); Sutin, A. M. '72; Talanov, Vladimir I., D. PM. S. '60; Tarasov, A. F. '70; Teplikh, A. I. '73; Tikhonov, Iurii G. '69; Tokarev, Iurii V. '71; Trakhtengerts, Viktor Iurii '67; Uriadov, Valeri P. '75; Vasin, Valerii A. '70; Vaskov, V. V. '74; Viktorova, A. A. '70; Voronov, V. M. '72; Yerukhimov, Lev M. '61; Iuriin, K. I. '74; Zhevakin, S. A., D. PM. S., '58; Zinichev, V. A. '74; Zverev, Vitali A., D. PM. S., '60;



23. L. F. Vereshagin High Pressure Physics Institute (IHPP) in Troitsk.

Moscow region, 142092. Tel. 334-05-82, fax 334-00-12, (E-mail: sergei@adonis.ias.msk.su) Under the direction of Acting Director Corresponding Member Sergei M. Stishov, tel. 334-00-10.

Stishov, Sergi M. Corresponding member of the General Physics and Astronomy Department of the Russian Academy in 1993. He is Acting Director of the Institute

of High-Pressure Physics named after L. F. Vereshagin (IHPP) located in Troitsk in the Moscow region.

Retrospect: Created in 1958 on the basis of the Laboratory of Ultrahigh Pressures of the academy. Since 1965, it has been located at the academy's science center in Troitsk. The acting Director of the institute is Corresponding Member of the Academy Sergei M. Stishov. In 1991, the staff numbered 577 which included one academician, 14 doctors of science (of whom three were professors) and 75 candidates of science. The institute was comprised of nine research departments and several highly equipped workshops, and a computer center. Institute scientists are engaged in research on the physical and mechanical properties of solids under pressure, in studying phase diagrams in a wide range of pressures and temperatures, the behavior of materials under extremely high pressures, and the synthesis of new materials, including synthetic diamonds. Since 1988, the Director of the institute has been Aleksei A. Abrikosov, D. PM. S.

(Older material)

Structure and Scientific Personnel: Deputy Director Koniaiev, Iurii S., C. Tech. S. '74; Chief Engineer Badanov, Vladimir N. '79;

Elastic Constants Laboratory: Chief Voronov, Fedor F., C. PM. S. '72;

Elastic Neutron Scattering Laboratory: Chief Alikhanov, Ruben A. '72;

Electrical Properties & Fermi Surfaces Laboratory: Likhter, Abram I. '72;

High Temperature Gaseous Extrusion Laboratory: Chief Berbentsev, Vladimir D., '86;

High Pressure Apparatus Laboratory: Chief Koniaiev, Iurii S., C. Tech. S. '73; Senior researchers Poliakov, G. '76; Veller, M. '76;

Materials Preparation Laboratory: Chief Popova, Svetlana V. '72;

New Superconducting Materials Laboratory: Chief Yevdokimova, V. V. '72;

Paramagnetic Resonance Laboratory: Chief Iakovlev, Ye. N., D. PM. S. '72;

Phase Diagrams and Melting Curves Laboratory: Chief Fateieva, Nina S. '72;

Superconductivity Laboratory: Chief Itskevich, Ye. S., D. PM. S. '72; Senior researcher Vinokurova, L. I. '69;

Theoretical Laboratory: Chief Arkhipov, Robert G. '63;

X-Ray Crystallography Laboratory: Chief Kabalkina, S. S. '72;

(See: Troitsk: *ego istoricheskoe proshloe i nastoiashchee*, Moscow: Moscow Typographis No. 5, 1991, 48 pp. A brochure printed in both English and Russian. See pp. 18-19 for information on the L. F. Vereshchagin Institute of High Pressure Physics.)



**24. High Temperature Institute--now called the Department of High-Temperature Superconductivity in Moscow
Located at 64a, Leninskii ave., Moscow, 117296. (Tel. 930-33-63)**

Batenin, Viacheslav M., D. Tech. S. Born in 1939. Corresponding member of the Physical Technical Problems of Power Engineering of the Academy since December 1987. Listed as a senior researcher in the High Temperatures Institute in Moscow and in 1979 he was Deputy Chief of the International Programs department of that institute. In 1987, he was named Director of the High Temperature Institute which was established in 1962 for researching the thermophysical and electrophysical properties of matter at high temperatures. (LDA 89-11378.)

Retrospect: The institute was created in 1962 under A. E. Sheindlin and joined the Academy System in 1967.

Historically the organization and structure of the institute was as follows:

Administrative Personnel:

Deputy Director: Baibuz, Viktor F., C. Chem. S., since '67;
Deputy Director: Pishchikov, Sergei I., C. Tech. S., since '73;
Deputy Director: Shelkov, E. M., C. Tech. S., since '70;
Scientific Secretary: Nefedov, Anatoli P., C. Tech. S., since '78;

Experimental Complex: Head Pishchikov, Sergei I., C. Tech. S., since '75; Deputy Head Maksimenko, Vladilen I., since '77;
Deputy Head Sokolskii, Aleksei G., since '78;
Deputy Head Zamislov, Oleg B., since '75.



25. Solid State Physics Institute in Moscow (Chernogolovka).

Located in the Moscow region at Chernogolovka post office, 142432. (Tel. 524-50-22; E-mail: root@issp.sherwa.msk.su) Under the direction of Iurii A. Osipian, tel. 584-97-25.

Osip'ian (Osipian), Iurii A., D. PM. S. Born in 1931 in Moscow. Russian physicist. He was made a vice-president of the academy in 1988. He has been a corresponding member of the General Physics and Astronomy Department of the AN SSSR and the RAN since 1972; and, an academician since 1981. He graduated from Moscow Institute of Steel in 1955. From 1955 to 1962 he was on the staff of the Institute of Metal Physics of the Central Scientific Research Institute of Ferrous Metallurgy. From 1962-63 he was deputy director of the Crystallography Institute of the AN SSSR. In 1970 he was appointed professor at the Moscow PhysicoTechnical Institute. His main work has been in solid state physics. He has investigated the interaction of dislocations and electrons in solids and discovered new phenomena in solids, for example: the photo plastic effect, electron paramagnetic resonance in dislocations, and dislocation conductivity. His work forms the basis of a new field--"dislocation solid state physics." Since 1973, he has been director of the Solid State Physics Institute in Moscow that was created in 1962 and whose main branch is in Chernogolovka. It does research in the fields of crystallography, high pressure physics, metallurgy, semiconductors,

superconductors, and magnetic fields. He was co-winner of the 1978 Lenin Prize for studies on "New Means of Synthesis and Study of the Structure of Organic Phosphorus Compounds" (1954-75.) He continues to direct the work of the Institute of Solid State Physics in Chernogolovka. He is President of the United Scientific Council on the Complex Problem "Physics of Condensed Medium."(GSE 30, p. 600.)

Retrospect: Created in 1963 at the Noginsk Scientific Center by its first Director G. V. Kurdiunov (1963-73). The current Director of this institute is Iurii A. Osipian, D. PM. S. The institute does research in crystallography, high pressure physics, metallurgy, semiconductors, superconductors, and magnetic fields. The main branch of this institute is located in Chernogolovka.

(Older material)

Structure and Scientific Personnel: Director Osipian, Iurii A., D. PM. S., since '73; Deputy Directors: Grazhulis, Vitas A., D. PM. S., since '80; Nikonov, Timofeev V., since '75; and Ulianov, Vasilii T., since '75; Scientific Secretary. Grazhulis, Vitas A., D. PM. S., since '77.

Scientific Division:

Dislocations Laboratory: Chief Nadgorni, Eduard M. '75;

Electronic Structure of Metals Laboratory: Senior researchers Grazhulis, Vitas A., D. PM. S. '77; Savchenko, I. B., '70;

High Pressure Physics Laboratory: Chief Poniatovskii, Ye. G., D. PM. S., CPSU, '77;

Magnetic Fields Laboratory: Chief Gantmakher, Vsevolod F., D. PM. S., CPSU, '75;

Optics Laboratory: Chief: Unknown;

Semiconductor Laboratory: Chief Volskii, Ye. P., C. PM. S. '70;

Technology Division:

Composites Laboratory: Chief Mileiko, Sergei T., D. Tech. S. '77;

Crystal Growth Laboratory: Chief Tatarchenko, Vitali A., D. PM. S. '77;

Diffraction Research Methods department: Chief Suvorov, Ernest V. '79;

Metals and Alloys Laboratory: Chief Serebriakov, A. V., C. PM. S. '77;

(1996 update)

Institute of Solid State Physics in Chernogolovka (1996) RUSSIAN ACADEMY OF SCIENCES (ISSP)

**Moscow District, 142432,
TELEPHONE:(095)-524-50-22
FAX:(096)-576-41-11**

The Institute of Solid State Physics of the Russian Academy of Sciences (ISSP) was founded in the 60s in Chernogolovka which is located 50 kilometers to the east of Moscow. For the last 30 years the ISSP has become one of the most outstanding Russian Institute and gained immense prestige in the world scientific community. The personnel of the Institute made very important and, in some cases, decisive contributions to many branches of physics of solids and material science and engineering, such as low-temperature metal physics of dislocations, spectroscopy of exciton states, phase transformations under high pressures, spectroscopy and electron transport in 2D-systems, helium physics, surface, physics, structure and technology of amorphous alloys, structures and properties of grain boundaries, high-purity metallic single crystals and goods produced of them fibrous composites which a metallic matrix, crystals of various shapes and so on. For the last few years fortunate has been wide involvement of our scientists in the research of the high-temperature superconductivity of different materials including metallic cuprates, fullerenes and organic metals.

LABORATORIES OF THE INSTITUTE

Laboratory of Physical-Chemical Bases of Crystallization

Head of laboratory: Dr. N. N. Kolesnikov.

The scope of the Laboratory works includes two main aspects:

the melt growth of single crystals of inorganic compounds:
chalcogenides, halides, complex superconducting cuprates.
a physical-chemical study of these compounds and systems where they originate of in order to facilitate their single crystal growth, or to achieve some desirable properties of these crystals.

Fields of research:

1. Crystal growth of zinc and cadmium chalcogenides from the melt for manufacturing transmitting, outletting and focusing optics of IR-devices, e.g. CO₂ -lasers.
2. Single crystal growth of these compounds for manufacturing solid-state elements of devices for modifying or modulating IR-beams, e.g. polarizers, electro-optical and mechanical modulators, etc.
3. Single crystal growth of these compounds for manufacturing seeds or substrates for growth of films and bulk crystals from the vapor phase.
4. Chemical vapor deposition (CVD) of zinc and cadmium chalcogenides.
5. Single crystal growth of some Tl-based HTSC-phases in the system Tl-Ca-Ba-Cu-O. The single crystals have sizes up to 3x2x0.2 mm and can be used for various optical, structural and magnetic measurements.
6. Single crystal growth of lead fluoride for various investigations.
7. Single crystal growth of alkali halides, including mixed crystals, for IR-optics and different research purposes.
8. Physical-chemical study of systems with above mentioned compounds, especially investigation of T-x diagrams.
9. Experimental investigations of some properties of melts: volume effects of crystallization, surface tension, viscosity.

Experimental methods:

The Laboratory has equipment for the crystal growth by Bridgman method, zone melting, CVD and Czochralski technique. The growth of different crystals can be carried out, the composition and unit cell parameters of produced crystals being determined in the neighboring laboratories. The structure of crystals revealed by the relevant study, the devices and materials for the DTA and the chemical etching being available in the Laboratory. The Laboratory also has an equipment for the investigation of properties of the refractory compound's melts.

Laboratory of Reinforced Systems

Hof laboratory: Dr. S.T. Mileiko.

Established as research group in 1967, and since January 1967, has had the status of a laboratory with two main research directions: The fracture mechanism of non-homogeneous solids and the search for new technological methods to produce metal and ceramic-based fibrous composites.

Laboratory of Spectroscopy of Semiconductor Surfaces

Head of the laboratory: Dr. V. A. Grazhulis.

Laboratory of the Physics of High Pressure

Head of the laboratory: Dr. E. G. Ponyatovsky (skii)

Laboratory of Structural Analysis

Head of the laboratory: Dr. Veniamin Sh. Shechtman

Research Directions:

Solid State Physics

Material science

Processing technique of materials



26. The Center for Physical Instrument-Building (Formerly The Physical Instrument-Making Center of the Institute of General Physics in Troitsk.)

Moscow region, Troitsk, 142091. Under the direction of Dr. Vyatcheslav S. Bukreyev, tel. 334-02-13. Branch of the center, box 27, Tarusa town, Kaluga region, 9-13-82, under the direction of Professor Valerii A. Milyaev, tel. 135-01-58.

Retrospect: Directed by Dr. Vyatcheslav S. Bukreyev. The organizational structure of the center was established in 1964 and included scientific and design departments, as well as production shops with computerized, up-to-date machines that go full cycle from design to the production of prototype models of scientific instruments. With the establishment of the General Physics Institute, the center was made subordinate to that institute which is located in Moscow. The Center carries out work in quantum electronics, magnetometry, and remote sounding. In these three areas it has produced excimer lasers, tunable dye lasers, laser spectral complexes, pulse-periodic CO₂ lasers, complexes for laser marking, lasers for projected lithography and micro technologies, laser systems with wave front conversion, single-frequency lasers, and lasers for ophthalmology and angioplastics. In Magnetometry it has made instruments for ground, sea and space investigations of the Earth and other planets' magnetic fields, magnetometers with ferroprobes, optically pumped quantum

magnetometers, and quartz magnetometers and stations. In remote sounding, it has developed IR semiconductor laser optical diagnostic complexes, stationary and mobile UV and IR lasers, and special UVC lasers for mobile lidars. (**Information from 2 October letter from O. A. Tumanov, Scientific Secretary of the Spectroscopy Institute in Troitsk. See also: Troitsk: ego istoricheskoe proshloe i nastoiashchee, Moscow: Moscow Typographis No. 5, 1991, 48 pp. A brochure printed in both English and Russian. See pp. 16-17 for information on the Institute.**)



27. Space Research Institute (IKI) in Moscow.

Located at 84/32 Profsouznaia (aya) st., U-485, Moscow, GSP-7, 117818. (Tel. 333-52-12; telegrams: Moscow, Parsek; teletype: Parsek 417400; telex: 411498 STAR SU fax: 7095-310-7023; E-mail: agaleev@egokl.bitnet) Under the direction of Academician Albert A. Galeev, tel. 333-25-88.

Galeev, Albert A., D. PM. S. Born in 1940 in the city of Ufa, Galeev was awarded the Gold medal on finishing the secondary school in 1957, entered the Moscow Energetic Institute and four years later (in 1961) transferred to the Department of Physics of the Novosibirsk State University to graduate it in 1963. His first scientific work co-authored with V. N. Oraevskii, the present director of Institute for Terrestrial Magnetism Ionosphere and Radio Wave Propagation (IZMIRAN), was published in 1962, when A. Galeev was a student. In 1964 A. Galeev received a Ph. D. on Physics and Mathematics and less than four years later (1967)-- a D.Sc. That year he was awarded the honorable State Prize of Lenin Comsomol for Science and Technology for works on plasma confinement in magnetic traps. From 1961 to 1970 he worked at the USSR Academy of Sciences (Siberian Branch) Institute of Nuclear Physics founded by Academician G. I. Budker. The role of such prominent scientists as Academicians G. I. Budker and R. Z. Sagdeev can't be overrated in formation of A. Galeev as a scientist. In 1970 A. Galeev moved to Moscow to work at the USSR Academy of Sciences Institute of High Temperatures. In 1973 he began work at the Space Research Institute where he has remained. In 1992 he was elected the Full member of the Russian Academy of Sciences; in 1985 he became a member of the International Academy of Astronautics; in 1990--a member of the Academiae Europaeae; in 1994-- a foreign member of the Max Plank Society. And, in 1993, he received the title 'de Docteur Honoris Causa L'Universite de Paris-- sud'. Corresponding member of the General Physics and Astronomy Department of the Academy since December 1987; academician since 1993. From 1973 to 1988, he was assistant to the Director of the Space Research Institute in Moscow, and since 1976, he has been Chief of the Interplanetary Plasma and Ionosphere Division of that institute. In 1988, he assumed the Directorship of the Space Research Institute. Together with R. Z. Sagdeev, he has been a leader in the development of new ideas in physical kinetics.

Retrospect: Established in 1965, the institute centralizes and coordinates the Russian civilian space program. Currently Academician Albert A. Galeev, D. PM. S. is the Director of the institute, having been named to that position in October of 1988. One of its Deputy Directors, Nikolai S. Kardashev, born in 1932, in 1985 was installed as Vice President of the Committee on Space Research--**COSPAR**.

(Older material)

Historically, the organization of and some of the leading personnel in the institute are as follows:

Structure and Scientific Personnel: Director Galeev, Albert A., D. PM. S., since October '88; Deputy Directors: Balebanov, Viacheslav M., C. PM. S., since '77; Kardashev, Nikolai S., D. PM. S., since '79; Khodarev, Iulii, K., D. Tech. S., since '68; Prilutskii, Oleg F., August '86; Skuridin, Gennadii A., D. PM. S., 81; and, Tamkovich, Gennadii M., since '84; Assistant to the Director Galeev, Albert A., D. PM. S., since '73; Head Eng. Okhotin, Aleksandr S., D. Tech. S., since '76; Sci. Secty. Breus, Tamara K., since '78.

(1996 update)

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E-mail

rs@star.iki.rssi.ru

As the leading organization of the Russian Academy of Sciences in the field of investigations of Outer Space, Solar System planets and other objects of the Universe, Space Research Institute (IKI) is primary in charge of long-range planning and elaboration of space research programs of which a considerable part is performed within the framework of international space research cooperation.

Current and future missions

MIR/KVANT

GRANAT

INTERBALL Successfully launched 29 Aug 1996

MARS-96

SPECTRUM-X-GAMMA

Programs

High Energy Astrophysics Department

Solar System Data Archive

Space Plasma Physics Department

Environment Monitoring Information Systems & Baykonur Weather

Planetary Data Image Processing laboratory

Navigation and Ancillary Information Facility (NAIF)

(1997 update)

Planetary Data System

(SPICE)

Navigation and Ancillary Information Facility (NAIF)

The Navigation and Ancillary Information Facility (NAIF) Node of the Planetary

Data System is responsible for the design, implementation and operation of

the SPICE information system--a means for providing ancillary observation geometry data and related tools used in the planning and interpretation of science instrument observations returned from planetary spacecraft.

The SPICE acronym comes from:

S-- Spacecraft
P-- Planet
I-- Instrument
C-- "C-matrix"
E-- Events

SPICE data files, called kernels, exist for spacecraft trajectory (S), planet, satellite, comet and asteroid ephemerides and associated physical and cartographic constants (P), instrument information, including mounting alignment and other relevant geometric information (I), orientation of spacecraft structures upon which science instruments are mounted (C); and spacecraft and ground data system events, both planned and unplanned (E).

Russian Space Science Internet

RSSI Network Coordination and Operation Center located at Space Research Institute RAS.

Contact points.

Post address:

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Network Coordination and Operation Center
Space Research Institute
Russian Academy of Sciences
Profsoyuznaia (aya) St. 84/32
Moscow 117810, Russia

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Other activities

Internet/SPACENet : Internet Service Provider

COMPAS : Workshop "Computer Networks: Problems & Solutions"

Administration Bios

Albert Galeev, theoretical plasma physicist
Postal Address Space Research Institute (IKI)
84/32 Profsoyuznaia (aya) Str, Moscow, Russia 117810
Telephone Number +7(095)333-25-88
e-mail agaleev@esoc1.iki.rssi.ru

Albert A. Galeev is the director of the Russian Academy of Sciences Space Research Institute (IKI RAN in Russian), Moscow, Russia. He was elected in November 1988. He is responsible for planning, organizing and directing the day-to-day scientific and administrative activities aimed at accomplishment of the main space projects assigned to the Institute under the Russian Federal space program.

Presently, the agenda such major includes international missions as Interball project (1995) and Mars-96 project (1996).

For fifteen years (1973-1988), he headed the Space Plasma Physics Department and together with his scientific team contributed to a number of successful international space projects. The most prominent among them were the Venera-Halley project studying the planet of Venus and the Halley comet and the other world-wide known project Phobos aimed to study the planet of Mars, its magnetosphere and the Phobos satellite.

Both projects were implemented at IKI under supervision of Academician R. Z. Sagdeev, former director of the Space Research Institute. Galeev was responsible for the

performance of the Prognoz-8 and Intershock projects with particular emphasis on studying plasma phenomena responsible for the formation of collisionless shock front, heating of plasma and the acceleration of particles. Galeev, as a working as a theoretician in the field of Plasma Physics made contributions to the basic plasma theory which included the development of the theory of weak interaction of waves in plasma that served as a building block of the weak plasma turbulence theory.

Dr. Galeev and Dr. Sagedev developed the famous neoclassical theory of plasma transport in Tokamaks for which they were awarded the Lenin Prize in Science and Technology in 1984.

While heading the Space Plasma Physics Department at IKI (1973-1988) Galeev developed together with his colleagues the theories of such fundamental processes in a space plasma as the explosive magnetic field line reconnection in magnetospheric tail, the ionization of a rarefied neutral gas by the magnetized plasma flow with the velocity exceeding the critical value (H. Alfvén phenomenon), the hard X-ray radiation from the accretion disk corona around black holes, the electron acceleration in the quasi-perpendicular collisionless shocks by the lower hybrid waves generated by the beam of ions reflected from shock front, the formation and structure of cometary bow shock in the mass-loaded solar wind and the theory of solar wind stagnation in the cometary coma.

Galeev taught from 1964 to 1970 at the Novosibirsk State University (till 1970) and later, transferred in 1973 to IKI-- at the Moscow Institute for Physics and Technology (MIPT).

Born in the city of Ufa, Galeev was awarded the Gold medal on finishing the secondary school in 1957, entered the Moscow Energetics Institute and four years later (in 1961) transferred to the Department of Physics of the Novosibirsk State University and graduated in 1963. He co-authored his first scientific work with V. N. Oraevskii, the present director of Institute for Terrestrial Magnetism Ionosphere and Radio wave Propagation (IZMIRAN), which was published in 1962.

In 1964, Galeev received a Ph. D. on Physics and Mathematics and less than four years later (1967) --a Doctor of Science degree. That year he was awarded the honorable State Prize of Lenin Komsomol for Science and Technology for works on plasma confinement in magnetic traps.

From 1961 to 1970 he worked at the USSR Academy of Sciences (Siberian Branch) Institute of Nuclear Physics founded by Academician G. I. Budker.

The role of such prominent scientists as Academicians G. I. Budker and R. Z. Sagdeev can't be overrated in formation of A. Galeev as a scientist..

In 1970, Galeev moved to Moscow to work at the USSR Academy of Sciences Institute of High Temperatures. In 1973 he began work at the Space Research Institute where he has remained since.

In 1992 he was elected the Full member of the Russian Academy of Sciences; in 1985 he became a member of the International Academy of Astronautics; in 1990--a member of the Academiae Europaeae; in 1994-- a foreign member of the Max Plank Society. And, in 1993, he received the title 'de Docteur Honoris Causa L'Universite de Paris-- sud'.

Kovrazhkin Rostislav, D. PM. S.,
Deputy Director of the Space Research Institute (IKI)
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kovrazhkin@romance.iki.rssi.ru
Field of research interest: Solar-terrestrial physics, physics of the magnetosphere

Nazirov Ravil, D. Tech. S.,
Deputy Director of the Space Research Institute, and Head of a Department (non-staff).
Field of research interest: Computer science, space dynamics
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Tamkovich Gennadii, D. Tech. S., Deputy Director of the IKI.

Field of research interest: Automated control system and information processing

Thesis: "Elaboration and refinement of automated control system of research-oriented spacecraft in the context of system approach"

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Zakharov Aleksandr, Ph.D., Scientific Secretary for the Space Research Institute Scientific Council

Field of research interest: Plasma physics and planetary exploration

Thesis on waves-particles interaction, ion composition of magnetospheric plasma

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Environment Monitoring Information Systems

Space Monitoring Information Support laboratory (SMIS) of Space Research Institute (IKI)

Loupian Evgenii, Ph. D.

Field of research interest: Remote sensing, Hydrodynamics theory, Image processing, Multimedia.

Scientific Degree

Ph.D. (1989-- Space Research Institute)
Thesis: "Remote sensing of spatial statistical parameters of turbulent media"

Position: Head of Laboratory
Department Number
902 (Space Monitoring Information Support)

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E-mail
Evgeny (Evgenii)@d902.iki.rssi.ru
eloupian@esoc1.iki.rssi.ru

Mazurov Alexei, Ph. D.

Field of research interest: Hydrodynamics, Numeric simulation, Remote sensing, Image processing.

Scientific Degree

Ph.D. (1992-- Space Research Institute)
Thesis: "The research of the large scale structure developing in media with helical convective turbulence"

Position
Scientist

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Rutkevich Petr, Ph.D.

Field of research interest: Theoretical physics

Scientific Degree

Ph.D. (1989-- Space Research Institute)
Thesis: "Large scale instabilities of waves and vortices in turbulent and inhomogeneous media"

Position

Scientist

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Flitman Eugene, C. PM.S. (Space Monitoring Information Support)

Field of research interest: Computer science, Multimedia, Image processing, Software architecture.

Position: Leading software developer

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Priroda

International Earth Remote Sensing Project

Federal Center for Geocological Systems

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Dmitrii V. Zubkov
Dmitrii O. Sergeev
Dmitrii O. Spirin
Mikhail A. Filin
Aleksandr A. Turin

The Federal Center for Geocological Systems (FCGS) was created by the Order of the Minister for Environmental Protection and Natural Resources of Russian Federation from August 17,1992.

FCGS is state enterprise in the system of Ministry for Environmental Protection and Natural Resources of Russian Federation (MEPNR). There are 40 persons of different specialities in permanent staff of FCGS and about 50 scientists and specialists are taking part actively in the works performed by FCGS.

FCGS is the head organization of MEPNR on the following directions of activity:

- development and introduction of methods of geocological research, environmental assessment for objects dealing with exploitation of mineral resources;
- development of projects of State programs dealing with environmental protection and ecological safe-guarding and its documentation;
- performing works dealing with information technologies for environmental protection including geoinformation systems and electronic communications;
- research and establishment of ecological monitoring systems on federal, regional and local levels;
- Creation and functioning of a Unified State Environmental Monitoring System (USEMS)
- Creation and functioning of information and analytical system of MEPNR
- Creation and functioning of a geoinformation system for organs of state authority (GIS OGV) in a part of functions and problems of MEPNR.

RPA Planeta

PLANETARY DATA IMAGE PROCESSING LAB

The Laboratory supports the space TV experiments, mainly in the planetary exploration missions. The main objectives are the telemetry data stream acquisition, video, spectral and auxiliary data extraction, decoding and visualization, imagery data decalibration and enhancement, public products assembling and thematic processing. The separate objective is Star Trackers development and the experimental test support.

Main projects

VEGA mission-- Venus and Halley comet investigations.

PHOBOS mission-- Martian satellites investigations.

MARS exploration program.

LAB STAFF:

Dr. Krasikov V.-- Head of Laboratory.
Navigation star sensors SW development project management, thematic and general image processing.

Khorokhorin D.-- System Administrator.
IBM PC and Unix System administration.

Dr. Kuzmin A.-- Senior Researcher, System Analyst
Real Time Data Processing project management, LAN administration, Image preprocessing and enhancement.

{KUZMIN ALEXEI, Ph. D. in Informatics in Space Research.

System Analyst, Real-time Data Stream and Image Processing Senior Researcher.

EXPERIENCE: 1980-present time: Space Research Institute Russian Academy of Science engineer, researcher, senior researcher. Analyst/Programmer for signal and data stream processing, image processing, researcher of the information systems for space projects, LAN administrator, the space TV experiments data processing systems, on ground acceptance tests support project manager.

MAJOR PROJECTS AND ACTIVITY:

1979-1983: Image Processing Systems SW development and implementation. Image processing utilities development for Image Processing System under RSX-11M on PDP11/40 platform. The system was installed and utilized in ~10 institutions in former USSR and in East Europe.

1983-1987: Venus-Halley International Space Project. Real time data stream processing and image display utilities development and tests, image filtering and enhancement methods development and implementation. International documentation preparation. Publications.

1987-1991: Phobos International Space Project. Real time data stream processing and image display utilities development and tests team leader. Acceptance tests procedures. Image filtering and image enhancement methods development. International documentation preparation. Publications.

1991-p.p.: Mars Exploration International Program. Data processing and acceptance tests project management. LAN administration. WWW pages development. International documentation preparation. Publications.

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Dr. Shamis V.-- Senior Researcher, Senior Analyst/Programmer.

General Image processing project management, Image processing SW development.

Sobchuck V.-- Senior Analyst/Programmer
Navigation star sensors SW development, general image processing SW development.

Snetkova N.-- Analyst/Programmer.
Navigation star sensors SW development, thematic image processing SW development.

Zenkin I.-- Analyst/Programmer.
Housekeeping data processing, stereo and 3D image processing.
Last updated 25 Mar 96

High Energy Astrophysics at IKI, Moscow

High Energy Astrophysics department at IKI, Moscow, is carrying out research in various fields of X-ray astronomy: physical processes in the vicinity of compact sources of x-ray emission, x-ray observations using Russian space observatories MIR/KVANT and GRANAT, development of scientific instrumentation for the SPECTRUM-X-GAMMA mission and ALPHA space station.

* MIR-KVANT

* GRANAT

* SPECTRUM-X-GAMMA

Department of High Energy Astrophysics

Sunyaev, Rashid, D. PM. S., Head of the Department of High Energy Astrophysics,

Field of research interest

Theoretical astrophysics, X-Ray astronomy, cosmology, high energy astrophysics.

Scientific Degree

Candidate of Sciences (1968), Doctor of Sciences (1973)
Full Member of Russian Academy of Sciences (1992),

Positions:

Professor of Moscow Physical-Technical Institute,
Editor-in-Chief of "Pisyma v Astronomicheskiy Zhurnal" (translated into English as "Astronomy Letters-- The Journal of Astronomy and Space Astrophysics"),

People in High Energy Astrophysics at IKI, Moscow

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Markevitch Maxim, Ph. D.

Field of research interest: X-ray astronomy.

Scientific Degree:

Ph.D., Moscow Inst. of Physics and Technology, 1993
Thesis: "Hot gas in clusters of galaxies and Cosmic microwave background. X-ray observations of gas in Perseus cluster and in the center of our Galaxy"

Position

Scientist

Department Number

52 (High Energy Astrophysics)

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Space Plasma Physics

Space Plasma Physics is one of the main lines of theoretical and experimental investigations performed at the Space Research Institute (IKI). All stars, including the Sun, the interstellar and interplanetary medium, planetary upper atmosphere (ionosphere)--

in a word, roughly 99% of matter in the Galaxy is in the plasma state. The processes of the transformation of some types of energy into other, which constitute the essence of active phenomena on the Sun and in the close vicinity (magnetospheres) of the planets, including the Earth, are of plasma nature.

The tasks of some theoretical and experimental laboratories at the Institute is to construct models of planetary magnetospheres and to study individual physical phenomena specific for such complex and interlinked systems as solar wind-- magnetosphere-- ionosphere system.

Laboratories:

Laboratory for Theory of space plasma processes

Acceleration processes in space plasma and radiation problems during space flights

Laboratory for Interplanetary and Near-Planetary Plasma Studies

Gdalevich Gennadii, D. PM. S, Leading scientist of the Laboratory, professor.

Field of research interest: Physics of interplanetary and near-planetary plasma and neutral particles.

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Laboratory for Study of electromagnetic measurements

Laboratory for Study of solar wind

Laboratory for Physics of magnetosphere processes

Laboratory for Engineering and technical support of project experiments and applied works

Missions

INTERBALL

PROGNOZ 1-- PROGNOZ11

1. Mission overviews
2. Prognoz Launches
3. Images

Last updated 21 Aug 96

Laboratory for Plasma Wave Investigation

**Klimov Stanislav, D. PM. S. (1944), Head of laboratory for Plasma Wave Investigation
Postal Code**

117810
Telephone Number
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Field of research interest: Waves in solar wind/magnetospheres and comet plasma interactions, magnetospheric convection and magnetosphere ionosphere coupling.

Kosov Aleksandr, (Ph. D. in phys. and math. sci. (1982), Doctor of Sciences (Engineering) (1992), Head of a Sector

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Field of research interest; Radio Physics, Physical Bases of Electronics, Atmospheric physics.

Moiseev Semen, D. PM. S., Head of Department of Plasma Physics, Geophysics, and Hydrophysics

Field of research interest: Plasma physics, geophysics, hydrophysics

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Solar System Data Archive

The (SSDA) archives the data collected by various Russian missions devoted to study of planets and small bodies in Solar system. The data from the solar-terrestrial missions are contained in the separate Solar-Terrestrial Data Archive.

The SSDA contains data sets passed through various levels of processing: the telemetry data and processed data. Telemetry data are grouped according to project name.

The processed data are divided into:

the planetary data subdivided into

- atmospheres
- surfaces
- small bodies
- planetary plasma
- images sections;

the data collected by the spacecraft in the way from Earth to planets subdivided into

- Sun
- interplanetary space sections.

The SSDA includes also information in the form of templates in the PDS format. The SSDA includes also public domain data of some non-Russian planetary missions of interest for Russian users.

Images of Interplanetary Probes

Venera-8 150K
Venera-13 268K
Venera-15 544K
Venera-15 561K
Mars-3 64K
Last updated 22 Feb 96

Raizer Victor, D. PM. S.

Field of research interest: Remote sensing of environment,
Microwave remote sensing of Martian cryolitozone and subsurface water,
Remote sensing of ocean surface state "Ocean Surface Monitoring Program"

Scientific Degree

Doctor of Sciences (1996)

Position

Senior scientist

Department Number

95

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REMOTE SENSING OF OCEAN SURFACE

"Ocean Surface Monitoring Program"

This research program "OSMP" is developed to the diagnostic of the main oceanic surface phenomena under various wind-wave generating conditions including storm surges. Airspace experimental methods and appropriate electrodynamic wave propagation theory are suggested. Priority is given to the investigation of large-scale ocean surface structure, wind wave generation, evolution of wave number spectrum, wave breaking field, foam coverage and white capping. It is important to determine air-sea fluxes, ocean mass balances, surface radiation budget and parameters of ocean-atmosphere interaction.

We are developing the following problems: a) combine optical and microwave technic to the indication of non-linear surface waves and wave breaking field; b) modeling of microwave propagation in a multiphase air-water interface; c) obtain quantitative dependencies of microwave radiation on geometry and statistics of wave breaking

field in ocean surface; d) monitoring of ocean surface states using optical and microwave airspace data sets.

The focus of our investigation (1975-1995, see "Publication List") has been analysis of multiphase ocean surface structures including foam, whitecaps, spray, underwater bubble populations, oil emulsions, young ice. For example the effects of high microwave emission of foam and whitecaps are due to specific absorption and scattering properties of bubbles.

Important issue is spray and underwater bubbles. It was shown that effects due to spray can yield both positive and negative brightness temperature contrasts. The spectrum of microwave radiation at mm- and cm- ranges depends on droplets' size distribution and "optical" thickness of spray clouds. At the same time emissivity variations due to underwater air bubbles are significant at long-microwave ranges of radiation which is connected with the sharp change of skin-layer depth.

Another problem is a global distribution of wave breaking field at the storm conditions. This investigations are made by means of airspace photography and optical image processing. In particular we have found that size histograms and fractal dimensions differ for foam streaks and whitecaps and vary depending on wind wave generation state and fetch. The idea of fractal dimension has resolved the problem of ocean surface state quantization using remote sensing techniques.

On the basis of optical and microwave investigations a composite microwave model of ocean-atmosphere system is designed. This model take into account not only the structural hierarchy of natural multiphase media in air-water interface but also the dynamic characteristics of ocean boundary layer and statistics of foam coverage and whitecaps. Some dynamic weight coefficients as area fractions of different types of interface factors (foam formations, spray, underwater bubbles, large- and small-scale wind waves, turbulence roughness and other) are introduced in the composite model. Multifrequency microwave radiometric complex at 1,4-- 37 GHz and airspace optical devises with a high spatial resolution could be used. Also side-looking radar (SLAR) or synthetic aperture radar (SAR) would be desirable for identification of the ocean-atmospheric stratifications including internal waves.

The concept of combined optical microwave technique based on physical background will be applied to further investigations which are supposed to be carried out according to the research proposal. The main scientific problem is the determination of local and spatial nonuniform ocean surface characteristics by means of microwave, radar and optical remote sensing techniques.

Dr. Victor Raizer
Space Research Institute of the Russian Academy of Sciences

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28. Applied Astronomy Institute (IAA) in St. Petersburg

Located at 8 Zdanovskaia (aya) st., P-42, St. Petersburg, 197042. (Tel. 230-74-14, fax: (812) 230-74-13; telegrams: St. Petersburg-42, Zdanovskaia (aya), 8; teletype: 122520 BASTER; E-mail: isparan@sovam.com.) The acting Director of the Applied Astronomy Institute is Professor Andrei M.: Finkelshtein.



29. L. D. Landau Theoretical Physics Institute (ITP) in Moscow.

Located at 2 Kosyigina st. U-334, Moscow, 117948. (Tel. 137-32-44; fax: (095) 938-20-77. Under the direction of Academician Vladimir E. Zakharov, tel. 124-73-65.

Zakharov, Vladimir E., D. PM. S. Corresponding member of the General Physics and Astronomy Department of the Academy since 1984; academician since 1993. Since 1977, he has been Chief of the Plasma Physics Laboratory of the L. D. Landau Theoretical Physics Institute in Moscow. He is now the director of that institute which is located in Moscow. He also directs the Center of Nonlinear Research which is attached to the Landau Institute and heads the Russian Department of International Nonlinear Research Institute in that center. He is President of the Scientific Council on the Problem of "Nonlinear Dynamics."(ITP)

Retrospect: Created in 1965 from the Department of Theoretical Physics of the Physical Problems Institute. The institute engages in research in all aspects of Theoretical Physics, especially the theory of solids, low temperature physics, elementary particle theory, plasma theory, and the theory of laser radiation. The main branch of this institute is located in Chernogolovka. The Central Committee and the USSR Council of Ministers awarded the 1984 USSR State Prize in Science and Technology to scientists at the L. D. Landau Institute of Theoretical Physics, the Scientific Research Institute of Materials of Electronic Engineering, the Institute of Metal Physics of the Urals Department of the academy of Sciences, the All-Union Scientific Research, Planning, Design and Technological Institute of Current Sources for the series of works "The Magnetism and Electron Structure of Rare Earth and Uranium Compounds, " that were published during 1959-1982. Director Khalatnikov, Isaak M., D. PM. S., from 1966 to 1989. The current Director is Academician Vladimir Ev. Zakharov, D. PM. S. Historically the Structure and Scientific Personnel of the institute was as follows: Deputy Directors: Vladimir A. Belinskii, , C. PM. S. was a Deputy Director in 1974; and, D. V. Ulianov, in 1977; V. G. Kamenskii, was the Scientific Secretary in 1979;

(Older material)

Gravitation Theory Laboratory: Chief Khalatnikov, Isaak M., D. PM. S., (n. d.); Senior researchers Belinskii, Vladimir A., C. PM. S. '74; Starobinskii, Aleksei A. '74;

Magnetism Laboratory: Chief Dzialoshinskii, Igor Ye., D. PM. S. '69; Senior researcher, Fomin, Igor A., '77;

Mathematics Laboratory: Chief Novikov, Sergei P., D. PM. S. '78;

Metal Physics Laboratory: Chief Abrikosov, Aleksei A. '66; Senior researcher Beneslavskii, S. D., C. Tech. S. '76;

Particle Physics Laboratory: Chief Migdal, Arkadii B., '74; Senior researchers Kazantsev, Aleksandr P. '76; Migdal, Aleksandr A. '70; Poliakov, Aleksandr M., D. PM. S. '70;

Physical Hydrodynamics Laboratory: Chief Anisimov, Sergei I., D. PM. S. '75; Senior researcher Iordanskii, S. V. '71;
Plasma Physics Laboratory: Chief Zakharov, Vladimir Ye. '77; Senior researcher Pokrovskii, Valeri L., D. PM. S. '66;
Quantum Mechanics Laboratory: Chief Larkin, Anatoli I., D. PM. S. '69; Senior researcher Aslamazov, Lev G., C. PM. S. '73;
Semiconductor Laboratory: Chief Rashba, Emmanuil Yosifovich, D. PM. S. '71;
Superconductivity Laboratory: Chief Gorkov, Lev P., D. PM. S. '66; Senior researcher Gorkova, Donara M., '77;

At present, there is a Center of Nonlinear Research attached to the Institute of Theoretical Physics called "**The Russian Department of International Institute of Nonlinear Research.**" This new center is under the direction of Academician Vladimir Ev. Zakharov--who is also the Director of the Institute of Theoretical Physics.



30. Optical Physical Measurements Scientific Research Institute in Moscow.

Jointly subordinate to the State Committee on Standards. Created in 1966. Research in holography, electro-optics, crystallography, solid state physics, and shock physics. Director Stepanov, Boris M., D. PM. S., since 1966. (LDA 89-11378)



31. Special Astrophysical Observatory (SAO) at Nizhnii Arkiz.

Located at Nizhnii Arkiz village in the Karachaevo-Cherkesk autonomous region, 357148. (Tel. 93-1-00; for telegrams: Nizhnii Arkiz, Stavropolskii, Observatory; teletype: 140 Zenit 137 Ratan; E-mail: root@sao,stavropol.su) The acting Director of this special observatory is Dr. Iurii I. Balega. There is a branch of the observatory at SAO Pulkovo, M-148, St. Petersburg, 196148. This branch is under the direction of Dr. Iurii K. Zverev.

Retrospect: The Special Astrophysical Observatory was established about 1967. It conducts stellar, planetary, and extra galactic research. Site of the world's largest radio telescope. This telescope is located on the outskirts of Zelenchukskaia (aya) and contains laboratories, and the radio telescope Ratan-600 that consists of 900 rectangular elements (plates) arranged in a circle of 600 meters in diameter. The observatory also maintains a branch in St. Petersburg that has a radio telescope 130X3 meters. Its address is PULKOVO St. Petersburg 196140. These astronomy departments study the moon, the sun, the interstellar media, radio galaxies, and the background radiation of the universe. The astrophysical complex is called Nizhniaia (aya) Nauchniaia (aya) Ploschiadka--NNP--Lower Scientific Site where there are laboratories, a library, a computing center, offices, houses and a hotel. The actual observing base is located about 4 km. on the spurs of the Pastukhov Mountain, and is reached by a mountain road 16 km. long. It is called Verkhniaia (aya) Nauchnaia (aya) Ploschiadka (VNP)--Upper Scientific Site. That site has three reflectors: a big azimuth telescope, a Ricci-Cretien reflector (Z-1000), and a Z-600 VEB Karl-Zeiss-lena. Scientists there study the physics of the stellar atmospheres, evolutionary

processes, relativistic objects, binary and multiple systems of the stars; of the galaxies they study their active nuclei, dwarf, kinematics, velocity fields, clusters, and large scale distribution. Director V. L. Afanas'ev, D. PM. S. was Director of the observatory from 1986 until replaced by Acting Director Iurii I. Balega. (Information received in letter from the observatory in September 1992.) (See also: LDA 89-11378.)



32. The Spectroscopy Institute (ISAS) in Troitsk.

Moscow Region, 142092, tel. 334-08-81, fax, 334-08-86; (E-mail: root@isan.msk.su) Under the direction of Professor Evgenii A. Vinogradov.

Retrospect: Founded in 1968 on the basis of the Spectroscopy Commission Laboratory that was begun under the General Physics and Astronomy Department. In 1991 the institute had a staff of 380 persons of whom 150 were scientists and engineers, 22 holding doctoral degrees and 72 holding candidates of science degrees. Institute scientists hold one Lenin prize, four state prizes, one D. S. Rozhdestvenskii prize and one Lenin Komsomol prize for achievements in scientific research. The institute is the base institute for the quantum optics chair of the physics and power engineering problems faculty of the Moscow educational Physics Engineering Institute. Scientists at the Spectroscopy Institute work on problems relating to spectroscopy and laser analysis development, laser instrument making, and the various uses of lasers for the improvement of production in the economy. Structure and scientific Personnel: Professor E. A. Vinogradov has been the Director since the death of S. L. Mandelshtam in 1990; the two scientific Deputy Directors in 1991 were Professor V. I. Rupasov and C. N. Kompanets, D. PM. S.; the Deputy Director for administration was V. A. Vlasov; the Scientific Secretary of the institute was Oleg A. Tumanov who had been a senior researcher in an unidentified Department in 1972. The institute was comprised of five departments and two independent laboratories in October 1991.

(Older material)

The Atomic Spectroscopy Department was headed by A. N. Riabtsev--a senior researcher in the Atomic Spectroscopy Laboratory in 1973. It had two laboratories: **Plasma Spectroscopy Laboratory:** K. N. Koshelev--a junior researcher in the Picosecond Laser Department in 1976-- and the

Theoretical Sector of Electron-Spectroscopy Laboratory L. N. Ivanov. Total staff of the department and the laboratories was 26. Major researchers included: Professor U. I. Safronova, Dr. E. V. Aglitskii--a junior researcher in the Atomic Spectroscopy Laboratory in 1977-- Dr. Iurii V. Sidelnikov, Dr. E. P. Ivanova, Dr. S. S. Churilov, Dr. L. I. Podobedova, and Dr. V. G. Movshev.

The Laser Spectroscopy Department headed by V. S. Latokhov, D. PM. S.--listed as a Deputy Director in 1971. The department's personnel totaled 51 persons working in three laboratories and an ultra sensitive laser analysis center:

Laser Spectroscopy Laboratory: V. S. Latokhov;

Ultra Fast Laser Spectroscopy Laboratory Iurii A. Matveets who was a junior researcher in the Picosecond Laser Department in 1978;

Spectroscopy of Excited States of Molecules Laboratory: E. A. Riabov who was a junior researcher in the Laser Spectroscopy Laboratory in 1978, and, the

Ultra Sensitive Laser Analysis Center under Dr. Georgii. I. Bekov who was a junior researcher in the Theoretical Laboratory of the institute in 1977.

The department's major scientific researchers included: Dr. E. I. Mishin (who had been Head of the Dye Laser Department in 1977), Professor V. G. Minogin; Dr. Iurii A. Kudriavtsev (who had been a junior researcher in the Molecular Laser Department in 1977), Dr. A. I. Sidorov, Dr. S. V. Chekalin (who had been a junior researcher in the Picosecond Laser Department in 1978), Dr. A. A. Oraevskii; Professor A. A. Puretskii (who had been a senior researcher in an unidentified Department in 1977), Professor G. N. Makarov (who had been a senior researcher in the Excited State Spectroscopy Department in 1972), Dr. V. B. Laptev; Dr. L. M. Tumanova, and Dr. T. V. Zueva.

Solid State Spectroscopy Department has been under Professor G. N. Zhizhin since 1972, having two laboratories and total personnel of 24 persons.

The Crystal Spectroscopy Laboratory was headed by Professor Zhizhin in 1991. **The Vibrational Condensed State Spectroscopy Laboratory** was headed by Professor E. N. Mavrin. Major research scientists in these laboratories included: Dr. M. N. Popova, Dr. N. Iurii Agladze, Dr. E. V. Alieva, Professor V. A. Iakovlev (who was a junior researcher in the Solid State Spectroscopy Laboratory in 1979), Dr. O. I. Kapusta, Dr. V. B. Podobedov, and Dr. V. N. Denisov.

The Molecular Spectroscopy Department under Professor R. I. Personov has two laboratories, a special "group", with a total staff of some 43 persons.

The Electronic Spectra of Molecules Laboratory is under Professor R. U. Personov.

The High Resolution and the Molecular Spectroscopy and Analytical Spectroscopy Laboratory is headed by Dr. V. G. Koloshnikov (who was Head of the New Devices Laboratory in 1977);

the vibrational spectra of molecules group is headed by Professor Ia. M. Kimelfeld who served as a Deputy Director of the Spectroscopy Institute in 1985. Major scientists in the institute include: Dr. B. M. Kharlamov, Dr. N. A. Efremov, Dr. A. M. Pindik, Dr. Iurii G. Vainer (who was a junior researcher in the Electronic Devices Department in 1976), Dr. E. I. Alshits, and Dr. Iurii V. Romanovskii.

The Theoretical Department has been under Professor V. N. Agranovich since 1972 and has a total staff of 15 people among whom are these major scientists: Dr. T. A. Leskova (who was a senior researcher in 1977), Professor B. P. Antoniuk, Professor V. I. Yudson, and Professor V. E. Krabtsev. The department is composed of two major divisions or sectors:

the nonlinear spectroscopy sector (division) under Professor Agranovich, and

the phase transition spectroscopy sector (division) under Professor A. G. Malshukov. The Theoretical Department has a total staff of 15 people among whom are these major scientists: Dr. T. A. Leskova (who was a senior researcher in 1977), Professor B. P. Antoniuk, Professor V. I. Yudson, and Professor V. E. Krabtsev.

There are two "Independent" laboratories in the Institute:

Spectroscopy of Semiconductor Structures Laboratory under Professor E. A. Vinogradov who has been Director of the institute since 1991 and which has a total

staff of 14 persons that includes these major scientists: Professor D. N. Nikogosian (who was a junior researcher in the Picosecond Laser Department in 1976), and Dr. V. N. Burlakov.

The Laser Spectroscopy Devices Laboratory under Dr. O. N. Kompanets, a Deputy Director of the institute, with a staff of 26 persons. There is also a "group" on mathematical modeling with Dr. Iurii E. Lozovik in charge. Dr. Lozovik was a senior researcher in the Theoretical Laboratory of the institute in 1970.

(Troitsk: *ego istoricheskoe proshloe i nastoiashchee*, Moscow: Moscow Typographis No. 5, 1991, 48 pp. A brochure printed in both English and Russian. See pp. 22-23 for information on the Institute. Information provided by Dr. O. A. Tumanov, Scientific Secretary of the institute by letter dated 2 October 1991.)



33. Applied Physics Institute (IAP) in Gorkiy.

Located at 46, Ulianova st. GSP-120, Niznii Novgorod, 603600, tel. 36-64-21, for telegrams: Niznii Novgorod, N-gapgr@appe.nnov.su) Directed by Academician Andrei V. Gaponov-Grechov, tel. 36-66-69.

Gaponov-Grechov, Andrei V., D. PM. S. Born in 1926 in Moscow. He has been a corresponding member of the General Physics and Astronomy Department of the Academy since 1964 and an academician since 1968. He graduated from the University of Gorkiy in 1949. From 1952 to 1955 he worked at the Gorkiy Polytechnic Institute and from 1955 he worked in the Scientific Research Radio physical Institute at the University of Gorkiy. He has written fundamental works in the fields of electrodynamics, plasma physics, physical electronics, the electrodynamics of the nonlinear medium and the theory of the variations of distributed nonlinear systems. Together with M. A. Miller, he proposed a method of the channelization and acceleration of particles and of plasma with the help of non-uniform high-frequency fields. He has conducted research on induced cyclotron radiation that has allowed the construction of masers on a cyclotronic resonance for which he received the State Prize in 1967. Since 1977, he has served as Director of the Applied Physics Institute at Gorkiy that was created in 1977. Research in the institute includes plasma physics, hydrophysics, quantum electronics, and high power electronics. (GSE 6, p. 89.)

Retrospect: Created in 1977, its research includes plasma physics, hydrophysics, quantum electronics, and high power electronics. The Central Committee and the USSR Council of Ministers awarded the 1984 USSR State Prize in Science and Technology to scientists at Gomel State University in Byelorussia, the S. I. Vavilov State Optics Institute, the Institute of General Physics of the AN SSSR, the Vilnius State University, the laboratory of the U. A. Arifov Electronics Institute of the Uzbek Academy of Sciences, and to the laboratory of the Institute of Applied Physics of the AN SSSR for the series of works "Higher Efficient Nonlinear Frequency Conversion in Crystals and the Development of Adjustable Sources of Coherent Optical Radiation," that were published during 1961-1982.

(1997 update)

THE CENTRAL DIVISION of the Institute of Applied Physics has as its main objective the engineering and production activities that ensure the functioning of the Institute as a whole. The Central Division includes the science organization department, the out-of-town laboratory, the Works, the economic and building departments as well as the science departments which mainly focus on the new trends in laser physics including the femtosecond optics, the short-wave lasers (research aimed at creation of an X-ray laser), the IR laser systems with phase conjugation, the methods and facilities for high-precision optical measurements, the methods of high-rate growth of large-scale single crystals for optics.

A particular place is held by the Nonlinear Dynamics Department which, simultaneously, is part of the Russian Branch of the International Institute for Nonlinear Science.

The total number of collaborators in the Central Division is near 800 including about 100 research associates.

Professor **V. I. Bespalov**, the First Deputy Director of the IAP RAS, the Director of the Central Division, born in 1925, graduated from the Gorky State University (1953), Ph. D. in Physics & Mathematics (1959), D. Sci. in Physics & Mathematics (1971), the State Prize Winner (1983), the USSR Council of Ministers Prize Winner (1990), Honoured Scientist of the Russian Federation (1985).

Research interests:

nonlinear optics and laser physics.

The fields of research are:

Femtosecond Optics

Laser Physics and IR Nonlinear Optics

Physics of Large-Scale

Water-Soluble Crystal Growth for Optics

High-Sensitivity Optical Measurements and Interferometry



34. General Physics Institute (IGP) in Moscow.

Located at 38 Vavilov st., Moscow, U-333, GSP-1, 117942. (Tel. 135-23-66; fax: 135-02-70; E-mail: root@bst7.gpi.msk.su)

Retrospect: Established in March 1983, from a base of a department of the P. N. Lebedev Physics Institute, the institute studies lasers, solid-state physics, fusion, spectroscopy, and fiber optics. The Central Committee and the USSR Council of Ministers awarded the 1984 USSR State Prize in Science and Technology to scientists at Gomel State University in Byelorussia; the S. I. Vavilov State Optics Institute, the Institute of General Physics of the AN SSSR, the Vilnius State University, the laboratory of the U. A. Arifov Electronics Institute of the Uzbek Academy of Sciences, and to the laboratory of the Institute of Applied Physics of the AN SSSR for the series of works "Higher Efficient Nonlinear Frequency Conversion in Crystals and the Development of Adjustable Sources of Coherent Optical Radiation, " that were published during 1961-1982. Director Prokhorov, Aleksandr M., D. PM. S., since '83; Deputy Directors: Bunkin, Fedor V., D. PM.

S., since '83; Osiko, Viacheslav V., D. PM. S., since '83; and Valiev, Kamil A., D. PM. S., since '84.



35. Microstructure Physics Institute (IMP) in Niznii Novgorod.

Located at 46, Ulianova st., GSP-105, Niznii Novgorod, 683600. (Tel. 36-64-21, fax: 36-19-72; E-mail: sug@ipm.nnov.su) Under the direction of Corresponding Member Sergei V. Gaponov, tel. 36-64-83.

Gaponov, Sergei V. Corresponding member of the Department of General Physics and Astronomy of the Russian Academy in 1993. He is director of the Institute of Microstructure Physics (IMP) located in Niznii Novgorod.

There are apparently two units located at this site: the first has a Fizika teletype number: 151677 Fizika, telex number 151129 SI fax (831) 237-20-61; and E-mail: gapgr@appe.nnov.su--and it is directed by Academician Andrei V. Gaponov-Grekhov. The second is located at the same place but is directed by Corresponding member Sergei V. Gaponov.

Councils on Scientific Problems under General Physics and Astronomy Departmental Aegis:

1. United Scientific Council on Complex Problems "Physics of Condensed Medium", under President Iurii A. Osipian, 44, Building 2, Vavilov st., U-333, Moscow, GSP, 117333. Tel. 930-33-63.
2. Scientific Council on Problems of "Physics of Semiconductors", under President Vladislav B. Timofeev, 53 Leninskii ave., U-333, Moscow, GSP, 1179234. Tel. 584-50-07.
3. United Scientific Council on Complex Problems of "Plasma Physics", under President Boris B. Kadomtsev, at 38, Vavilova st., U-333, Moscow, GSP-1, 117942. Tel. 196-98-14.
4. United Scientific Council on Complex Problems of "Optics", under President Aleksandr M. Prokhorov at 48 Piatnitskaia (aya) st., Z-17, Moscow, 109017. Tel. 135-13-31.
5. Scientific Council on Problems of "Acoustics", under President Professor Leonid M. Liamshev at 4 Shvernika, U-36, Moscow, 117036. Tel. 126-90-14.
6. Scientific Council on the Problems of "Physical Electronics", under President Nikolai D. Deviatkov at 11 Mohovaia (aya) st., Center, Moscow, GSP-3, 103907. Tel. 203-32-66.
7. Scientific Council on Problems of "Radiowave Spreading", under President Neon A. Armand at 11 Mohovaia (aya) st., Center, Moscow, GSP-3, 103907. Tel. 203-60-78.
8. Scientific Council on Problems of "Nonlinear Dynamics" under President Vladimir Ev. Zakharov at 46 Ulianova st., GSP-120, Niznii Novgorod, 603600. Tel. 124-75-65.

9. Scientific Council on Problems of "Relativistic and Heavy-Current Electronics" under President Gennadii A. Mesiats at 44, Building 2, Vavilova st., U-333, Moscow, 117333. Tel. 938-18-58.
10. United Scientific Council on Complex Problems of "Astronomy" under President Viktor V. Sobolev at 14 Building 4, Leninskii ave., U-71, Moscow, GSP-1, 117901. Tel. 218-44-38.
11. Scientific Council on Problems of "Realtivistic Astrophysics and Gravitation" under President Isaak M. Khalatnikov, at MSU, Leninskiie hills, U-234, Moscow, 117234. Tel. 139-55-65.

National Committees over which the General Physics and Astronomy Department Exercises Coordination:

1. National Committee of Russian Crystallographers under President Boris K. Vainshtein at 59 Leninskii ave., U-333, Moscow, 117333. Tel. 135-65-41.
2. National Committee of the International Scientific Radio-Union under President Vladimir V. Migulin at 11 Mohovaia (aya) st., L-9, Moscow, 103907. Tel. 334-09-10.
3. National Committee of Russian Astronomers under President Aleksandr A. Boiarchuk at 48 Piatnitskaia (aya) st., Z-7, Moscow, 109017. Tel. 231-09-24.
4. National Committee of The International Optics Commission under President Aleksandr M. Prokhorov at 32a Leninskii ave., Moscow, 117993. Tel. 135-13-31.



Note: After much reflection, I have added here the I. V. Kurchatov Institute of Atomic Energy because of its long and continued relationship with the academy and many of its scientists.

I. V. Kurchatov Institute

The "Kurchatov Institute"



GENERAL INFORMATION

At present the activity of RRC "Kurchatov Institute" is directed toward the comprehensive solution of the problems of safe and ecologically clean energy production on the basis of fission and fusion reactors, fundamental physical investigations and developments in these and allied fields.

At the head of Russian Research Center " Kurchatov Institute" are:
President of the Center, academician Evgenii Pavlovich Velikhov, Lenin and State Prize winner, vice-president of the Russian Academy of Sciences;

[**Velikhov, Evgenii P.**, D. PM. S. Born in 1935 in Moscow. Russian theoretical physicist. Since 1974, he has been an academician of the General Physics and Astronomy Department of the Academy and since 1984, he has acted as academician secretary of the Information Science, Computer Technology, and Automation Department of the Academy. He graduated from Moscow State University in 1958 and began working in the Institute of Atomic Energy at once becoming head of one of its Departments in 1962. He has been a professor at Moscow State University since 1968. From 1971 to 1988, he served as deputy director of the I. V. Kurchatov Atomic Energy Institute in Moscow. In December of 1988, he was named director of this important institute that was created in 1943 to develop nuclear weapons. It is the largest institute in Russia that concentrates on nuclear research that includes all aspects of atomic energy, including plasma and solid state physics, fission and fusion reactors, and lasers. The institute is directly subordinate to the State Committee for Utilization of Atomic Energy. Since 1977, he has served as Vice President for the Physical and Mathematical Sciences Section of the academy. Since 1978, he has headed the Geophysical laboratory of the High Temperatures Institute in Moscow. Since 1978, he has served as a member of the Board of the general assembly of the GKNT. Since 1984, he has been deputy director for science of the Industrial Lasers Scientific Research Center in Troitsk that is under the USSR. Academy of Sciences. The center is comprised of scientific research divisions, a design bureau, and an experimental production facility that develops and introduces laser tools and methods into industry. His works are in low-temperature physics, plasma and magnetic hydrodynamics. Current member of Editorial board of Science in the USSR. Since 1986, he has been a Candidate Member of the Central Committee of the CPSU. In 1986, he was the recipient of the M. D. Millionshchikov Prize in atomic power engineering. (GSE 4, p. 565.)]

vice-president of the center, academician Nikolai Nikolaevich Ponomarev-Stepnoi, Lenin and State Prize winner.

[Ponomarev-Stepnoy, Nikolai N., C. Tech. S. Born in 1928. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1984, and an academician since December 1987. Since 1977, he has been a deputy chairman of the Nuclear Reactor Division of the I. V. Kurchatov Atomic Energy Institute in Moscow.]

Personnel:

Total number 8500

including

research personnel 3048
engineers and technicians 2562
workers 2198
other specialists 692

Among the research workers of Kurchatov Institute are **13 members of the Russian Academy of Sciences**, 900 doctors and candidates of sciences; 50 scientists are

Lenin prize winners; 165 are State prize winners; 17 scientists are awarded Gold Medals and the prominent scientists' prizes of the Academy of Sciences.

Russian Research Center "Kurchatov Institute" has a powerful resource-intensive scientific and experimental base including large-scale and complex facilities: plasma thermonuclear facilities, nuclear reactors for diverse purposes, accelerators of various types, test facilities and other unique research installations; a design base; and great experimental productive capacities. All this ensures the fulfillment of the complete cycle of investigations from a scientific concept to the development of a technology and the manufacturing of a finished product.

CONTACT TELEPHONES

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Vice-president of RRC " Kurchatov Institute "
PONOMAREV-STEPNOI Nikolai Nikolaevich

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fax.: 943-00-74

Director of RRC
RUMYANTSEV Aleksandr Yur'evich

tel.: 196-71-36
fax.: 196-18-70

Director of RRC for foreign affairs
GAGARINSKI Andrei Yur'evich

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ADDRESS:

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E-mail: epv@ITERcoun.msk.SU

HISTORY

The Russian Research Center "Kurchatov Institute" was established by the Decree of President of Russia in November 1991 on the basis of the **I. V. Kurchatov Institute of Atomic Energy** founded in 1943 by the decision of the State Defence Committee to solve the problem of nuclear weapon development.

Academician Igor Vasil'evich Kurchatov, Thrice Hero of Socialist Labor, awarded Lenin and state prizes, became a founder and the first director of the Institute.

From 1960 to 1988 I.V. Kurchatov Institute of Atomic energy was headed by academician Anatolii Petrovich Aleksandrov, Thrice Hero of Socialist Labor, awarded Lenin and State prizes, President of the USSR Academy of Sciences from 1975 to 1986.

Established at the height of World War II to solve the purely defense problem and having solved it for a sufficiently short time, Kurchatov Institute became eventually to solve a very wide range of military, civil, applied, and fundamental problems.

This range was expanded constantly to cover practically all the areas of natural science. The share of fundamental science increased all the time as the works of defense orientation were steadily reduced and converted as well as in connection with the disarmament problems. The new problems demanded the experimental basis to be extended and the staff to be increased. Many active young scientists graduated from the special chairs of a number of the educational institutes came to the Institute. And all this together with the necessity of solving the scientific problems, inevitably arising in creation and improvement of the new technique, required extension of the range of the fundamental studies carried out at the Institute, with constant reduction of defense-- oriented projects and due to the demands of disarmament. Kurchatov Institute soon came to the front line in solving the most advanced trends of the fundamental science beyond the framework of the branch atomic ministry under whose authority the Institute was placed. At the same time a high-capacity resource--intense scientific and experimental basis including large sophisticated installations such as research nuclear reactors, thermonuclear fusion systems, accelerators etc. as well as large computer complexes and developed design and production basis, exceeded the accepted limits of the academic institute, so Kurchatov Institute accomplishes, as a rule, the whole R and D run beginning from the birth and substantiation of the scientific idea and terminating with creation of experimental technologies and developments.

Therefore, it became clear that for the reason of maintaining the intellectual potential and the unique experimental basis of the Institute, it needed a new special status. It has received such a status in accordance with the decision of the President and the Government of Russia. The State has assumed the obligation of basic financing the Center i.e. to allocate funds for maintenance of the experimental basis and infrastructure. The rest of the expenses have to be covered with its own financial resources earned by winning at contests, obtaining orders for carrying out research and development works, participating in development of various projects and expertises (independently of any branch departments) both in our country and abroad.

The scientific and technical level of the Kurchatov Institute specialists, well known in the world, permits to expect that in its new status the Institute's staff will be able to keep its high rank in the world science.

DEPARTMENTS OF RRC "KURCHATOV INSTITUTE"

INSTITUTES (Departments with Institute Status):

**Institute of Nuclear Reactors
(Director: Kukharkin N.E.)**

**The Nuclear Reactor Institute
Russia, 123182, Moscow, Kurchatov square
telex: 417618, Shuga 411594, Shuga
fax: (095) 196-61-72
E-mailinfo@inr.net.kiae.su**

VVER Division
Head of division: Gleb L. Lunin

The VVER Division of Institute of Nuclear Reactor (NRI) specializes in pressurized water reactor engineering.

In the Institute the first Soviet nuclear reactors have been developed, the progress in nuclear power and nuclear reactors for special purposes has commenced, fundamentals of the nuclear reactor physics as a branch of science have been assumed as a basis. The Institute solves complex scientific and engineering problems, providing realization of the state politics and creation of a scientific basis in the sphere of nuclear power progress, development and mastering of effective, safe and ecologically clean energy sources based on nuclear fission reactions.

The main directions of the VVER Division activity:

development of concepts of nuclear power progress;

development of scientific and technical fundamentals of reactor engineering and nuclear power, carrying out fundamental and search investigations in this field, primarily--concerning safety problems;

the scientific leadership by development, construction and operation of nuclear power plants (NPP);

improvement, enhancement of reliability and safety of operating reactor plants and NPP;

the development of effective and safe reactor plants and NPP based on new ideas, technologies and technical decisions.

Under the scientific auspices of the VVER Division there have been created and are operated the reactor plants VVER-440 and VVER-1000 for NPP, projects have been developed and are realized for reactor plants for AST, low power reactor plant series, etc.

Projects of new generation power reactors based on traditional technologies but ensuring the ultimate permissible safety level are being developed. Projects of advanced, based on new ideas, reactor plants are being developed in which the self-protection principles are realized, passive safety means are ensured.

The VVER Division is the crew of specialists, scientists, engineers-investigators, programmers, designers, technicians and workers, having:

specialized fund (bank) of algorithms and programs and data base in the reactor physics, radiation transfer, radiation protection (OFAP-NR), with a number of codes fully qualified by Gosatomtekhnadzor;

advanced experimental base making it possible to carry out investigations on physics of various types of reactors, thermal physics, hydraulics, gas dynamics, special investigations on safety problems, etc.;

design office and pilot-scale production with wide potentialities.

The Division performs a wide international cooperation with leading firms and institutes of the West Europe and USA. Traditional cooperation with East Europe and Asia countries is preserved. Along with solution of its main problems

The VVER Division is ready to perform applied and fundamental investigations needed for other branches of national economy and science in such fields, as:

neutron physics, radiation transfer, radiation safety and protection; thermal physics, hydro- and gas dynamics; strength physics, radiation and thermal resistance of materials; mathematical physics and applied mathematics; diagnostics and monitoring and control systems.

the following can also be performed:

examination of designs and solutions in the reactor engineering and nuclear power;

examination of softwares and knowledge bases used in this field;

development, delivery and management of softwares and knowledge bases and artificial intellect systems for various purposes;

development and creation of computer networks;

manufacturing and delivery of sensors and systems measuring radiations, temperature, pressure;

manufacturing and delivery of monitoring systems and automatic check systems for technological processes (ACS TP);

development and manufacturing of installations and equipment, including those within the jurisdiction of Kotlonadzor (Vessel supervision) and Atomnadzor (Atom supervision);

development and production of plants for solving ecological problems associated with galvanic productions of works and enterprises (galvanic processes).



Institute of Reactor Technologies and Materials
(Director: Ryazantsev, E. P.)

The basic trends of the Kurchatov Institute activity in the fields of radiation material and reactor technology researches are the following:

Development of the concepts and scientific and engineering basis of reactor material science; studies to the basic regularities of plastoelastic deformation and creep; mechanics of destruction of reactor materials and structure being hard strainstress state, and nuclear power safety and economy relating questions.

Fundamental, research, and applied studies in these fields; scientific guidance and management of development and manufacture of nuclear fuel, fuel elements, fuel assemblies and load-carrying structures of the cores of various-purpose nuclear reactors including reactor vessels, core internals and process channels. Development of water chemistry and gas conditions in the reactor plants and technology of their maintaining.

Conduction of fundamental, research, and applied studies in the field of radiation material science and physics of radiation damage, technology of nuclear and new structural materials, micromechanics of solid deformed body. Investigations into the structure and kinetic aspects of microprocesses of material deformation and destruction.

Experimental and calculation substantiation of the reliability and service life of the cores of various purpose reactors, including development of the safety criteria and principles.



Development of the concepts and scientific and engineering basis and updating of the test and research nuclear reactors (RNR), including the safety; questions, fundamental and research studies in this field, scientific guidance and management of development and construction of the RNR as well as the technical support of their operation.

Development of new and reconstruction of the operating RNR designs; working out of the concepts and substantiation of the principles of the RNR decommissioning.

Calculation and experimental studies and substantiation of the strength and service life of the nuclear reactor elements and structures, equipment of nuclear power plant and other industrial and power-generating objects.

Development of the methods and technological process of production of radioactive isotopes for medicine, engineering and industry. Production of isotopes in the reactor plants.



Nuclear Safety Institute
(Leonid A. Bol'shov (Bolshov), D. PM. S.)

Scientists at the institute study the methodology of programming for the safety of the use of nuclear material in Russia and the problems of safety of atomic energy, the ecological problems resulting from the use of atomic energy, and the disposal of nuclear waste. Since 1991, the Director of the institute has been Leonid A. Bol'shov (Bolshov), D. PM. S.

Scientists and engineers at NSI RRC KI conduct a wide range of basic and applied research and development to advance the nation's energy resources, environmental quality, scientific knowledge, educational foundations, and economic competitiveness. NSI RRC KI collaborates in these activities with other federal agencies and industry.



Institute of Nuclear Synthesis
(Director: academician Kadomtsev B. B.)

[**Kadomtsev, Boris B.**, D. PM. S. Born in November 1928 in Penza. Russian physicist. Corresponding member of the General Physics and Astronomy Department of the Academy since 1962, and academician since 1970. He graduated from Moscow State University in 1951 and began working immediately at the Institute of Physics and Energetics in Oblinsk. He began working at the Atomic Energy Institute in 1956. Since 1973, he has been chairman of the Plasma Physics Division of the State Committee for the Utilization of Atomic Energy. His principal researches are in plasma physics and in the problem of controlling thermonuclear fusion. He has predicted some types of transient plasma and has laid the foundations for the theory of the diffusion and thermal conduction in turbulent plasma (the transport phenomena). He has also provided a quantitative explanation of the anomalous behavior of plasma in a magnetic field. In 1966, he discovered the instability of plasma involving the so-called trapped particles. He has published three major theoretical works in his field. He received the State Prize in 1970 and in 1984, he was awarded the Lenin Prize for the creation of a new branch of physics--high temperature plasma physics. He is President of the United Scientific Council on the Complex Problem of "Plasma Physics."(GSE 11, p. 333.)]

One of the most important factors determining the progress in implementing controlled nuclear fusion is a high level of theoretic studies in high-temperature plasma physics.

M. A. Leontovich and his school are the authors of some key physical ideas that have played a fundamental role in the development of basic approaches to controlled fusion. The Leontovich's ideas on balancing the toroidal expansion of a current-carrying plasma by a conducting shell and on stabilizing the plasma loop by an intensive magnetic field stimulated a Tokamak design whose basic idea was proposed by academicians I. E. Tamm and A. D. Sakharov.

A Tokamak approach developed at the Kurchatov Institute was recognized worldwide as the most promising. Tokamak plasma parameters achieved were confirmed in experiments at similar systems in the USA, Japan, England, France.

In 1975, a large T-10 fusion device was commissioned. Even the early T-10 experiments confirmed the earlier-discovered laws governing the processes proceeding within the plasma. This increases the reliability of plasma parameters predicted theoretically for the future fusion reactors. Joule heating of the plasma (heating by the current flowing in the plasma) appears to be low efficient for bringing a plasma temperature to the level required for a thermonuclear fusion reactor to proceed. The researchers attention was attracted by HF heating and neutral injection methods. Experiments showed that heating the plasma at an electron cyclotron resonance frequency makes it possible to increase 1.5 or 2 times the electron temperature. Preliminary T-11 tokamak experiments with neutral injection also confirmed the efficiency of this method.

In 1988 the construction of the largest in this country T-15 tokamak facility was completed and the facility adjustment began.

Superconducting coils of T-15

Besides the above mentioned plasma heating methods, the facility is equipped with a superconducting winding serving to reduce Ohmic loss in generating a toroidal magnetic field.

The Kurchatov Institute is a scientific leader of Russian design studies under the ITER International project. The scientists' team of the Institute specifies the project scientific tasks, conceptual solutions on a reactor, its performance and basic parameters, formulates the project engineering and technical goals directed towards achieving a controlled fusion serving a potential power source. The Institute provides the development of plasma physics experimental and theoretical databases which serve the basis of the project. Fusion reactor specific features require an original approach to solving engineering and physics problems of nuclear technology, the problems of energy removal and conversion, structural materials, radiation safety, reliability, etc. These problems are also being solved at the Kurchatov Institute.

The demands of the national controlled fusion program stimulated the creation of novel present-day technologies. Basing on a wide experience gained in producing, in particular, high intensity ion and plasma flows, high-power flows of electromagnetic radiation in optical, RF and X-ray energy ranges, strong pulsed magnetic fields and electric currents, the effect of the latter on the surfaces of various materials and products was studied. It was established that this can result in various technological effects: surface cleaning and target material sputtering, ion-chemical etching, alteration of physical and chemical surface layer properties as a result of accelerated ion penetration, deposition of different material thin films on finished products etc.



Institute of General and Nuclear Physics
(Director: academician Belyaev S.T.)

[**Beli**iev, (**Belyaev**) **Spartak T.**, D. PM. S. Born in 1923 in Moscow. Russian physicist. Corresponding member since 1964, and academician of the Nuclear Physics Department of the AN SSSR and the RAN and of the Siberian Department since 1968. He graduated from Moscow State University in 1952. From 1952 to

1962, he worked at the I. V. Kurchatov Institute of Atomic Energy. After 1962, he worked at the Institute of Nuclear physics of the Siberian Department of the AN SSSR and the Russian Academy of Sciences, and since 1965, he has served as rector of Novosibirsk University. Since 1969, he has been head of Theory Laboratory of the Nuclear Physics Institute in Novosibirsk. From 1967 to 1978, he was a member of the Presidium of the Siberian Department. Since 1983, he has served as head of the General and Nuclear Physics Division of the I. V. Kurchatov Atomic Energy Institute in Moscow. He has worked on relativistic plasma, the quantum theory of many particles, and the theory of the atomic nucleus. He is a deputy to the Academician Secretary of the Nuclear Physics Department of the Academy. (GSE 3, p. 141.)]

A Great Volume of Fundamental Research in the field of Nuclear Low-and Medium Energy Physics is being carried out at the Kurchatov Institute. The first area of research activities involves experiments on charged-particle accelerators. The own accelerating base is restricted to low energies. A cyclotron and four electrostatic generators (one of which is tandem) are usually used for search works, adjustment of original methods and obtaining early results with which it is possible to develop further the joint works on a more perfect experimental basis in different centers. The works of this kind has been currently performed and planned to be performed in collaboration with, in particular, the Institutes of Germany (Darmstadt, Berlin, Karlsruhe), Finland, Japan. The research area covers new "hot spots" of nuclear physics, such as "nuclear rainbow", neutron halo in light nuclei, nuclei over enriched in neutrons including those produced by reactions with secondary radioactive beams.

Second, the activities in the field of relativistic nuclear physics involving experiments with high-energy heavy ion beams were started in IGNP using the Dubna and Berkeley accelerators. The activities in this field is currently under intensive development. The IGNP teams are involved in the International collaborations and the Darmstadt, CERN, Brookhaven activities. Great collaborative efforts are being made on future experiments on new-generation accelerators under construction in CERN (LHC) and Brookhaven (RHIC).

Neutron and fission physics are presented with fine effect studies, for example, three-part division, studies on exotic division resonances, beta-decay of short-lived fission fragments, parity nonconservation effects in fission and neutron passage through matter. Intensive studies on ultracold neutrons yielded one of the best values of a neutron life. These studies are being performed in the channels of the IR-8 test reactor and the reactor in Gatchina. Our proposals are being regularly adopted and joint works are being performed at the European Reactor Center in Grenoble. Sophisticated measurements of nuclear constants, e.g. of fission cross-sections for rare transuranic isotopes are being performed and sometimes with only a few nanograms of matter. For first time obtained was a fission cross-section for uranium-235 from an isomeric state. The studies of neutrino and weak-interaction physics and widely presented. Two teams carry out studies on reactions with reactor antineutrino on commercial reactors in Krasnoyarsk and Rovno. These teams possess more than 70% of the world statistics data and the most precise results. The process has been studied of a backward beta-decay of a neutron (antineutrino-proton interaction and the limits have been posed on the parameters of neutrino oscillations; the data has been obtained on an antineutrino interaction with a neutron in a charged and neutral channels, and on antineutrino scattering by electrons (which has yielded the best limit on an antineutrino magnetic moment),

these studies are planned to be extended to include a collaboration with a French team (IN2P3) of Bouge reactor.

Studies on double beta-decay adjoin those on neutrino. A joint experiment is underway in collaboration with a team at Max-Planck Institute in Heidelberg. The experiment involves detectors of enriched germanium-76 in an underground laboratory in Gran-Sasso, Italy. Experiments are planned with an isotope of calcium-48.

Experiments with neutrino, like a search for a double beta-decay, require a sophisticated technique to produce large detectors and to perform low-background measurements. The experience required for performing studies of this kind were being accumulated for years in different laboratories in carrying out both fundamental and applied works in different laboratories in carrying out both fundamental and applied works in different areas. In particular, helicopter systems of detecting nuclear weapons on board the warships were constructed and taken into service. Analogues of such systems were used in the first months after the Chernobyl accident to monitor and map radioactive fallout.

A relatively new approach is that involving synchrotron radiation (SR). In 1984, on a new commissioned small electron accumulator "Sibir-1" (0.45 GeV electron energy), studies were initiated on photon beams in the ultraviolet and soft X-ray spectral. Some experimental teams were established that obtained some original results (in studies on luminophores, high-temperature superconductors, cryocrystals, some others). SR studies have also resulted in international cooperation (with Germany, Japan, England, USA). At present, an SR source in the hard X-ray range, large accumulating ring "Sibir-2", is under construction (2.5-GeV electron energy). Now this work is close to completion, the injector is under adjustment, the accumulator is being mounted, radiation input channels and experimental stations are being prepared. The "Sibir-2" commissioning will mean the creation of the first in this country specialized SR center which would help to perform simultaneous research in various fields ranging from materials science to biology and medicine.



Institute of Superconductivity and Solid State Physics

(Director: corresponding member of the Russian Academy of Sciences Chernoplekov N. A.)

[Chernoplekov, N. A. D. PM. S. Corresponding member of the Academy in 1993. Currently he is the director of the Institute of Superconductivity and Solid State Physics which is part of the present-day Kurchatov Institute of Atomic Physics which studies and researches the structure, excitation spectra, thermodynamical, kinetic and other properties of the condensed media in the crystal, disordered, amorphous and thin film states; radiation-matter interactions; quantum crystals and liquids; superconducting state and properties of the superconductors both of the helium level of temperatures and high temperature; and the behavior of substances under external conditions of low temperatures, strong magnetic fields, and high pressure.]

The trend of theoretical and experimental studies into the solid state physics were officially formed in the Kurchatov Institute in the late 60s. But long before this the

remarkable traditions of solid state investigations had existed at the Institute. They were established by academician I. V. Kurchatov, the founder of the Institute, who before the war had carried out the fundamental studies on ferroelectrics and later, in the mid-50s, supported actively the solid state works just started at the Institute by academicians A. P. Aleksandrov and I. K. Kikoin, Kurchatov's associates.

In addition to the notes about the traditions it appears appropriate to remind that in the late 50s and the early 60s the world-known works on the theory of condensed state of matter were carried out by A. B. Migdal, S. T. Belyev, V. M. Galitski, and Iurii M. Kagan, and the experimental studies made at the boundary between the nuclear and solid state physics leading, particularly, to discovery of strong local magnetic fields on the nuclei of diamagnetic elements implanted into the ferromagnetic metal matrix (B. N. Samoilov, V. V. Sklyarevski et al), to finding the general regularities in the spectra of thermal excitation of crystals (phonon spectra) by inelastic scattering of cold neutrons on specimens of the crystals with a zero average amplitude of the coherent scattering and the crystals with heavy and light substitutional impurities (N. A. Chernoplekov, M. G. Zemlyanov), as well as to the formation of the basic ideas about the superconducting state stability in the magnetic systems, and to creation of the superconducting solenoids with the high (by the standards of that time) parameters (B. N. Samoilov, V. E. Keilin, E. Iurii Klimenko et al.). The above mentioned works are only a part of the investigations on the solid state physics carried out at the Kurchatov Institute. The large arsenal of the theoretical and experimental methods created in the nuclear physics together with the development in the solid state physics should be extremely fruitful both for the solid state and nuclear physics itself. On the other hand, the fundamental and applied studies on solid state physics carried out on this new basis should give rise to the new possibilities for practical use of the investigation results for the needs of the technique and industry and, first of all, for the nuclear engineering and industry.

At present the solid state physics studies are being conducted in the following directions:

structure, excitation spectra, thermodynamical, kinetic and other properties of the condensed media in the crystal, disordered, amorphous and thin film states;

radiation-matter interactions;

quantum crystals and liquids;

superconducting state and properties of the superconductors both of the helium level of temperatures and high temperature;

behavior of substances under external conditions of low temperatures, strong magnetic fields, and high pressure.

The important feature of these works is that they employ the nuclear physical methods (scattering of neutrons, electrons, X-rays, synchronous radiation, EPR, NMR, and SR-spectroscopy) parallel with the methods traditionally used in the solid state physics. At the same time in the Kurchatov Institute a large amount of applied research primarily to the field of technical superconductivity is carried out: practical application of both the low temperature (LTSC) and high-temperature (HTSC) superconductors for the current engineering needs. These works include:

working out of the physical principles and development of the concrete designs of technical heavy-current superconducting materials; development of the methods and instrumentation for studying and control of technical superconductors including those to be used at industrial enterprises; development of superconducting magnetic systems both for scientific and applied research. Usually development of the superconducting magnet is carried out simultaneously with designing of the relevant cryogenic, electrotechnical, and diagnostic systems.

Another trend in the applied research is the works on the physics of the linear electron accelerators (LEA) and applied nuclear physics using the linear accelerator beams (electron, gamma, and neutron) aimed at the development of the technologies for science, medicine, industry.

In the framework of the applied research carried out at the Division a new trend of works has been recently formed, using the method for intensification of the heat- and mass-exchange. The results of these works indicate the real possibilities of essential enhancement of the functional and economic efficiency of a wide spectrum of energy-generation and energy-conversion devices both in science and industry.



Institute of Molecular Physics
(Director: Prusakov V.N.)



Institute of Applied Chemical Physics
(Director: Chaivanov B. B.)



Institute of Hydrogen Energy and Plasma Technologies
(Director: academician Rusanov V. D.)

[Rusanov, Vladimir D., D. PM. S. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1984; academician in 1993. He is presently the Director of the Institute of Hydrogen Energy and Plasma Technologies of the Kurchatov Institute which is involved in applying the use of hydrogen as an ecologically clean fuel for use in industry and the generation of nuclear power.]

One of the top-priority tasks of the present is a radical ecological reorganization of the industry and nuclear power. A most general method of solving this problem consists in a wide application of hydrogen which is in fact the only ecologically clean fuel.

Formation of a new subject occurred at the beginning of seventies and passed two stages: first, research in basic plasma chemistry and formulation of applications, second, hydrogen power (or "nuclear hydrogen power"). Hydrogen power also passed two stages of development: the first "economic" stage when a catastrophe due to depletion of world power resources (oil, gas) was considered real, and the second "

ecological " stage when it became clear that the use of conventional fuels in power production, transport, chemistry, metallurgy, leads to irreversible catastrophic consequences (acid rains, green-house effect, ozone deficiency, etc.). The recognition of the second problem resulted in merging and interpenetration of two approaches which defines today the basic tasks of hydrogen power and plasma technologies and brings the ecology into focus.

A wide experience gained by the scientists of the Kurchatov Institute in physics and engineering of gas-discharge plasma is sufficient to solve already today key tasks of contemporary technology and ecology. Among these tasks are those of, in particular, a large-scale plasmochemical and electrochemical production of hydrogen as a fuel containing no carbon or sulphur, hydrogen safety of NPP, processing of hydrogen sulfite which is a major oil and gas contaminant, plasma cleaning of process gases from SO₂ and NO_x, managing acid rains, gas mixture separation by high-selectivity membranes, etc.

Thus, one of the basic questions of the present-day ecology is solving the task of large-scale production of cheap hydrogen.

The main highly promising and universal method of hydrogen production is the production from water using plasmochemical and electrochemical processes. Since hydrogen is a secondary fuel, hydrogen power should rely on primary power sources, enhanced-safety nuclear power, solar, wind, tide etc. All the above problems are also related directly to gas- and oil refining in the aspect of producing more ecologically clean fuel, and to metallurgy, transport, etc.

Another important problem is hydrogen safety of nuclear power plants and other hydrogen-involving productions. Here, integrated studies are required based on correctly chosen concepts and methods of controlling hydrogen concentrations in large volumes. The basis for these original research approaches is laid by the efforts of the Kurchatov Institute Staff.



Institute of Information Technologies
(Director: Aleksandrov P. A.)



Institute of High Technologies and Experimental Machine Building
(Director: Gnedenko V. G.)



SCIENTIFIC-TECHNOLOGICAL COMPLEXES:

Scientific-technological complex "Systems Analysis"
(Director: Gorlinskii Iurii E.)

Scientific-technological complex "Electronics"
(Director: Iakovlev G. V.)

Subsidiary enterprise "Information Computer Complex"
(Director: Soldatov A. A.)

Engineering productive complex
(Director: Pasechnikov A. M.)

BASIC LINES OF ACTIVITY of the Kurchatov Institute

Safe development of nuclear power (Nuclear power and its fuel Cycle):
nuclear power installations for nuclear plants, including safety problems;
commercial nuclear reactors;
marine nuclear power installations;
space nuclear power systems;
research reactors and reactor materials technology;
isotope separation;
ecologically clean energy;
atomic hydrogen energy.

CONTROLLED THERMONUCLEAR FUSION AND PLASMA PROCESSES

One of the most important factors determining the progress in implementing controlled nuclear fusion is a high level of theoretic studies in high-temperature plasma physics.

M. A. Leontovich and his school are the authors of some key physical ideas that have played a fundamental role in the development of basic approaches to controlled fusion. The Leontovich's ideas on balancing the toroidal expansion of a current-carrying plasma by a conducting shell and on stabilizing the plasma loop by an intensive magnetic field stimulated a Tokamak design whose basic idea was proposed by academicians I. E. Tamm and A. D. Sakharov.

A Tokamak approach developed at the Kurchatov Institute was recognized worldwide as the most promising. Tokamak plasma parameters achieved were confirmed in experiments at similar systems in the USA, Japan, England, France.

In 1975, a large T-10 fusion device was commissioned. Even the early T-10 experiments confirmed the earlier-discovered laws governing the processes proceeding within the plasma. This increases the reliability of plasma parameters predicted theoretically for the future fusion reactors. Joule heating of the plasma (heating by the current flowing in the plasma) appears to be low efficient for bringing a plasma temperature to the level required for a thermonuclear fusion reactor to proceed. The researchers attention was attracted by HF heating and neutral injection methods. Experiments showed that heating the plasma at an electron cyclotron resonance frequency makes it possible to increase 1.5 or 2 times the electron temperature. Preliminary T-11 tokamak experiments with neutral injection also confirmed the efficiency of this method.

In 1988 the construction of the largest in this country T-15 tokamak facility was completed and the facility adjustment began.

Besides the above mentioned plasma heating methods, the facility is equipped with a superconducting winding serving to reduce Ohmic loss in generating a toroidal magnetic field.

The Kurchatov Institute is a scientific leader of Russian design studies under the ITER International project. The scientists' team of the Institute specifies the project scientific tasks, conceptual solutions on a reactor, its performance and basic parameters, formulates the project engineering and technical goals directed towards achieving a controlled fusion serving a potential power source. The Institute provides the development of plasma physics experimental and theoretical databases which serve the basis of the project. Fusion reactor specific features require an original approach to solving engineering and physics problems of nuclear technology, the problems of energy removal and conversion, structural materials, radiation safety, reliability, etc. These problems are also being solved at the Kurchatov Institute.

The demands of the national controlled fusion program stimulated the creation of novel present-day technologies. Basing on a wide experience gained in producing, in particular, high intensity ion and plasma flows, high-power flows of electromagnetic radiation in optical, RF and X-ray energy ranges, strong pulsed magnetic fields and electric currents, the effect of the latter on the surfaces of various materials and products was studied. It was established that this can result in various technological effects: surface cleaning and target material sputtering, ion-chemical etching, alteration of physical and chemical surface layer properties as a result of accelerated ion penetration, deposition of different material thin films on finished products etc.

design of the International thermonuclear reactor ITER;

investigations on the thermonuclear complexes TOKAMAK-10 and TOKAMAK-15;

fundamental investigations on physics of pulsed plasma systems.

Low- and medium-energy nuclear physics:

fundamental investigations on nuclear physics and elementary-particle physics;

use of charged particle beams for investigation of materials and development of new technologies;

nuclear-physical study of matter;

establishment of a Moscow international center of synchrotron radiation;

development of methods and detection systems for recording of charged and neutral particles;

nuclear medicine; muonic catalysis and alternative methods of breeding.

SOLID STATE PHYSICS AND SUPERCONDUCTIVITY

The trend of theoretical and experimental studies into the solid state physics were officially formed in the Kurchatov Institute in the late 60s. But long before this the remarkable traditions of solid state investigations had existed at the Institute. They were established by academician I. V. Kurchatov, the founder of the Institute, who before the war had carried out the fundamental studies on ferroelectrics and later, in the mid-50s, supported actively the solid state works just started at the Institute by academicians A. P. Aleksandrov and I. K. Kikoin, Kurchatov's associates.

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high-temperature superconductivity;

solid-state physics and engineering superconductivity; investigations of matter under extreme conditions.

Besides the above lines of its activity Kurchatov Institute is engaged in fundamental and applied research in the field of molecular physics, physical and inorganic chemistry, chemical physics, plasma physics and chemistry, safety of new technologies, ecology, element base of microelectronics, informatics, etc.



The first Russian Nuclear Plant Station



Nuclear weapons research began here

{The chronology of nuclear weapons research within the IPPE given below is of such interest that I have included it here.}

The Institute of Physics and Power Engineering (IPPE)

The Institute of Physics and Power Engineering (IPPE) was established on May 31, 1946 to solve scientific and technical problems of nuclear power development.

In 1951 the IPPE was charged with the task of construction of nuclear power plant. The world's first NPP, with the thermal power of 30 MW (5 MWe) was commissioned on June 27, 1954. After 5 year operation as a nuclear power plant, it has been in use as a research facility to test the channels generating electricity in direct thermionic energy conversion mode, for research of nuclear materials, production of isotopes, etc.

The Institute has become a major research and development center dealing with complex studies on the problems of reactor development for nuclear power facilities (NPPs), for various purposes. Solution of serious problems in science and technology is possible due to a high scientific potential of the IPPE where 67 Doctors, 370 Candidates of Science work, and about 4000 research workers and engineers altogether work, and an up-to-date experimental and production base has been created.

In April 1994, the IPPE was given the status of the State Research Center of Russian Federation (SRC IPPE). Its organisation structure corresponds to the main directions of its activities.

Facts from the history of IPPE (1945-1996)

December 19, 1945 The decision was made on organisation of "B" Laboratory near Obninskoe railway station, 105 km far from Moscow.

1947 Three scientific departments were formed with 8 laboratories included: theoretical, radio-chemical and reactor material research ones.

1949 A. I. Leypunsky was ordered to head the scientific department of the "B" Laboratory.

1950 The beginning of the activities concerning non-military applications of the atomic energy.

September, 1951 V. A. Malykh's laboratory started design works on heat-generating items for the First NPP's reactor.

April, 1953 The decision was made on construction a facility with nuclear power units 27/VM (water cooled) and 27/VT (liquid metal cooled) in the "B" Laboratory.

August, 1953 The subsidiary of the Moscow Physics Engineering Institute was opened.

May 9, 1954 Fuel channels were loaded into the First NPP's core. Physical start of the First NPP.

June 26, 1954 Energetical start of the First NPP.

April 29, 1955 The first experimental 100 W fast breeder BR-1 was started.

March 15, 1956 The decision was made on building Beloyarskaya NPP.

- 1956** The creation of the largest in the USSR Sodium Laboratory with 11 facilities was finished.
- 1957** The decision was made on building mobile NPP TES-3.
- 1958** Hot Laboratory equipped with protected cameras for radio-chemical and material research was introduced.
- January, 1959** Sodium-cooled fast reactor BR-5 was started and its power achieved 5 MW in June.
- August 25, 1960** The decision was made on renaming "B" Laboratory to Institute of Physics & Power Engineering (IPPE).
- 1960** In co-operation with OKBM, OKB "HydroPress" and NIPIET design works on the fast breeder BN-350 in Shevchenko were started.
- 1961** The BFS facility was introduced to perform fast reactor cores modelling.
- 1963** In co-operation with TV "EnergoBlock" design works on the Bilibinskaya NHPP project were initialized.
- 1963** The Nuclear Data Center (NDC) was introduced in the IPPE. This Center works in co-operation with the same centers in USA (Brookhaven), in France (Sakle) and IAEA (Vena).
- 1969** The experimental sodium-cooled fast breeder BOR-60 was started in Melekes. This reactor was designed under scientific control of IPPE and OKB "HydroPress".
- April 21, 1970** Complex testing of the nuclear thermo-emission installation "Topaz" were successfully held in IPPE.
- 1971** The unique aerodynamics installation was constructed for the hydrodynamics research of reactors in TFK-1.
- 1975** The chemistry researchers group headed by A.G. Karabash developed the new branch in high precision substance analysis-- chemical-spectral methods.
- 1977** The Computational Center of the Mathematical Department was introduced.
- 1980** The Heat-Physics Data Center was created .
- 1982** The Chemical-Laboratory Building was built.
- 1984** The fast breeder fuel utilization program developed in IPPE in co-operation with VNIINM was started at Mayak plant.
- February 2, 1987** The "Topaz" thermo-emission nuclear power installation embedded into the space apparatus "Kosmos-1818" was lead to the orbit.
- 1989** Test amount of Tc-99M was produced. Serial production of medical-aided substances was initialized.

1990 Construction of the demo facility with nuclear-pumped laser "OKUYAN" was started.

1994 In co-operation with NIKIET the technical project of the 2nd line of Bilibinskaya NHPP was designed.

March 29, 1994 The Government of the Russian Federation granted the State Scientific Center status to the IPPE.

1995 Physical & energetical starting of the "OKUYAN" initialization reactor were held.

1995 The technology was developed for exposition of thin-layer materials for the EGP-15 accelerator.

The IPPE has been formed by the efforts of outstanding scientists in various fields of activities. The following scientists made an inestimable contribution to the Institute progress:

Aleksandr Ilyich Leypunsky (1903-1972), one of the IPPE founders, an academician of the Ukraine Academy of Sciences, a scientific supervisor of the Institute and of all the trends of liquid metal reactor designing. He worked in the IPPE from 1949 to 1972.

Dmitriy Ivanovich Blokhintsev (1908-1979). In 1950-1956 he was the director of the Institute. He was one of the creators of the first in the world nuclear power plant, associate member of the Academy of Sciences of the USSR, the head of the theoretical department.

Igor Ilyich Bondarenko (1926-1964). He worked in the Institute in 1950-1964 as a deputy director, doctor of physical and mathematical sciences, professor, a leader of works in nuclear physics. It was he who initiated the work on reactors with thermionic power conversion. He was the leader of the team engaged in the development of the first system of multigroup nuclear data for fast reactor calculations.

Andrey Kapitonovich Krasin (1911-1981). He worked in the IPPE in 1946-1961. In 1956-1959 he was the director of the Institute. He was one of the creators of the first in the world nuclear power plant, doctor of physical and mathematical sciences, professor, a leader of the work on thermal reactor design.

Vasiliy Savvich Lyashenko (1908-1961). He worked in the Institute in 1950-1961 as a head of the material study department, doctor of chemical sciences, professor, and was a supervisor in the investigations of metal corrosion in liquid metal coolants.

Vladimir Aleksandrovich Malykh (1923-1970). He worked in the IPPE in 1949-1970 as a deputy director, doctor of technical sciences, professor, a supervisor of the work on creation of fuel elements for the world first nuclear power plant, as well as fuel elements for lead-bismuth cooled reactors and thermionic fuel elements for space nuclear power units. He created and was the head of a number of technological laboratories and specialized manufacturing divisions meant for designing fuel elements of various applications.

Demyan Mikhailovich Ovechkin (1912-1982). He worked in the Institute as a chief engineer, candidate of technical sciences. He was in charge of construction and operation of experimental base, including nuclear reactors. He participated in start-up work in the units constructed under scientific supervision of the Institute.

Lev Nikolaevich Usachev (1926-1983). He worked in the Institute in 1948-1983 as a director of the nuclear and neutron physics department, doctor of physical and mathematical sciences, professor. He made the principal contribution into theory and methods of fast and intermediate neutron reactor calculations, in the development of nuclear fission theory introduced a notion of neutron worth and developed a theory of perturbations.

Besides Ye. P. Slavsky and I. V. Kurchatov made a great contribution into the Institute formation and evolution.

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Obninsk



**General Physics and Astronomy Department Research Institutes Listing:
(1997 update)**

Note: The extent of reorganization, rationalization of structure, and the expansion of control over scientific research and development in Russia is best seen in reviewing the list given below. In 1997, some 46 institutes, complexes, bases, councils and committees were placed under the control or the research supervision of this department of the Academy .

1, Physical Institute named after P. N. Lebedev (PIAS)

**53, Leninskii ave., Moscow V-333, GSP-1, 117924
tel.135-42-64, for telegrams: Moscow V-333 Neodim
teletype: 113308, fax: 135-78-80**

E-mail: postmaster@sci.fian.msk.su

Directed by Corresponding Member Oleg N. Krohin, tel.135-24-30

2. Institute of General Physics (IGP)

**38, Vavilov st., Moscow, V-333, GSP-1, 117942
tel.135-23-66, fax: 135-02-70 E-mail: root@bst7.gpi.msk.su**

Directed by Academician Alexandr (Aleksandr) M. Prokhorov, tel.135-13-31

3. Scientific Center of Fibre Optics attached to IGP

Directed by Academician Evgeny (Evgenii) M. Dianov, tel.135-05-66

4. Center of Physical Instrument-Building

Moscow region, Troitsk, 142091

Directed by Dr. Vyatcheslav S. Bukreyev, tel.334-02-13

Branch of the Centre, box 27, Tarusa town, Kaluga region, 9-13-82

Directed by Prof. Valery Al. Milyaev, tel.135-01-58

5. Ioffe Physico-Technical Institute (PTI)

**26, Polytechnicheskaya st., K-21, S.-Petersburg, 194021
tel.247-18-73, teletype 121735 Rebus fax: (812) 247-10-17**

E-mail: merkulov@sec.ioffe.rssi.ru

Directed by Academician Zhores I. Alferov, tel.247-21-45

6. Institute of Chrystallography named after A.V. Shubnikov (ICAS)

59, Leninskii ave., Moscow, V-333, 117333

tel.135-63-11, fax: 135-10-11 E-mail: root@crystal.msk.su

Directed by Academician Boris K. Vainshtein, tel. 135-65-41

7. P. L. Kapitza Institute of Physical Problems (IPP)

**2, Kosuigina st., Moscow, V-334, GSP-1, 117973, tel. 137-32-48,
for telegrams: Moscow AT 113451 Magnit**

teletype: 113451 Magnit, fax: (095) 938-20-30

E-mail: andreev@kapitza.ras.ru

Directed by Academician Alexandr (Aleksandr) F. Andreev, tel. 938-20-29

8. Institute of Theoretical Physics named after L.D. Landau (ITP)

**2, Kosuigina st., V-334, Moscow, 117940, tel.137-32-44, fax: (095)
938-20-77**

Directed by Academician Vladimir Ev. Zakharov, tel.124-75-65

**9. Center of Nonlinear Research attached to Institute of Theoretical Physics
named after L.D.Landau-- Russian Department of International
Institute of Nonlinear Research**

Directed by Academician Vladimir Ev. Zaharov, tel. 938-17-82

10. Institute of Radio Engineering and Electronics (IRE)

**103907 GSP-3 , Moscow, Mohovaya st., 11, tel.203-52-93, fax: 203-84-
14**

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17. Branch: 23, 2-nd line, V.O., V-53, Saint-Petersburg, 199053,

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President-- Iurii An. Osipian, tel. 930-33-63

33. Scientific Council on Problems "Physics of Semiconductors"
53, Leninskii ave., V-333, Moscow, GSP, 1179234
President-- Corresponding Member Vladislav B. Timofeiev, tel. 584-50-87

34. United Scientific Council on Complex Problem "Plasma Physics"
38, Vavilova st., V-333, Moscow, GSP-1, 117942
President-- Academician Boris B. Kadomtsev, tel. 196-98-14

35. United Scientific Council on Complex Problem "Optics"
48, Piatnitskaia st., Z-17, Moscow, 109017
President-- Academician Aleksandr M. Prokhorov, tel. 135-13-31

36. Scientific Council on Problem "Acoustics"
4, Shvernika, V-36, Moscow, 117036
President-- Prof. Leonid M. Liamshev, tel. 126-90-14

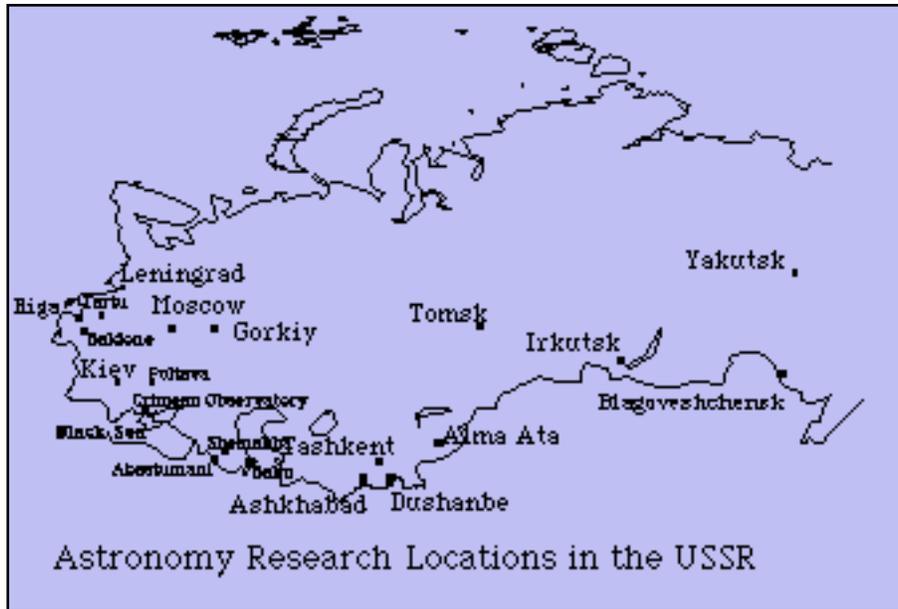
37. Scientific Council on Problem "Physical Electronics"
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38. Scientific Council on Problem "Radiowave Spreading"
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Method of Listing Other Research Institutes: The institutes below are listed by the approximate order of their establishment. Several of the institutes were founded on the bases of other older research units, some dating back to Peter the Great, but for the most part, research institutes in the Russian and in the former republics of the Soviet Union are a very modern phenomena--over three-quarters of them having been established since 1946. This list does not describe research activities within the institute. It is given here to aid in understanding the way in which science has been developed within the Academic Science System in the former Soviet Union. The coordination of scientific research effort in Russia has been a major problem and an activity in the former Soviet Union for which the literature on science and technology in Russia provides ample testimony. Coordination will continue be important for scientific development in Russia.

Before 1930

1. Gravimetric Observatory in Poltava. 2. Physical Technical Institute in Kharkov. 3. Physics Institute in Kiev. 4. Physical Technical Institute in Minsk. 5. Metal Physics Institute in Ekaterinburg (Sverdlovsk). 6. Astrophysics Institute in Dushanbe

1930s

7. Astrophysical Laboratory in Ashkhabad. 8. Astrophysical Observatory in Abastumani.

1940s

9. Physics Institute in Salaspils. 10. S. V. Starodubtsev Physical Technical Institute in Tashkent. 11. Astronomical Observatory (Main) in Kiev. 12. Physical Technical Institute in Sukhumi. 13. Geophysics Institute in Ekaterinburg (Sverdlovsk). 14. Astrophysics Observatory in Biurakan. . 15. Astrophysical Institute in Alma Ata.

1950s

16. Nuclear Physics Institute in Alma Ata. 17. Physics Institute in Tbilisi. 18. A. V. Likov Heat and Mass Transfer Institute in Minsk. 19. Radio Physics and Electronics Institute in Kharkov. 20. Nuclear Physics Institute in Tashkent. 21. L. V. Kirenskiĭ Physics Institute in Krasnoyarsk. 22. Budker Nuclear Physics Institute in Novosibirsk. 23. M. A. Lavrentiev Hydrodynamics Institute in Novosibirsk. 24. Physics Institute in Makhachkala. 25. Thermal Physics Institute in Novosibirsk. 26. Physics Institute in Minsk. 27. Physics Institute in Baku. 28. Terrestrial Magnetism, Ionosphere, and Radio Wave Propagation Institute in Irkutsk. 29. Physics and Mathematics Institute in Frunze. 30. Low Temperatures Physical Technical Institute

in Kharkov. 31. Semiconductor Institute in Kiev. 32. Radio Physics and Electronics Institute in Erevan. 33. Space Physics Research and Aeronomy Institute in Yakutsk. 34. Mathematics and Mechanics Institute in Sverdlovsk. 35. Solid State and Semiconductor Physics Institute in Minsk. 36. Applied Physics Institute in Kishinev. 37. Semiconductor Physics Institute in Novosibirsk. 38. V. Ia. Struve Astrophysics and Atmospheric Physics Institute in Tartu. 39. Astrophysical Observatory in Shemakha. 40. Astronomy Institute in Tashkent. 41. Nuclear Power Engineering Institute in Minsk. 42. Physical Technical Institute in Donetsk. 43. Theoretical Physics Institute in Kiev. 44. Semiconductor Physics Institute in Vilnius. 45. U. A. Arifov Electronics Institute in Tashkent. 46. Physics Research Institute in Ashtarak. 47. Radio Astrophysics Observatory in Riga. 48. Atmospheric Optics Institute in Tomsk. 49. Radio Astrophysics Observatory in Riga. 50. Atmospheric Optics Institute in Tomsk.

1960s

51. Physical Technical Institute in Kazan'. 52. S. U. Umarov Physical Technical Institute in Dushanbe. 53. High Energy Physics Institute in Alma Ata. 54. Nuclear Research Institute in Kiev. 55. Solid State Physics Institute in Erevan. 56. Physics Institute in Vilnius. 57. High Currents Electronics Institute in Tomsk. 58. Space Research of Natural resources Institute, Baku.

1970s

59. Physics Institute in Tartu. 60. Physical Technical Institute in Ashkhabad.

1980s

61. Thermal Physics and Electrophysics Institute in Tallinn. 62. Ionosphere Research Institute in Alma Ata. 63. Physics of Durability and Material Studies in Tomsk. 64. Electrophysics Institute in Ekaterinburg (Sverdlovsk).

{**S. A. Lebedev Precision Mechanics and Computation Techniques Institute** in Moscow. Established in 1948. The Institute develops computer hardware and software and produces high speed computers. The institute is under the direct jurisdiction of the Ministry of Industry of the Russian Federation, although **the Russian Academy guides its scientific methodology**. Director Ryabov, Gennadii G., D. Tech. S., since 1987. **Structure and Scientific Personnel:** Director Ryabov, Gennadii G., D. Tech., July '87; Deputy Director Mukhin, Ivan S., since '70; **High Speed Computer Development Laboratory:** Head Liubovich, Lev A., since '75.}

Department of Nuclear Physics (NPD) in Moscow

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Retrospect: The Nuclear Physics Department had 19 academicians and 25 corresponding members in 1987. In 1989, membership remained virtually the same with 18 academicians and 27 corresponding members. The membership of the Nuclear Physics Department of the academy includes some very important nuclear scientists. The department counts a member from the Ukrainian and the Georgian SSR academies as well as the President of the Armenian SSR Academy of Sciences as members of the department. Two of its members are board members of the General Assembly of the GKNT; two are members of the national academy's Presidium; one a Vice President of the national academy and five are also members of the Siberian Department of the academy. The rector of Moscow State University is also a member of the department. Twelve of the members of the department are

Directors or associate Directors of major scientific research laboratories and two are heads of major divisions of one of the institutes. Three members were elevated because of age to advisory status to the national academy Presidium.

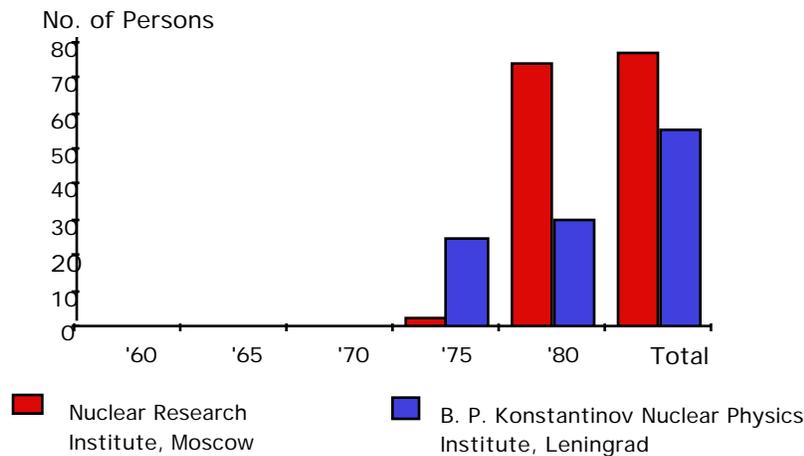
Academicians--age analysis: The average age of the 18 academicians of the Nuclear Physics Department in 1991 was 76.4 years--the oldest member being 99 years old, and the youngest 55. The Universities and Institutes producing 15 of the 18 academicians of the Nuclear Physics Department included: the Moscow State University with 9, and the remaining six graduated from six different universities or institutes. These include the University of Petrograd in St. Petersburg from which the oldest member of the Department (99) graduated, the Moscow Physical Engineering Institute, the University of Voronezh, the Leningrad Polytechnic Institute, Leningrad State University, and the University of Rome. The three academicians whose institutions are not known at present all hold the doctoral degree.

Corresponding Members--age analysis: The average age of the 24 corresponding members whose birth dates are available was 67 years in 1991. The oldest was 81 and the youngest was 46 years old. Only two of the 27 corresponding members of the Nuclear Physics Department appear to hold no degrees. Of the 25 remaining the institutions from which 14 of those graduated is known and includes: Moscow State University with five graduates, Leningrad State University with five graduates, the Leningrad Polytechnic Institute with two, and the University of Lvov, and the Moscow Physics and Engineering Institute each graduated one.

Period of Greatest Growth: The greatest growth in numbers of scientists during the 1970s was in the Nuclear Research Institute in Moscow, as Figure 15 shows:

Figure 15

Assignment of Personnel to SRI's under the Nuclear Physics Department, 1971-80



Note: These Institutes were split off from the Ioffe and the Lebedev Physics Institute in 1971 and transferred to the jurisdiction and control of this new department. In the Nuclear Research Institute in Moscow, the personnel included 37 senior department and sub-department heads and 10 senior researchers and 44 junior researchers. In the Leningrad institute, 40 senior department and sub-department heads and senior researchers and 23 junior researchers.

Compiled from: CR 80-13202, pp. 290-292 and 296-298.

(1997 update)

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Skrinskii, Aleksandr N., D. PM. S. Born in 1936 in Orenburg. Russian physicist. Corresponding member since 1968, and academician of the Nuclear Physics Department of the AN SSSR and the RAN and of the Siberian Department since 1970. He graduated from Moscow State University in 1959. He joined the staff of the Institute of Nuclear Physics of the Siberian Department of the AN SSSR in 1959, becoming Deputy Director in 1972 and Director in 1977. He has been a professor at the University of Novosibirsk since 1969, holding the chair in nuclear physics. Since 1977, he has been Head of the Storage Rings Laboratory and Director of the Nuclear Physics Institute in Novosibirsk that is subordinate to the academy's Siberian Department. The institute was created in 1957 and is the leading nuclear research facility in Siberia. It studies controlled thermonuclear reactions, particularly magnetic confinement fusion, and accelerator technology. The institute is located on the shores of Lake Ob in Akademgorodok which is 35 km south of Novosibirsk. There are 21 research institutes and the Novosibirsk University located in Akademgorodok. The institute employs approximately 3,000 scientific workers. His work includes high energy physics and physics and technology of charged-particle acceleration. In 1980, he was named to the Presidium of the Siberian Department of the Academy. Since 1988, he has served as Academician Secretary to the Nuclear Physics Department of the AN SSSR and the Russian Academy of Sciences and as Head of the Budeker Physics Institute in Akademgorodok Novosibirsk. He developed, with others, a method of colliding beams. Lenin Prize, 1967. (GSE 23, p. 513.)

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Matveev, Viktor A., D. PM. S. Born in December 1941. Academician of the Nuclear Physics Department of the Academy in 1993. He has headed The Nuclear Research Institute in Troitsk since 1987. The institute was founded in 1970 by a joint decree of the Central Committee and the Council of Ministers of the Soviet Union, located in Troitsk, and assigned the task of researching atomic, nuclear and elementary particle physics and neutrino astrophysics on the basis of accelerators, neutrino telescopes and special experimental complexes. Lenin Prize winner. He is currently Director of the Institute for Nuclear Research of the Lebedev Physical Institute in Moscow. (Troitsk)

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Nazarenko, Vladimir A., D. PM. S. Corresponding Member of the Russian Academy. Director of the B. P. Konstantinov Nuclear Physics Institute (PNPI) in St. Petersburg. Located in the St. Petersburg region at Gatchina, 188350. (For telegrams: St. Petersburg, BLIK-322772.) (E-mail: vnazar@inpi.spb.su) The Neutron Research Department is under the direction of Vladimir Nazarenko. The Neutron Research Department of PNPI engages in fundamental research using neutron radiation at the Petersburg Nuclear Physics Institute (PNPI) of the Russian Academy of Sciences. The history of its initiation is closely connected with the name of Professor L. I. Rusinov and dates back to the mid-50s, when construction of a research nuclear reactor WWR-M was started in Gatchina. In the years since then, the scope of scientific research has become established, teams of reactor specialists and physicists have formed, the reactor power was raised from 10 to 18 MW, the experimental possibilities have been broadened considerably due to the development of such modern devices as cold and ultracold neutron sources, neutron guide and polarizing systems, as well as the development and implementation of a number of major techniques and installations.

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Shirkov, Dmitrii V., D. PM. S. Born in March 1928 in Moscow. Physicist. Corresponding member of the Nuclear Physics Department and of the Siberian Department since 1960; academician in 1993. He graduated from Moscow State University in 1949. From 1950 to 1960, he worked at the V. A. Steklov Institute of Mathematics of the AN SSSR and at the Joint Institute for Nuclear Research in Dubna. From 1960 to 1969, he worked at the Siberian Department of the AN SSSR. In 1961, he was designated a professor at the University of Novosibirsk. Also member of the Siberian Department. Recipient of U.S.S.R. State Prize in Science and Technology in 1984 for co-authorship of papers entitled, "The Renormalization Group Method in Field Theory." His work is on the theory of elementary particles, the theory of superconductivity, and the theory of neutron transport and moderation. Lenin Prize, 1958. He received the State Prize in 1984. He is presently director of the Theoretical Physics Laboratory of the IINR in Dubna. (GSE 29, p. 602.)

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Trutnev, Iurii A. Born in November 1927 in Moscow. Russian theoretical physicist. Corresponding member since of the Nuclear Physics Department of the Academy since 1964; academician in 1993. He graduated from Leningrad State University in 1950. His main works are in theoretical physics. He is a holder of the Lenin Prize. He is currently Deputy Director of VNIIEF in Sarov in the North Novgorod Region. (GSE 26, p. 397.)

Scientific Secretary: Oleg P. Beguchev, tel.938-17-34, 938-54-37

Staff of the Department

Natalia L. Anashenkova, tel.938-07-53

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Valeria A. Lomakina, tel.938-55-48

Academicians (older listing)

Ambartsumian, Viktor A., D. PM. S. Born in 1908 in Tiflis. Russian astrophysicist. Founder of a school of astrophysics in Russia. Since 1947, he has served as President of the Armenian Academy of Sciences. Academician of the Physical and Mathematical Sciences Department of the Armenian academy since 1947.

Originally elected to the Physical and Mathematical Sciences Department. Principal membership in the General Physics and Astronomy Department. Member of the Presidium of the academy since 1957. Since 1946, he has been of the Astrophysics Observatory at Biurakan. He was made Director at age 38 and became President of the academy at age 39. He was made an academician of the Nuclear Physics Department of the AN SSSR in 1953. Since 1947, he has been a professor at the University of Erevan. In 1988, he was appointed advisor to the national academy's Presidium. He was on the editorial board of Science in Russia. He founded the quantitative theory of emission of gaseous nebulae and developed the fundamentals of the statistical mechanics of stellar systems showing that stellar clusters decay gradually through the loss of individual stars and he estimated cluster ages on that basis. He discovered stellar associations in 1947, solving some fundamental problems in cosmogony. He founded the Biurakan observatory of the Armenian academy in 1946 and has been its permanent Director. State Prizes, 1946 and 1950. (GSE 1, p. 327.)

Baldin, Aleksandr M., D. PM. S. Born in 1926 in Moscow. Russian physicist. Academician since 1981. He graduated in 1949 from Moscow Physical Engineering Institute where he became a professor in 1965. From 1949 to 1968, he served on the staff of the Institute of Physics of the AN SSSR. In 1968, he was appointed Director of the High Energy Laboratory of the Joint Institute for Nuclear Research in Dubna. His works include electromagnetic interactions of elementary particles and atomic nuclei and the physical principles of particle acceleration. He directed the conversion of the proton synchrotron of the Dubna center into the first accelerator of relativistic nuclei. State Prize, 1973.) (GSE 30, p. 21.)

Barkov, Lev M. Born in 1928 in Moscow. Russian High Energy physicist. Corresponding member since 1972, and academician since 1984. He graduated from Moscow State University in 1952 and joined the Institute of Atomic Energy staff. In 1967, he joined both the staff of the Institute of Nuclear Physics of the Siberian Department in 1967 and the teaching staff of the University of Novosibirsk, receiving his professorship there in 1973. Since 1969, he has been Head of "Barkov's Department" of the Budker Nuclear Physics Institute in Novosibirsk that was created in 1957 and that concentrates on controlled thermonuclear reactions and accelerator technology. His principal membership is in the Nuclear Physics Department of the RAS. In 1980, he established the chair of nuclear physics at Novosibirsk University that he occupies. His works are in neutron moderation and multiplication in uranium-water systems. He has investigated the production of pions and their interaction with matter. He has worked on developing devices with strong pulsed magnetic fields for the study of elementary particles. His works deal with neutron moderation and multiplication in uranium-water systems. He has investigated pion production and the interaction of pions with matter. (GSE 30, p. 22.)

Beliaev, (Belyaev) Spartak T., D. PM. S. Born in 1923 in Moscow. Russian physicist. Corresponding member since 1964, and academician of the Nuclear Physics Department of the AN SSSR and the RAS and of the Siberian Department since 1968. He graduated from Moscow State University in 1952. From 1952 to 1962, he worked at the I. V. Kurchatov Institute of Atomic Energy. After 1962, he worked at the Institute of Nuclear physics of the Siberian Department of the AN SSSR and the Russian Academy of Sciences, and since 1965, he has served as rector of Novosibirsk University. Since 1969, he has been Head of Theory Laboratory of the Budker Nuclear Physics Institute in Novosibirsk. From 1967 to 1978, he was a member of the Presidium of the Siberian Department. Since 1983, he has served as Head of the General and Nuclear Physics Division of the I. V. Kurchatov Atomic Energy Institute in Moscow. He has worked on relativistic

plasma, the quantum theory of many particles, and the theory of the atomic nucleus. (GSE 3, p. 141.)

Chudakov, Aleksandr E., D. PM. S. Born in 1921 in Moscow. Russian physicist. (Son of E. A. Chudakov.) Corresponding member of the Nuclear Physics Department of the Academy since 1966, and academician since 1987. He graduated from Moscow State University in 1947. From 1946 to 1971, he was on the staff of the Institute of Physics of the AN SSSR. In 1971, he joined the Institute of Nuclear Research of the AN SSSR. Since 1976, he has been Head of the Lepton High Energy Department of the Lepton High Energy and Neutrino Astrophysics Laboratory of the Nuclear Research Institute in Moscow. His works include the study of the properties of cosmic rays. He developed a method for measuring the energy of a particle that caused a cosmic ray shower. Together with S. N. Vernov and others, he discovered the earth's outer radiation belt. Lenin Prize, 1960. (GSE 29, p. 190.)

Feynberg (Feinberg), Evgenii. L., D. PM. S. Born in 1912 in Baku. Russian theoretical physicist. Corresponding member of the Nuclear Physics Department of the Academy since 1966. He graduated from Moscow University in 1935. In 1938, he joined the staff of the Institute of Physics of the AN SSSR. He was a professor at the University of Gorkiy from 1944 to 1946 and at the Moscow Physical Engineering Institute from 1946 to 1954. Since 1968, he has served as deputy Chief of the Theoretical Laboratory of the P. N. Lebedev Physics Institute in Moscow. His works have been in nuclear physics, radio physics, acoustics, the physics of elementary particles and cosmic rays. In 1939, he conducted a detailed investigation of the ionization of atoms during Beta-decay. He initiated study of inelastic coherent processes (1941) and inelastic diffraction processes (1954). From 1943 to 1955, he developed a statistical theory of the noise immunity of acoustic-signal reception and proposed a correlation technique for the analysis of acoustic signals. He serves currently as an advisor to the Theoretical Physics Department of the Lebedev Physical Institute at FIAN in Troitsk. (GSE 27, p. 139.)

Fradkin, Efim S., D. PM. S. Born in February 1924 in Gomel Oblast, Byelorussian SSR. Russian physicist. Corresponding member of the Nuclear Physics Department of the Academy since 1970; academician in 1993. He served in the Soviet army from 1942 to 1947. In 1948, he graduated from the University of L'vov. He began working at the Institute of Physics of the AN SSSR and the RAS in 1948. Since 1972, he has been Head of the Functional Integration Techniques Department of Theoretical Laboratory of the P. N. Lebedev Physics Institute in Moscow. His works are in quantum field theory, quantum statistics, and hydrodynamics. Recipient of the State Prize, 1953. He currently serves as an advisor to the Theoretical Physics Department of FIAN of the Lebedev Physical Institute in Troitsk. (GSE 27, p. 313.)

Ginzburg, Vitalii L., D. PM. S. Born in 1916 in Moscow. Russian physicist. Academician since 1966. Originally elected to the General and Applied Physics Department. Principal membership in the General Physics and Astronomy Department. He graduated from Moscow State University in 1938. From 1940, he worked at the Institute of Physics of the AN SSSR. He became a professor at the University of Gorkiy in 1945. Since 1971, he has been Head of Theoretical Laboratory of the Nuclear Physics Division of the P. N. Lebedev Physics Institute in Moscow and since 1976, Head of the Theoretical Physics Department. His works are on the theory of wave propagation in the ionosphere, radio astronomy, problems in the origin of cosmic rays, thermodynamic the theory of ferroelectric phenomena, the theory of superconductivity, optics, the theory of radiation, and astrophysics. In 1940, he worked out the quantum theory of the Cherenkov-Vavilov effect and the theory of Cherenkov radiation in crystals. With L. D. Landau, he formulated a phenomenological theory of superconductivity. In 1950-

51, he worked on problems in thermonuclear reactions. Since 1958, he has researched problems in the theory of excitons and in crystal-optics. He has worked on the theory of magnetic-braking cosmic radio frequency radiation and a radio astronomy theory on the origin of cosmic rays. State Prize, 1953; Lenin Prize, 1966. (GSE 6, p. 411.)

Khristiansen, G. B., D. PM. S. Born in May 1927 in Moscow. Corresponding member of the Academy in 1993; Academician in 1996. He is Department Head of the Nuclear Physics Institute at Moscow State University.

Logunov, Anatolii A., D. PM. S. Born in December 1926 in a village in Kuibishev Oblast. Russian theoretical physicist. He has been a corresponding member of the national academy since 1968 and since 1972, he has been an academician of the Nuclear Physics Department of the academy. Since 1974, he has been Vice President of the Academy of Sciences of the USSR. Since 1974, he has served as a board member of the GKNT General Assembly. He graduated from Moscow State University in 1951 and began to teach there immediately. From 1956-63, he was Deputy Director of the Laboratory of Theoretical Physics of the Joint Institute for Nuclear Research in Dubna. From 1963 to 1975, he was Director of the Institute of High Energy Physics at Serpukhov when he was replaced by Lev D. Soloviev. Since 1977, Logunov has been rector of M. V. Lomonosov Moscow State University. His principal studies are in quantum field theory and the physics of elementary particles. He developed a method of dispersion relations and established the relationship between different physical processes at high energies. In 1967-68, he proposed and developed a new approach to the problem of the multiple production of particles at high energies (inclusion processes). He was on the editorial board of Science in Russia. The scientific center of the Institute of High-energy Physics was created under his direction and a 70 GeV proton accelerator was put in operation there in 1967, for which a Lenin Prize in Science and Technology was awarded. In 1984, he was the recipient of the USSR State Prize in Science and Technology for co-authorship of papers published in 1955-56 entitled, "The Renormalization Group Method in Field Theory." He is currently Director of the Institution of High Energy Physics in Protovino in the Moscow Region. (GSE 14, p. 650 and 20, p. 394.)

Matveev, Viktor A., D. PM. S. Born in December 1941. Academician of the Nuclear Physics Department of the Academy in 1993. He has headed The Nuclear Research Institute in Troitsk since 1987. The institute was founded in 1970 by a joint decree of the Central Committee and the Council of Ministers of the Soviet Union, located in Troitsk, and assigned the task of researching atomic, nuclear and elementary particle physics and neutrino astrophysics on the basis of accelerators, neutrino telescopes and special experimental complexes. Lenin Prize winner.

Mikhailov, Viktor N., D. PM. S. Born in February 1934. He is Scientific Head to the Minister of Atomic Energy of the Russian Federation in Moscow.

Okun', Lev. B., D. PM. S. Born in July 1929 in Kaluga Oblast. Russian theoretical physicist. Corresponding member of the Nuclear Physics Department of the Academy since 1966; academician in 1993. He graduated from the Moscow Physics and Engineering Institute in 1953. Since 1954, he has worked at the Institute of Experimental and Theoretical Physics. His work is in weak interactions, composite models of elementary particles, and the theory of elementary particles. He is currently a member of the Nuclear Physics Department Bureau governing body. (GSE 18, p. 424.)

Rubakov, V. A. D. PM. S. Born in February 1955. Russian Physicist. Corresponding member of the Academy in 1993; academician in 1996. He is Chief Researcher of (INR) The Nuclear Research Institute (INR) in Troitsk.

Shirkov, Dmitrii V., D. PM. S. Born in March 1928 in Moscow. Physicist. Corresponding member of the Nuclear Physics Department and of the Siberian

Department since 1960; academician in 1993. He graduated from Moscow State University in 1949. From 1950 to 1960, he worked at the V. A. Steklov Institute of Mathematics of the AN SSSR and at the Joint Institute for Nuclear Research in Dubna. From 1960 to 1969, he worked at the Siberian Department of the AN SSSR. In 1961, he was designated a professor at the University of Novosibirsk. Also member of the Siberian Department. Recipient of USSR State Prize in Science and Technology in 1984 for co-authorship of papers entitled, "The Renormalization Group Method in Field Theory." His work is on the theory of elementary particles, the theory of superconductivity, and the theory of neutron transport and moderation. Lenin Prize, 1958. He received the State Prize in 1984. He is currently a member of the Nuclear Physics Department Bureau governing body. He is presently head of the Theoretical Physics Laboratory of IINR in Dubna. (GSE 29, p. 602.)

Skrinskii, Aleksandr N., D. PM. S. (See above.)

Tavkhelidze, Albert N., D. PM. S. Born in December 1930. Corresponding member since 1984; academician in 1993. Since 1974, academician of the Physical and Mathematical Sciences Department of the Georgian Academy of Sciences. From 1977 to 1987, he was Director of the Nuclear Research Institute in Moscow that was created in 1971 to conduct Theoretical Physics research in particle physics, astrophysics, and quantum mechanics. It has a meson factory. It is subordinate to the Nuclear Physics Department of the academy. Since 1986, he has been President of the Georgian Academy of Sciences.

Trutnev, Iurii A. Born in November 1927 in Moscow. Russian theoretical physicist. Corresponding member since of the Nuclear Physics Department of the Academy since 1964; academician in 1993. He graduated from Leningrad State University in 1950. His main works are in Theoretical Physics. He is a holder of the Lenin Prize. He is currently a member of the Nuclear Physics Department Bureau governing body. He is Deputy Head of VNIIEF in Sarov, North Novgorod. (GSE 26, p. 397.)

Zatsepin, Georgii T., D. PM. S. Born in May 1917 in Moscow. Russian physicist. Academician since 1981. He graduated from Moscow State University in 1941. Since 1944, he has worked at the Physics Institute of the AN SSSR and the Russian Academy of Sciences, and since 1963, he has directed a laboratory there. He was elevated to a professorship at Moscow State University in 1958. Since 1973, he has been Head of the Lepton High Energy and Neutrino Astrophysics Laboratory of the Nuclear Research Institute in Moscow. His works include the physics of cosmic rays and neutrino astrophysics. From 1960 to 1969, he concentrated on the physics of muons and neutrinos and on the methods and prospects of neutrino astrophysics. Recipient of the State Prize, 1951. He is a department head of the Institute of Nuclear Research in Moscow. (GSE 9, p. 595.)

Corresponding Members

Abov, Iurii G., D. PM. S. Born in November 1922. Corresponding member of the Nuclear Physics Department of the Academy since December 1987. He is currently a member of the Bureau of the Nuclear Physics Department. He is a Laboratory Head of the Theoretical and Experimental Physics Institute (ITEP) in Moscow.

Balakin, Vladimir E., D. PM. S. Deputy Director, Director of the Branch of the INP in Protvino, Moscow region, Corresponding member of Russian Academy of Sciences. Field of interest: Design and construction of High energy accelerators. Corresponding member of the Nuclear Physics Department of the Academy. Senior Researcher in Veniamin A. Sidorov's Department of the Budker Nuclear Physics Institute in Akademgorodok-Novosibirsk in 1970. Currently a Deputy Director of the Budker Physics institute in Akademgorodok-Novosibirsk.

Dikanskii, Nikolai S. D. PM. S. Born in July 1941. Physicist. Specialist in accelerator physics. Corresponding member of the Siberian Department and of the General Physics and Astronomy Department of the Academy in 1990. Since 1973, he has been one of the Deputy Directors of the Nuclear Physics Institute in Akademgorodok-Novosibirsk, which was established in 1957 to conduct research on thermonuclear reactions, particularly on magnetic confinement fusion, and accelerator technology. This is the leading nuclear research facility in Siberia. He is author of 80 scientific publications and teaches nuclear physics at the Novosibirsk State University in Akademgorodok. Head of Laboratory number 5 of the Budeker Nuclear Physics Institute in Novosibirsk.

Dzheleпов, Boris S., D. PM. S. Born in December 1910 in Odessa. Russian Physicist. Corresponding member of the Nuclear Physics Department of the Academy since 1953. He graduated from the Leningrad State University in 1931 and from 1931 to 1943, he worked at the PhysicoTechnical Institute of the Academy. From 1939 to 1941, and from 1946, he worked in the Institute of Metrology and from 1935 to 1941 and from 1944, at Leningrad University. His primary works are in nuclear physics, particularly in nuclear spectroscopy. He introduced new methods, new devices and equipment for gamma and beta spectroscopy. He investigated the decay of alpha radioactive isotopes and the influence of the electric field of the nucleus on beta decay. He has also discovered a number of radioactive isotopes. He is the holder of a number of orders and medals.

Dzheleпов, Venedikt P., D. PM. S. Born in April 1913 in Moscow. Russian physicist. Corresponding member of the Nuclear Physics Department of the Academy since 1966. He graduated from Leningrad Polytechnic Institute in 1937. From 1941 to 1943, he worked at the PhysicoTechnical Institute, and from 1943 to 1948, at the Institute of Atomic Physics. From 1948 to 1956, he was Deputy Director of the Institute of Nuclear Problems of the AN SSSR. Since 1956, he has directed the work of a laboratory in the Joint Institute for Nuclear Research in Dubna. His works have been on the atomic nuclei and elementary particles. Since 1965, he has been working on applications of nuclear physics to medicine. He was the first in the USSR to develop a proton beam for medical uses. State Prizes, 1961 and 1963. He is now Honorary Director of the Nuclear Problems Laboratory of the IINR in Dubna. (GSE 8, p. 493.)

Feoktistov, Lev P., D. PM. S. Born in February 1928 in Moscow. Russian physicist. Corresponding member of the Nuclear Physics Department of the Academy since 1966. He graduated from Moscow State University in 1950. Since 1982, he has been Deputy Director of the I. V. Kurchatov Atomic Energy Institute in Moscow, which was created in 1943 to develop atomic weapons. His works have been in physics and engineering. He holds the Lenin Prize. He is currently a department head at (FIAN) Lebedev Physical Institute in Troitsk. (GSE 27, p. 146.)

Feynberg, Evgenii. L., D. PM. S. Born in 1912 in Baku. Russian theoretical physicist. Corresponding member of the Nuclear Physics Department of the Academy since 1966. He graduated from Moscow University in 1935. In 1938, he joined the staff of the Institute of Physics of the AN SSSR. He was a professor at the University of Gorkiy from 1944 to 1946 and at the Moscow Physical Engineering Institute from 1946 to 1954. Since 1968, he has served as Deputy Chief of the Theoretical Laboratory of the P. N. Lebedev Physics Institute in Moscow. His works have been in nuclear physics, Radio Physics, acoustics, the physics of elementary particles and cosmic rays. In 1939, he conducted a detailed investigation of the ionization of atoms during Beta-decay. He initiated study of inelastic coherent processes (1941) and inelastic diffraction processes (1954). From 1943 to 1955, he developed a statistical theory of the noise immunity of acoustic-signal reception and proposed a correlation technique for the analysis of acoustic signals. (GSE 27, p. 139.)

- Gershteyn, Semen S.**, D. PM. S. Born in 1929. Corresponding member of the Nuclear Physics Department of the Academy since 1984. Together with Ia. B. Zeldovich in 1955, on the basis of an analogy between the weak vector current and the electromagnetic current, he predicted the probability of the "second" decay. (GSE 23, p. 732.)
- Gribov, Vladimir N.**, D. PM. S. Born in 1930 in Leningrad. Russian physicist and theorist. He is a specialist in particle physics. Corresponding member since 1972. He graduated from Leningrad State University in 1952, and served as a staff member of the PhysicoTechnical Institute of the AN SSSR from 1954 to 1971, when he joined the Leningrad Institute of Nuclear Physics of the AN SSSR. He has been a professor at Leningrad State University since 1968. Since 1971, he has been Head of the Theory Laboratory of the B. P. Konstantinov Nuclear Physics Institute in St. Petersburg that was established in 1971. (GSE 30, p. 389.)
- Ioffe, Boris L.** D. PM. S. Born in July 1926. Russian Physicist. Corresponding member of the Academy in 1993. Head of The Theoretical and Experimental Physics Institute (ITEP) in Moscow.
- Kadyshevskii, Vladimir G.** D. PM. S. Born in May 1937 Corresponding member of the Academy in 1993. He is the Director of the Joint Institute for Nuclear Research in Dubna.
- Kirzhnits, David A.**, D. PM. S. Born in October 1926. Corresponding member of the Nuclear Physics Department of the Academy since December 1987. Since 1979, Chief of Theory of Superconductivity Department of the P. N. Lebedev Physics Institute in Moscow (FIAN) (Troitsk). He is currently a member of the Nuclear Physics Department Bureau governing body.
- Korshennikov, Aleksei A.**, D. PM. S. Born in 1958. He is a scientist at the Institute of General and Nuclear Research. At present the activity of RRC "Kurchatov Institute" is directed toward the comprehensive solution of the problems of safe and ecologically clean energy production on the basis of fission and fusion reactors, fundamental physical investigations and developments in these and allied fields.
- Lipatov, Lev N.**, D. PM. S. Born in 1940. Corresponding member of the Academy. He is Sector Head of an area at the Petersburg Nuclear Physics Institute in St. Petersburg.
- Lobashev, Vladimir M.**, D. PM. S. Born in July 1934 in Leningrad. Russian physicist. Corresponding member of the Nuclear Physics Department of the Academy since 1970. He graduated from Leningrad State University in 1957. From 1957 to 1972 he worked at the PhysicoTechnical Institute of the AN SSSR. Since 1972, he has been at the Institute of Nuclear Research of the AN SSSR (FIAN, Troitsk) where he is now a Department Head. His works are in nuclear physics. (GSE 14, p. 620.)
- Meshcheriakov, Mikhail G.**, D. PM. S. Born in 1910 in Rostov Oblast. Nuclear physicist. Corresponding member of the Nuclear Physics Department of the Academy since 1953. Originally elected to the Physical and Mathematical Sciences department. He graduated from Leningrad University in 1936. From 1936 to 1947, he worked at the Radium Institute of the AN SSSR, and from 1947 to 1948, he was Deputy Director of the Institute of Atomic Energy. From 1948 to 1956, he was Director of the Institute of Nuclear Problems. In 1956, he began working at the Joint Institute for Nuclear Research in Dubna. His work has been in accelerators and the physics of the atomic nucleus and of elementary particles. Together with D. V. Efremov and A. L. Mints, he directed construction of the first synchrocyclotron in the USSR operative at a level up to 680 MeV. (GSE 16, p. 146.)
- Meshkov, Igor' (Igor) N.**, D. PM. S. Born in January 1936. Distinguished research fellow of the Nuclear Physics Institute in Akademgorodok-Novosibirsk. Physicist. Specialist in the field of the physics of charged particles and accelerator

techniques. Corresponding member the General Physics and Astroanomy Department and the Siberian Department of the Academy since 1991. He has authored more than 60 scientific works and collaborated in the production of ten others. He has been very active in scientific conferences. He has written one major monograph. His research has concentrated on the physical processes of electron acceleration and the development of methods of cooling heavy particles of electrons. He has studied electron optics. He has pioneered in nuclear atomic physics and in a better understanding of elementary particles. He is on the dissertation committee of the Institute of Nuclear Physics. As a professor he has supervised the dissertations of three candidate-degree students. He holds the chair of general physics at the Novosibirsk State University in Akademgorodok-Novosibirsk. He is now the Chief Researcher at the IINR in Dubna.

Mostovoy, Vladimir I., D. PM. S., D. PM. S. Born in 1919. Corresponding member of the Nuclear Physics Department of the Academy since 1984. In 1983, he received the coveted I. V. Kurchatov Gold Medal in physics for his scientific research.

Nazarenko, Vladimir A., D. PM. S. Corresponding Member of the Russian Academy. Director of the B. P. Konstantinov Nuclear Physics Institute (PNPI) in St. Petersburg. Located in the St. Petersburg region at Gatchina, 188350. (For telegrams: St. Petersburg, BLIK-322772.) (E-mail: vnazar@inpi.spb.su) The Neutron Research Department is under the direction of Vladimir Nazarenko. The Neutron Research Department of PNPI engages in fundamental research using neutron radiation at the Petersburg Nuclear Physics Institute (PNPI) of the Russian Academy of Sciences. The history of its initiation is closely connected with the name of Professor L. I. Rusinov and dates back to the mid-50s, when construction of a research nuclear reactor WWR-M was started in Gatchina. In the years since then, the scope of scientific research has become established, teams of reactor specialists and physicists have formed, the reactor power was raised from 10 to 18 MW, the experimental possibilities have been broadened considerably due to the development of such modern devices as cold and ultracold neutron sources, neutron guide and polarizing systems, as well as the development and implementation of a number of major techniques and installations.

Nikolskii, Boris A. Born in February 1924. Corresponding member of the Nuclear Physics Department since December 1987. In 1980, he was given the I. V. Kurchatov Gold Medal for his research in physics. He is currently the Chief Researcher at the Nuclear Safety Institute in Moscow.

Nikolskii, Sergei I., D. PM. S. Born in July 1923. Corresponding member of the Nuclear Physics Department since 1984. Since 1973, Chief of the Nuclear Physics Division of the P. N. Lebedev Physics Institute in Moscow. This is the largest and oldest research institute in Russia having been established in St. Petersburg in 1725. It was moved to Moscow in 1934. Since 1976, Chief of Nikolskii's department and since 1977, he has been Chief of the Cosmic Ray Laboratory of the Lebedev Institute. Since 1986, Nikolskii has served as a Deputy Director of that institute. He is currently the Director of the Institute Nuclear Physics and Astrophysics (NPAD) of the Lebedev Physical Institute (FIAN) in Troitsk.

Obraztsov, Vladimir F., D. PM. S. Born in 1954. Corresponding member of the Nuclear Physics Department of the Academy. Scientist at the Institute of High Energy Physics of the P. N. Lebedev Physical Institute located in the Moscow Region (Protvino)

Oganesian, Iurii Ts. D. PM. S. Born in April 1933. Corresponding member of the Academy in 1993. Director of the Nuclear Reactions Laboratory of the IINR at Dubna.

- Parkhomchuk, Vasily V.**, D. PM. S. Born in 1946. Corresponding member of the Nuclear Physics Department of the Academy. Physicist at the Budeker Nuclear Physics Institute in Akademgorodok Novosibirsk.
- Poliakov, Aleksandr M.**, D. PM. S. Born September in 1945. Corresponding member of the Nuclear Physics Department of the Academy since 1984. Since 1970, senior researcher in the Particle Physics Laboratory of the L. D. Landau Theoretical Physics Institute in Moscow.
- Ponomarev, Leonid I.** D. PM. S. Born in February 1937. Corresponding member of the Academy in 1993. He is a department head of the Nuclear Safety Institute in Moscow.
- Ritus, V. I.**, D. PM. S. Born in May 1927. Corresponding member of the Academy in 1993. He is the Chief Researcher in the Theoretical Physics Department of Lebedev Physical Institute (FIAN) in Troitsk.
- Shapiro, Iosif S.**, D. PM. S. Born in November 1918. Corresponding of the Nuclear Physics Department of the Academy member since 1979. He is a section head at (FIAN) Lebedev Physical Institute in Troitsk.
- Sidorov, Veniamin A.**, D. PM. S. Born in October 1930 in Vladimir Oblast. Russian physicist. Corresponding member of the Nuclear Physics Department and of the Siberian Department since 1968. He graduated from Moscow State University in 1953 and joined the staff of the Institute of Atomic Energy. In 1962, he affiliated with the Institute of Nuclear Physics of the Siberian Department of the AN SSSR. Since 1970, he has been Head of the Particle Physics Laboratory and of "Sidorov's Department" and since 1977, he has been Deputy Director of the Budker Nuclear Physics Institute in Novosibirsk established in 1957. He helped to develop the colliding beam technique. He has investigated quantum electrodynamics, fast-neutron spectrometry, vector mesons, multihadron annihilation, and colliding beams of electrons and positrons. He is an Honored Scientist of the former Soviet Union, and member of an editorial board of a scientific journal. Lenin Prize, 1967. (GSE 23, p. 437.)
- Slavnov, Andrei A.** D. PM. S. Born in December 1939. Corresponding member of the Nuclear Physics Department of the Academy since December 1987. Deputy Head, MIAN, Moscow
- Sumbaev, Oleg I.**, D. PM. S. Born in February 1930. Corresponding member of the Nuclear Physics Department of the Academy since 1979. Since 1971, he has been Director of the B. P. Konstantinov Nuclear Physics Institute in St. Petersburg that was established in 1971 and that researches nuclear physics, both theoretical and experimental, and radio biology. The institute has a cyclotron and a nuclear reactor. It is subordinate to the Nuclear Physics Department of the academy. Since 1977, he has also been Head of the Neutron Investigations and Reactor Laboratory and of the Gamma Ray Spectroscopy Department of the Institute. In 1985, he received the B. P. Konstantinov Prize in physics for his scientific achievements.
- Vladimirskii, Vasilii V.**, D. PM. S. Born in 1915 in Zheleznovodsk. Russian physicist. Corresponding member of the Nuclear Physics Department of the Academy since 1962. Originally elected to the Physical and Mathematical Sciences department. He graduated from Moscow University in 1938. Since 1946, he has been Deputy Director of the Theoretical and Experimental Physics Institute in Moscow. His works have been in optics, propagation of ultrasound and electromagnetic waves as well as in the theory of linear accelerators and neutron spectroscopy. He participated in the creation of the Serpukhov accelerator whose energy level is 70 giga-electron-volts. State Prize, 1953; Lenin Prize, 1970. He is currently a member of the Nuclear Physics Department Bureau governing body. (GSE 5, p. 536.)
- Vorob'ev, Aleksei A.** Corresponding member of the Nuclear Physics Department of the Academy in 1993. Since 1971 he has headed the High Energy Physics and

Accelerator Laboratory of the B. P. Konstantinov Nuclear Physics Institute in St. Petersburg.

A List of High Energy Nuclear Physicists was made available on the internet by the Nuclear Physics Department in January 1997. It follows:

Who's who in Russian High Energy & Nuclear Physics

Abov Y. G. (Yury (Iurii) Georgiyevich) b. 1922, Corresponding Member (1987), Chief Researcher, The Theoretical and Experimental Physics Institute, Moscow

Abrosimov N. K. (Nikolay Konstantinovich) b. 1931, D. PM. S., Deputy Director, Petersburg Nuclear Physics Institute, St. Petersburg

Ageyev (Ageev) A. I. (Anatoly Ivanovich) Professor, Deputy Director, Institute of High Energy Physics, Protvino

Ado Y. M. (Yury (Iurii) Mikhaylovich) b. 1927, Professor, Institute of High Energy Physics, Protvino

Aldushchenkov A. V. (Aleksey Vasil'yevich) b. 1941, D. PM. S., Senior Researcher, Petersburg Nuclear Physics Institute, St. Petersburg

Alekseev E. G. (Evgeny Gavrilovich) b. 1949, D. PM. S., Senior Researcher, High Energy Physics Department, Petersburg Nuclear Physics Institute, St. Petersburg

Alekseev E. N. (Evgeny Nikolaevich) b. 1940, Professor, Laboratory Head, Institute of Nuclear Research, Moscow

Alekseev V. L. (Vladimir Leonidovich) b. 1938, D. PM. S., Senior Researcher, Petersburg Nuclear Physics Institute, St. Petersburg

Alekseev V. P. (Vladimir Petrovich) b. 1937, Laboratory Head, Moscow Radio Technical Institute, Moscow

Alkhozov G. D. (Georgy Dmitrievich) b. 1940, Professor, Deputy Director, High Energy Physics Department, Petersburg Nuclear Physics Institute, St. Petersburg

Altarev I. S. (Igor' Stanislavovich) b. 1951, D. PM. S., Senior Researcher, Petersburg Nuclear Physics Institute, St. Petersburg

Anashin V. V. (Vadim Vasil'yevich) Professor, Laboratory Head, Budeker Institute of Nuclear Physics, Novosibirsk

Andreev V. G. (Vladimir Grigoryevich) b. 1920, D. PM. S., Chief Researcher, Moscow Radio Technical Institute, Moscow

Anisovich V. V. (Vladimir Vladislavovich) b. 1932, Professor, Section Head, Theoretical Physics Department, Petersburg Nuclear Physics Institute, St. Petersburg

Anselm A. A. (Aleksey Andreyevich) b. 1934, Professor, Director, Theoretical Physics Department, Petersburg Nuclear Physics Institute, St. Petersburg

Antonova N. G. (Natal'ya Grigoryevna) Deputy Head, Institute of Nuclear Research,
Moscow

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Research Institutes Subordinate to the Nuclear Physics Department

The research institutes directly subordinate to the Nuclear Physics Department of the AN SSSR and the Russian Academy of Sciences are given below in the order of their founding:

1. Moscow Radio Technical Institute (MRTI) in Moscow.

Located at 132 Varshavskaie ave., Moscow, 113519. (Tel. 315-29-50.) Under the direction of Dr. Genadi I. Batskih, tel. 311-43-12.

Retrospect: Founded in 1946, its scientists research radio electronics, and develop radio electronic and radio technical systems. The Russian Academy of Sciences directs the scientific methodology of research in electronics research and the development of linear accelerators. The institute is under the scientific and systematic direction of the Nuclear Physics Department of the Russian Academy of Sciences. The current Director of the institute is Dr. Gennadii I. Batskih.

The historical organization and structure of the institute is as follows:

Structure and Scientific Personnel: The Director of the institute from 1980 until replaced by Professor Batskih was Viktor K. Sloka, C. Tech. S. **Accelerator**

Laboratory: Head Batskikh, Gennadii I., since '75;

Radio Physics Laboratory: Head Rytov, Sergei M., since '58;



2. The Nuclear Research Institute (INR) in Troitsk.

Located at 7a, 60-letia Oktyabria, V-312, Moscow, 117312. (For telegrams: Moscow, MEZON; fax: 135-22-68.) Under the direction of Academician Viktor A. Matveev: (E-Mail: matveev@ms1.inr.ac.ru)

Retrospect: Founded in 1970 by a joint decree of the Central Committee and the Council of Ministers of the Soviet Union, the institute was located in Troitsk and assigned the task of researching atomic, nuclear and elementary particle physics and neutrino astrophysics on the basis of accelerators, neutrino telescopes and special experimental complexes. The institute has researched a wide range of problems which include: theoretical and experimental investigations of the nature and properties of lepton, hadron and photon interaction with atomic nuclei at low, mean, high and superhigh energies; investigation of nuclear structure and nuclear reaction mechanisms; Neutrino physics development, including investigation of neutrino fluxes from the Sun and other astrophysical objects and the development

of neutrino diagnostics; development of existing and devising new methods of experimental nuclear and particle physics for experiments with high and super high intensity particle beams, and investigating adjacent fields of science and engineering in biology, medicine, radiation and radiochemistry, special material science, etc., and using the nuclear physics installations for these purposes. The institute was assigned a number of sites for research and observation: at Troitsk, in Prielbrusie in the Karabardino-Balkarian Autonomous Republic in the Caucasus, over the bank of the Baikal 1, and at the town of Artyomovsk in the Ukraine. From 1970 to 1986, it was directed by its founder Professor A. N. Tavkhelidze, a Lenin Prize winner. Since 1987, the institute has been headed by Professor Viktor A. Matveev, also a Lenin Prize winner. He sits on the Nuclear Physics Department Bureau governing body. The institute is comprised of eight research departments, three laboratories, two observatories, nine scientific engineering departments, two computer centers, experimental production units and 65 other divisions. In 1991, its personnel numbered some 2210 persons of whom there were three academicians and one corresponding member of the AN SSSR and the Russian Academy of Sciences, 30 doctors of science, 9 professors, and 140 candidates of science. Scientists who have contributed to the development of the institute include: M. V. Keldysh, (Keldish) M. A. Markov, B. T. Zatsepin, A. E. Chudakov, I. M. Frank, V. M. Lobashev, S. K. Esin, and I. V. Shtranikh, and V. D. Burlakov. Director Professor V. A. Matveev, since 1987.

(Troitsk: ego istoricheskoe proshloe i nastoiashchee, Moscow: Moscow Typographis No. 5, 1991, 48 pp. A brochure printed in both English and Russian. See pp. 12-14 for information on the Institute.)



3. B. P. Konstantinov Nuclear Physics Institute (PNPI) in St. Petersburg.

Located in the St. Petersburg region at Gatchina, 188350. (For telegrams: St. Petersburg, BLIK-322772.) Under the direction of Professor Vladimir A. Nazarenko. (E-mail: vnazar@inpi.spb.su)

PNPI Short Historical Background

Retrospect:

In picturesque suburb of Leningrad, at ancient town of Gatchina, the construction of the brand of the A.F.Ioffe Physical-Technical Institute of the Academy of Sciences of the former USSR began in 1954, where the research activities in the field of nuclear physics must be concentrated. In December 1959 the research reactor WWR-M was put into operation? and in 1970-1 GeV proton synchrocyclotron, remaining the main physical facilities of the Institute up to the present. By that time the direction of biological investigations was formed.

In 1971 the branch of the PTI was reorganized into an independent Institute named in honour of Academician B. P. Konstantinov who played a decisive role in its advancement. In 1992 it received the name "Petersburg Nuclear Physics Institute"(PNPI). In 1994 PNPI was given the status of State Research Center of Russia.

At present the staff of the Institute includes more than 600 scientists and about 1000 engineers, among them there are 62 doctors and 275 candidates of science. The works carried out in the Institute were awarded Lenin and State Prizes, B.P.Konstantinov Academic Prize, 5 scientists were elected Corresponding Members of the Academy of Sciences.

Main Achievements

The principal results of experimental works carried out at the reactor of PNPI are connected with the discovery and study of parity non-conservation in nuclear transitions and fission, the search for the neutron dipole moment, the precision measurement of the lifetime of a neutron, and the study of the asymmetry of its beta-decay.

In solid state physics important results were received in the investigations of the HTSC and magnetics structure on the atomic level. The spin dynamics of phase transitions was studied by the use of polarized neutrons, the critical scattering from the three-spin correlations and the inelastic scattering asymmetry with the magnetic field present were revealed experimentally.

The technique of crystal-diffraction spectroscopy of high resolution, with the help of which in PNPI first-class results were received in nuclear spectroscopy and solid state physics, made it possible to pass over the study of the particle channeling effect and to use it in accelerator technology and high energy physics.

The nucleon- and pion-nucleon scattering, the spatial and momentum nucleon distributions in nuclei and the properties of nuclei far from the line of beta-stability were studied experimentally at the synchrocyclotron. The results of theoretical and experimental studies of the process of hydrogen isotopes muon catalyzed fusion advanced PNPI into a number of world leaders in this field. At the medical tract of the synchrocyclotron more than 1000 patients were put through the proton stereotactic treatment.

The theoretical study results of the behavior of hadron interaction amplitudes, the perturbative and non-perturbative QCD, the extended standard electroweak model, the self-consistent methods in the theory of complex nuclei and heavy atoms, the description of P- and T- odd effects in atoms and molecules are also generally recognized.

The determination of the details of the protein biosynthesis mechanism, the elaboration of the diagnostic methods of human hereditary disease, the creation of biological test-systems for ecological monitoring are the results of biological active macromolecules and cell structures research in PNPI.

Retrospect: Established in 1971 from the Gatchinskii branch of the A. F. Ioffe Theoretical Physics Institute. The institute is currently being directed by Professor Alexei An. Anselm, D. PM. S.

(older material)

The Institute has nine laboratories and ten departments:

the Electronics and Automation Laboratory;

the High Energy Physics and Accelerator Laboratory with a Rare Elements Department;

the Molecular Physics Laboratory with the Elementary Particle Physics Department,
the Fission Physics Department,
the Gamma Ray Spectroscopy Department,
the Nuclear Spectroscopy Department,
the Reactor Physics Department, and the
Short-Lived Nuclei Department;

the Radio Biology Laboratory with a Radiation Cytology Department and a Radiochemistry Department;

the Semiconductor Physics Laboratory;
the Solid State Physics Laboratory, and,
a Theory Laboratory.

The institute has a cyclotron and a 16 megawatt VVR-M water-moderated water-cooled nuclear reactor for its research. It also has a computerized system for the automated control of experiments. This institute was founded in 1971 by B. P. Konstantinov on the basis of the nuclear laboratories of the PhysicoTechnical Institute of the academy. Its personnel worked with scientists of Theoretical and Experimental Physics institute to prove experimentally the existence of the weak nucleon-nucleon interaction. The institute does research in nuclear physics, theoretical and molecular physics and radio biology. It has a cyclotron and a nuclear reactor. From 1986 until replaced by Professor Alexei A. Anselm, the Director was Aleksei A. Borob'ev, D. PM. S. The present Director is Vladimir A. Nazarenko. (GSE 30, p. 577.)



Petersburg Nuclear Physics Institute (PNPI) of The Russian Academy of Sciences

Phone: +7(81271)3-0036, +7(812)298-3538
FAX: +7(81271)3-7196, +7(81271)3-134
E-mail: PNPI@LNPI.SPB.SU
Address: Petersburg Nuclear Physics Institute
Gatchina, Leningrad district
188350 Russia

Director of the Institute : Vladimir A. Nazarenko

Institute Structure:

Neutron Research Department

Director-- Vladimir Nazarenko
+ **Tel.:** +7(81271)3-0036
Fax: +7(81271)3-7196
E-mail: vnazar@lnpi.spb.su

NRD DIVISIONS AND LABORATORIES

Neutron Physics Division

Head: Anatolii Serebrov

Condensed Matter Research Division

Head: Alexei Okorokov
Phone: +7(81271)3-9023
E-mail: OKOROKOV@PNPI.SPB.RU

MAIN RESEARCH LABORATORIES

Neutron Interferometry Group
Head: Guilyari M. Drabkin

Disordered State Physics Laboratory
Head: Aleksii I. Okorokov

Crystal Physics Laboratory
Head: Vladimir. P. Plakhty

Material Research Laboratory
Head: Vitali A. Trounov

Material Chemistry and Spectroscopy Laboratory
Head: Yulii. S. Grushko

Reactor Physics and Technology Division
Head: Kir Konoplev

Automation of Physics Experiments Division
Head: Vassily Marchenkov

Semiconductor Detectors of Nuclear Radiation Division
Head: Abdurakhman Khusainov

Semiconductor Nuclear Detector Division
Laboratory Head-- Dr. Abdurakhman Kh. KHUSAINOV
Phone: +7(81271)36247
E-mail: KHUSAIN@PNPI.SPB.SU

PERSONNEL DATA: Full staff -- 27

Professor's degree	Scientists	7	Age	18-30	2
Doctor's degree	3	Engineers	11	31-40	7
Univ degree	15	Technicians	9	41-50	10
Others	9		50	8	

MAIN FIELDS OF RESEARCH

Semiconductor materials for nuclear detectors (Ge, Si, CdTe, a-Si:H).

Technology of creating semiconductor detectors and detector units.

Semiconductor detectors and detector systems.

MAIN INSTRUMENTATION:

Installation for investigation of semiconductor material characteristics.

Technology installation for creating semiconductor detector.

EXISTING COLLABORATIONS:

A. F. Ioffe PTI (St. Petersburg), Riga Research Institute (Latvia).

MAIN ACHIEVEMENTS OF THE LAST 5 Years:

600 Si(Li) unit multidetector for neutrino physics investigation.
 High purity Ge detectors for X- and gamma-ray spectrometry.
 Miniature coaxial Si(Li) detectors for medical purpose.
 Detectors using amorphous crystalline heterostructures.
 CdTe detectors for gamma-ray spectrometry and dosimetry.
 About 20 publications in Nuclear Physics., Soviet Physics.-Semiconductors., NIM,
 Diamond, Diamond and Related Materials. Reports at different International
 Conferences.

Last update : Mon Apr 29, 1996

Neutron Optics Division

Head: Anatolii Schebetov

Laboratory Head:

Dr. Anatolii F. SCHEBETOV

Phone:+7(81271)39053

Fax:+7(81271)39053

E-mail: SCHEBET@LNPI.SP.B.SU

PERSONNEL DATA: Full staff -- 18

Professor's degree	Scientists	6	Age	18-30	1
Doctor's degree	2 Engineers	5		31-40	10
Univ degree	8 Technicians	21		41-50	10
Others	8			50y	2

MAIN FIELDS OF RESEARCH AND DEVELOPMENT:

Development of polarizing super mirrors and super mirror technology.

APPLIED RESEARCH AND DEVELOPMENT:

Neutron optics equipment preparation and check up. Different mechanical works needed for physical investigations on/off neutron beams.

MAIN INSTRUMENTATION:

Thermal evaporation machine with two electron beam guns. Three mirrors of 200x200 mm² area can be coated simultaneously.

Sputter machine with 5 sputters (coating area 320x720 mm); three sputters can work simultaneously.

Time-of-flight polarized neutron spectrometer (X = 1.3-- 4.0 Å) for super mirror parameter measurement.

MAIN INSTALLATIONS DEVELOPED FOR PIK REACTOR:

Neutron guides, mirror polarizers, foil collimators, rotational and translational units.

EXISTING COLLABORATIONS:

IAE, ITEP, HIPI (Moscow). IINR (Dubna), IPN (Ekaterinburg, Russia), KFKI (Hungary), IRI (Delft, NL), RAL (UK), GKSS (Germany).

MAIN ACHIEVEMENTS OF THE LAST 5 YEARS:

Polarized super mirrors on glass and silicon backings

High Energy Physics Division

Director-- Alexei Vorobyov
+ **Tel.:** +7(81271)3-1855
Fax: +7(81271)3-0010
E-mail: vorobyov@lnpi.spb.su

Theoretical Physics Division (separate www-server)

Director-- Alexei Anselm

+ **Tel.:** +7(812)294-9196
Fax: +7(81271)3-1963
E-mail: anselm@lnpi.spb.su

Molecular and Radiation Biophysics Department (separate www-server)

Director-- Victor Fomichov
+ **Tel.:** +7(81271)3-1058
Fax: +7(81271)3-2303
E-mail: fomichov@lnpi.spb.su

Automation of Physics Experiments Division

Division of Physics and Technology of Reactors

Director of the Department: Professor Kir Konoplev
Dept. phone: +7(812) 298-8614
E-mail: KIR@LNPI. SPB. SU

MAIN RESEARCH LABORATORIES:

Critical Experiment Laboratory
Head: K. A. Konoplev

Hydrogen Isotope Separation Laboratory
Head: V. D. Trenin

Laboratory of Reactor Thermophysics
Head: G. A. Kirsanov

Group of Deuterium Cold Neutron Source
Head: G. D. Porsev

Group of Reactor In-Service Inspection
Head: V. V. Didenko

Last update: Mon May 27, 1996

Computing and Networking Facilities at PNPI

Computer Systems Group
Head: Vladimir Saksin

NRD Computer Systems Group

Phone: +7(81271)322-60 **Fax:** +7(81271)360-51

Main Area of Responsibility:

NRD Computer INFRAstructure and INFOstructure

Main tasks are:

to develop the NRD centralized computer resources (hardware and software);

to develop the NRD IP connectivity;

to develop the information systems;

to develop the NRD LAN.

General Group Info

The computer hardware resources.

Centralized NRD Communication Computer.

The Computer Systems Group Staff.

Last update: Fri Jul 26 12:33:38 MSK 1996



(1997 update)

[According to information from the PNPI Web Internet Homepage, the Institute Structure at the present time is as follows:

The Neutron Research Department: under the direction of Vladimir Nazarenko. The status of the Neutron Research Department of PNPI as presented on the PNPI Web Homepage on the internet provides information on the latest developments in that department. The material in brackets is directly from that homepage: [Fundamental research using neutron radiation is a major scientific direction pursued at Petersburg Nuclear Physics Institute (PNPI) of the Russian Academy of Sciences. The history of its initiation is closely connected with the name of Professor L. I. Rusinov and dates back to the mid-50s, when construction of a research nuclear reactor WWR-M was started in Gatchina, in the affiliation of the Ioffe Physical-Technical Institute, to be commissioned at the end of 1959. In the years . . .since then, the scope of scientific research has become established, teams of reactor specialists and physicists have formed, the reactor power was raised from 10 to 18 MW, the experimental possibilities have been broadened considerably due to the development of such modern devices as cold and ultracold neutron sources, neutron guide and polarizing systems, as well as the development and implementation of a number of major techniques and installations. Among the works that have won world-wide recognition are: discovery and investigation of parity violation effects in nucleon-nucleon, neutron-nuclear interactions, and in the fission of heavy nuclei; the search for the neutron electric dipole moment; precision measurements of the neutron lifetime and of the correlation constants for the free neutron decay; a method for measuring small($\Delta E/E$ down to 10^{-7}) X-ray line shifts due to chemical and nuclear effects; investigation of the atomic and magnetic structure and low-field electrodynamics of high temperature superconducting materials; experimental detection of quantum effects in zero spin fluctuations; investigation of magnetic excitation in amorphous and spin glass systems; and many others. The development of a number of original techniques has won for PNPI a place among the leading neutron research laboratories in the world working with polarized, cold, and ultra cold neutrons. . . .In April 1992, the decision of the Russian Academy of Sciences has transformed the neutron research laboratories together with the associated support groups into the Neutron Research Department with the rights of an Institute of the RAS.

The Department includes three scientific divisions (Neutron Physics Division, Condensed State Research Division, and Division of Reactor Physics and

Technology), three technical divisions (experiment automation, nuclear semiconductor detectors, neutron optic), and a computer center group. The scientific divisions consist of laboratories and groups. The Reactor Physics and Technology Division includes the WWWR-M reactor servicing shop and a shop for the PIK reactor under construction. The total staff of the Department is 620 people, which includes 200 research workers of whom 14 hold the doctorate, and 89 hold the candidate degree. Among this total are 227 engineers, and 193 scientific workers. . . .The Department is an integral part of the Petersburg Nuclear Physics Institute which has a large enough potential for supporting scientific research, including a machine shop, electronics equipment shop (about 100 people in each), cryogenic station, a garage, etc. Cooperation with the other three scientific Departments of the Institute (High Energy Physics, Theoretical Physics, and Molecular and Radiation Biophysics) which are widely recognized internationally favors undoubtedly a broadening of the scope and raising of the level of the research carried out by the Department. . .The Department accepts young graduates from St. Petersburg University and St. Petersburg Technical University where leading scientists of the PNPI read lectures. . .

--This material provided by the Director of the Department V. A. Nazarenko]

Under the Neutron Research Department.

The High Energy Physics Division: under the direction of Alexei Vorobyov. The division includes the following laboratories: Elementary Particle Physics Laboratory under Alexei Vorobyov; Few Body System Laboratory under Stanislav Belostotski; Muon Catalyzed Fusion Laboratory under Gennadi Semenchuk; Mesoatom Physics Laboratory under Alexei Smirnov; HEP Detectors Laboratory under Vladimir Samsonov; Polarization Phenomena Laboratory under V. Vovchenko; Meson Physics of A Condensed Matter under Vladimir Koptev; Meson Physics Laboratory under Sergei Kruglov; Computer Systems Department under Andrei Chevel(Shevel); Accelerator Department under Nikolai Abrosimov; Accelerator Laboratory under German Riabov; and the Accelerator Maintenance Group under Stalmitriev.

The Theoretical Physics Division: under the direction of Alexei Anselm.

The Molelcular and Radiation Biophysics Department: under the direction of Viktor Fomichov.

4. The Theoretical and Experimental Physics Institute (ITEP) in Moscow.

Located at 25 B. Cheremushinskaia (aya) st., Moscow, 117259. (Tel. 123-31-95.) Under the direction of Professor Ivan V. Chuvilo. The institute is under the scientific-systematic direction of the Nuclear Physics Department of the Russian Academy of Sciences.

Scientific Councils under Nuclear Physics Departmental Aegis:

1. Scientific Council on the Complex Problems of "Space Rays." Located at 53 Leninskii ave., B-333, Moscow, GSP-1, 117924. Directed by Academician Aleksandr E. Chudakov.
2. Scientific Council on the Physics of Electric-Magnetic Interactions. Located at 53 Leninskii ave. U-333, Moscow, GSP-1, 117924. Under the Chairmanship of Aleksandr M. Baldin.

3. Scientific Council on the Physics of the Atomic Nucleus. Located at 53 Leninskii ave., U-333, Moscow, GSP-1, 117924. Under Academician Spartak T. Beliaev.
4. Scientific Council on Neutrino Physics. Located at 7a ave. 68-letia Oktyabrya, U-312, Moscow, 117312. Under the direction of Professor Grigory V. Domogatskii.

(1997 update listing)

**This list is the latest posted on the internet
Institutes and Organizations of the Department of Nuclear Physics**

1. Institute of Nuclear Research (INR)

7a, ave. 60-letia Oktyabrya, V-312, Moscow, 117312
for telegrams: Moscow, MEZON, fax: 135-22-68
Director: Academician Viktor A. Matveev, tel.334-00-71, 135-77-60,
E-mail: matveev@ms1.inr.ac.ru

2. B. P. Konstantinov Petersburg Nuclear Physics Institute (PNPI)

St.-Petersburg region, Gatchina, 188350
for telegrams: St.-Petersburg, BLIK-322772
Director: Prof. Vladimir A. Nazarenko, tel.298-35-38, E-mail:
vnazar@lnpi.spb.su

3. Moscow Radiotechnical Institute (MRTI)

(Under Scientific and Methodical auspices of Russian Academy of Sciences)
132, Varshavskoye ave., Moscow, 113519, tel.315-29-50
Director: Dr. Gennady I. Batskih, tel.311-43-12

4. Institute of Theoretical and Experimental Physics (ITEP)

(Under Scientific and Methodical auspices of Russian Academy of Sciences)
25, B.Cheremushinskaya st., Moscow, 117259, tel.123-31-95
Director: Prof. Ivan V. Chuvilo, tel.125-02-92, E-mail:
director@itep.msk.su

5. Scientific Council on Complex Problem "Cosmic rays"

53, Leninskii ave., B-333, Moscow, GSP-1, 117924
Chairman: Academician Alexander E. Chudakov, tel.135-85-60, E-mail:
chudakov@npd.msk.su

6. Scientific Council on Physics of Electromagnetic Interactions

53, Leninskii ave., V-333, Moscow, GSP-1, 117924
Chairman: Alexander M. Baldin, tel.923-10-28, E-mail:
baldin@lhe20.lnr.dubna.su

7. Scientific Council on Nuclear Physics

53, Leninskii ave., V-333, Moscow, GSP-1, 117924

Chairman: Academician Spartak T. Belyaev, tel.196-92-06, E-mail:
bst@bstw.kiae.su

8. Scientific Council on Neutrino Physics

7a, ave. 60-letia Oktyabrya, V-312, Moscow, 117312
Directed by Prof. Grigory V. Domogatskii, tel.133-65-85 E-mail:
domogats@hpbai1.ifh.de



Other National Nuclear Physics Research Institutes

Before 1950

1. S. V. Starodubtsev Physical Technical Institute in Tashkent.

1950s

2. Nuclear Physics Institute in Alma Ata. 3. Nuclear Physics Institute in Tashkent. 4. Nuclear Power Engineering Institute in Minsk. 5. High Energy Physics Institute in Alma Ata. 6. Nuclear Research Institute in Kiev.



Department of Physical and Technical Problems of Energetics (DPTPE) in Moscow

32a, Leninskii ave., V-71, Moscow, GSP-1, 117993, tel.938-53-24

(Formerly: The Physical Technical Problems of Power Engineering Department)

Under the direction of Iurii N. Rudenko.

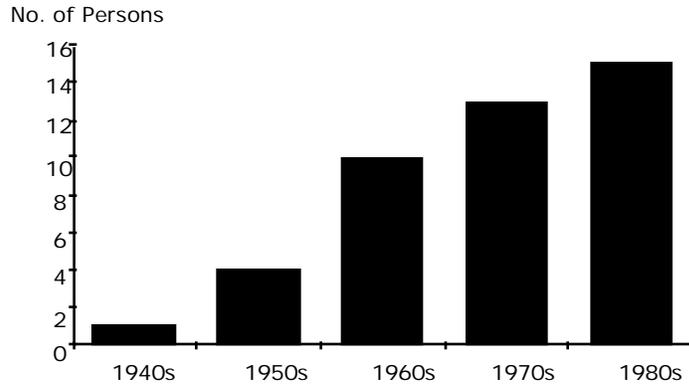
[**Rudenko, Iurii N.**, C. Tech. S. Born in 1931 in Donetsk Oblast. Engineer. Specialist in power engineering. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1976, and academician since 1987. Following graduation from the Leningrad Correspondence Industrial Institute in 1955, he held positions at the Orsk-Khalitovo Metallurgical Combine and later at the Leningrad Polytechnic Institute--until 1960. From 1960 to 1963, he was a group leader and the head of the operational mode service of the Interconnected Dispatcher Control of the Siberian Integrated Power Grid. In 1963, he joined the faculty of the Siberian Power Engineering Institute of the Siberian Department of the AN SSSR, becoming its Director in 1973. Academician secretary to the Physical Technical Problems of Power Engineering Department since 1988. He was on the national committee's working group on organizing a conference on the construction of large power engineering systems. In 1985 he served as deputy chairman of the Academy's Council on the Problems of Power Engineering. He was a delegate to the 27th congress. He received the State Prize in 1986, and holds other orders and medals for his scientific contributions. (GSE 30, p. 621.)]

Retrospect: In 1987, membership in this department totaled some 42 scientists: 10 academicians and 32 corresponding members. In 1989, academicians numbered 15 and Corresponding members 38. The membership includes some eight Directors, two heads or chairmen of important divisions of Scientific Research Institutes, and four Deputy Directors of institutes. Two of these Directors Head All-Union Associated Research Organizations. Four members served on the Presidium of the national academy--and in 1988, three members were promoted to the capacity of advisors to that Presidium because of their advanced ages. Four members of the department were also members of the board of the General Assembly of the GKNT and four belonged to the Siberian Department. The President of the Uzbek SSR Academy of Sciences was a member of this Department. The Chairman of the St. Petersburg Scientific Center that was established in 1982 also chairs the Interdepartmental Coordinating Council in St. Petersburg (1979) that coordinated scientific and technical developments with the Warsaw Pact Countries is also a member of this department.

Growth: The growth in numbers of scientists in this department has been relatively steady over the period from 1940 to 1990, which reflects the continuing concern for the continued development of power resources in Russia.

Figure 16

Personnel in Physical Technical Problems of
Power Engineering Department, by Decade of
Assignment



Compiled from: CR 80-13202, pp. 157-159, 1980; LDA
87-11012, pp. 89-90, 1987.

Academicians--age and schools: The average age of the 15 academicians of the Physical and Technical Problems of Energetics Department in 1991 was 73 years. The oldest academician was 92, the youngest 52. Three others were in their 80s. Two academicians appear to have no degrees, and two have Candidate degrees. Of the remaining eleven degreed academicians nine institutions graduated 10 academicians. Two graduated from the Moscow Power Engineering Institute. One each graduated from the following institutions: Leningrad Correspondence Industrial Institution, the Moscow Higher Technical School, the M. I. Kalinin Leningrad Polytechnical Institute, the S. Ordzhonikidze Moscow Aviation Institute, the Baku Industrial Institute, the Leningrad Institute of Technology, the University of Kiev, and the Leningrad State University. Only two of the 10 graduates from these institutions matriculated at universities. In fact the two academicians holding the Candidates degrees were, in turn, the Academician Secretary and the Deputy Secretary of the department.

Corresponding Members--age and schools: The average age of the 27 corresponding members whose birth dates are know was 69 years in 1991. Eleven of the 38 members--mostly newly elected members--had no birthdates given in the source used for this analysis. Only 9 institutions are identified for 11 corresponding members as their place of graduation. Ten other corresponding members hold advanced degrees--D. Tech. S.--but their institutions are not identified in the source used. Another 16 corresponding members apparently have no degrees. One corresponding member holds a Candidate degree. The institutions that graduated the 11 corresponding members were: the Moscow Institute of Energy, the Moscow Institute of Communication Engineering, the Moscow Institute of Aviation Technology, the Leningrad Polytechnic Institute (2), the Leningrad Engineering Institute, the Novocherkassk Polytechnic Institute, the Leningrad Institute of Water Transportation, and Moscow State University (2). Again, as with the academician educational background, the corresponding members of the department have come largely from technical and engineering institutes.



(1997 update)
Bureau of the Department

Academician-secretary

Academician Iurii (Iurii) N. Rudenko, tel.938-14-00, 938-57-70

Rudenko, Iurii N., C. Tech. S. Born in 1931 in Donetsk Oblast. Engineer. Specialist in power engineering. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1976, and academician since 1987. Following graduation from the Leningrad Correspondence Industrial Institute in 1955, he held positions at the Orsk-Khalitovo Metallurgical Combine and later at the Leningrad Polytechnic Institute--until 1960. From 1960 to 1963, he was a group leader and the head of the operational mode service of the Interconnected Dispatcher Control of the Siberian Integrated Power Grid. In 1963, he joined the faculty of the Siberian Power Engineering Institute of the Siberian Department of the AN SSSR, becoming its Director in 1973. Academician secretary to the Physical Technical Problems of Power Engineering Department since 1988. He was on the national committee's working group on organizing a conference on the construction of large power engineering systems. In 1985 he served as deputy chairman of the Academy's Council on the Problems of Power Engineering. He was a delegate to the 27th congress. He received the State Prize in 1986, and holds other orders and medals for his scientific contributions. (GSE 30, p. 621.)

Deputies of the Academician-secretary:

Academician Kamo S. Demirchan, tel.273-42-51

Demirchian, Kamo S., C. Tech. S. Born in 1928. Academician deputy secretary of the Physical Technical Problems of Power Engineering Department of the Academy since July 1986. Academician of that department since 1984. In 1985, he was awarded the P. N. Iablochskii Prize for his work. He is presently a deputy to the Academician Secretary of the Department.

Academician Oleg N. Favorskii, tel.361-66-39

Favorskii, Oleg N., D. Tech. S. Born in 1929. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1981; academician in 1993. He is presently a deputy to the Academician Secretary of the Department.

Corresponding Member Andrei N. Didenko, tel.938-52-49

Didenko, Andrei N., D. Tech. S. Born in 1932. Specialist in Accelerator and Physics Electronics. Corresponding member of the General Physics and Astronomy Department of the Academy since 1984. He graduated from the Tomsk State University in 1955 and began working at the Tomsk Polytechnic Institute imeni C. M. Kirov in 1970 where he was designated a professor. He was given the chair in electron physics in 1977. From 1968 to 1987, he was the Director of the Scientific Research Institute of Nuclear Physics, and in 1988 he became chairman of the Scientific Council on Electronics and Automation. He was a member of the Presidium's Commission on Atomic Energy and was designated an honored

Scientist of the Soviet Union. He was deputy chairman of a Scientific Council under the purview of the GKNT dealing with the processing of construction materials. He is presently a deputy to the Academician Secretary of the Department of Physical and Technical Problems of Energetics of the Russian Academy.

Members of the Bureau:

Academician Iurii (Iurii) Al. Glebov, tel.298-67-86(SPb)

Glebov, Igor A., D. Tech S. Born in 1914 in Petrograd (St. Petersburg). Russian specialist in electric power. Corresponding member of the Physical Technical Problems of Power Engineering Department of the AN SSSR and the RAN since 1974 and academician since 1976. He graduated from the M. I. Kalinin Leningrad Polytechnical Institute in 1938. He served in the Soviet army from 1941 to 1946. From 1946 to 1951, he was a staff member of a SRI of the academy and of an SRI of the Food Processing Industry from 1951 to 1961. He joined the staff of the All-Union SRI of Electric Machine Building in 1961, becoming its director in 1973. The Electrical Machine Building Scientific Research Institute is located in St. Petersburg and was established in 1956. It has become the center for Russian research and development of electric machine manufacturing. His own works are on electric power systems, applications of mathematical modeling in power engineering, design of electric machines and semiconductor converters. He is President of the International Conference of Large High-tension Electric Systems. Since 1979, chairman of Science and Technology Commission of the Council of the Union of the U.S.S.R. Supreme Soviet. Since 1979, he has been on the Presidium of the academy. Until 1989, he served as chairman of the St. Petersburg Scientific Center that was founded in 1982 and since 1979 he has headed the InterDepartmental Coordinating Council of the U.S.S.R. Academy of Sciences. This council has some 14 Scientific Councils subordinate to it. He was awarded a State Prize in 1968. In 1976, he was given the P. N. Iablochskii Prize for his work in electrical engineering. (GSE 30, p. 385.)

Academician Anatoly (Anatolii) S. Koroteev, tel.456-46-08

(no entry)

Academician Alexandr (Aleksandr) Iv. Leontyev (Leontiev)(Leont'ev), tel.263-60-33

Leont'ev (Leontiev), Anatolii I., Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since December 1987; academician in 1993.

Academician Nikolai N. Ponomarev-Stepnoi, tel.196-95-75

Ponomarev-Stepnoy, Nikolai N., C. Tech. S. Born in 1928. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1984, and an academician since December 1987. Since 1977, he has been a deputy chairman of the Nuclear Reactor Division of the I. V. Kurchatov Atomic Energy Institute in Moscow.

Academician Ashot Ar. Sarkisov, tel.955-26-75

Sarkisov, Ashot A., Vice Adm Eng. Born in 1924. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1981; academician in 1993.

Academician Mihail Ad. Styirikovich, tel.938-14-00

Styirikovich, Mikhail A., D. Tech. S. Born November 1902 in St. Petersburg. A high temperature scientist and thermal power engineer. He was a corresponding member of the national academy from 1946 until 1964. Since 1964, he has been an academician of the Physical Technical Problems of Power Engineering Department of the academy. Since 1965, he has served on the Presidium of the Academy. From 1977, he was a board member of the GKNT general assembly. He graduated from the Leningrad Institute of Technology in 1927. From 1928-46, he worked at the Boiler and Turbine Institute and taught at the Moscow Power Engineering Institute from 1939-71. From 1939-60 he worked at the Institute of Power Engineering of the Academy becoming head of the Department of mass exchange of the Laboratory of High Temperatures that since 1962 has been called the Institute of High Temperatures of the Academy. His principal research thrusts are in the development of heat and power installations, working processes of steam boilers, problems of heat transfer in boiling liquids under high pressures. He developed standards for thermal and aerodynamic calculations of boiler units. He has done research in aerodynamics, heat and mass exchange, scale formations under conditions of two-phase flow, structure of boiling boundary layers, and mass exchange and physicochemical processes in magneto hydrodynamic generators. He is an honorary Vice President of the International Executive Council of the World Energy Conference and Vice President of the International Center for Heat and Mass Transfer. In 1988, he was appointed an advisor to the national academy's Presidium . (GSE 25, p. 183.)

Academician Valery Iv. Subbotin, tel.546-39-16

Subbotin, Valerii I., D. Tech S. Born in 1919 in Baku. Russian specialist in high temperature physics. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1968; and, academician since December 1987. He was made a member of the Presidium in October 1988. He graduated from Baku Industrial Institute in 1942. From 1943 to 1948, he served on the board of the Caucasus Power Engineering Complex and from 1948 to 1953, he was a research worker at the Institute of Power Engineering of the Azerbaiian Academy of Sciences. In 1953, he joined the staff of the Institute of Physics and Energetics in the city of Obninsk, becoming deputy director in 1969. He is also head of the subdepartment of high-temperature physics at the Moscow Physical Engineering Institute where he became a professor in 1960. Lenin Prize, 1964. (GSE 25, p. 187.)

Academician Nikolai N. Tihodeev, tel.555-18-80(SPb)

Tikhodeev, Nikolai N. Born in 1927. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1979; academician in 1993.

Academician Vladimir Ev. Fortov, tel.485-79-88

Fortov, Vladimir E. Born in 1946. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since December 1987; academician in 1993. Since 1979, head of the Penetration Mechanics Laboratory of the Chemical Physics Institute in Moscow.

Academician Alexandr (Aleksandr) Ef. Sheindlin, tel.485-96-63

Sheindlin, Aleksandr E., D. Tech. S. Born in 1916 in Kuybyshev. Russian specialist in heat physics and power engineering. Academician of the Physical Technical Problems of Power Engineering Department of the Academy since 1974. In 1937, he graduated from the Moscow Power Engineering Institute and first worked as an engineer in a factory and then as an assistant at the institute. From 1945 to 1947, he worked at the Moscow Power Engineering Institute receiving a doctorate of technical sciences degree in 1954, becoming a professor in 1955. In 1960, he became head of a laboratory at the Institute of High Temperatures of the AN SSSR, becoming the institute's Director in 1961. Since 1967 he has also been head of a subdepartment of the Moscow Physicotechnical Institute. He directed the construction and operation of the world's first experimental model magneto hydrodynamic installation (U-02 in 1964) for the direct conversion of heat energy into electricity and the first such industrial installation (U-25 in 1971.) From 1961 to 1989, he was Founding-Director of the High Temperatures Institute in Moscow that was created in 1962 to research thermophysical and electrophysical properties of matter at high temperatures. It is subordinate to the academy's Physical and Technical Problems of Power Engineering Department. Lenin Prize, 1959; Recipient of the State Prize, 1976; Polzunov Prize, 1963. (GSE 29, p. 571.)

Corresponding Member Vyacheslav M. Batenin, tel.484-23-11

Batenin, Viacheslav M., D. Tech. S. Born in 1939. Corresponding member of the Physical Technical Problems of Power Engineering of the Academy since December 1987. Listed as a senior researcher in the High Temperatures Institute in Moscow and in 1979 he was Deputy Chief of the International Programs department of that institute. In 1987, he was named Director of the High Temperature Institute which was established in 1962 for researching the thermophysical and electrophysical properties of matter at high temperatures. (LDA 89-11378.)

Corresponding Member Leon M. Biberman, tel.362-53-10

Biberman, Leon M., D. PM. S. Born in 1915. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1979. Since 1972, he has been Chief of the Theoretical Laboratory of the High Temperatures Institute in Moscow.

Corresponding Member Valentin Al. Grigoriev, tel.273-50-71

Grigor'ev (Grigoriev), Valentin A., D. Tech. S. Born in 1929. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1981.

Corresponding Member Ianush B. Danilevich, tel.298-11-97(SPb)

Danilevich, Yanush B., Born in 1931. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since December 1987. (LDA 89-11378.)

Corresponding Member Alexei Al. Makarov, tel.127-48-34

Makarov, Aleksei A., D. Econ. S. Born in 1937. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1984. Corresponding member of the Economics department of the academy since 1979. Also member of the Siberian department. Since 1974, he has been Deputy Director of the Power Engineering Institute in Irkutsk, subordinate to the Siberian department, and which is involved in the research and development of the electrification of Siberia, including power generation and transmission. Since 1984, he has been Director of the Organization and Management Problems Scientific Research Institute in Moscow, which was subordinate to the GKNT.

Corresponding Member Philipp G. Rutberg, tel.315-17-57(SPb)

Rutberg, Philipp. G. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy in 1993.

Corresponding Member Viktor L. Talrose, tel.137-34-79

Tal'rose (Talrose), Viktor L., D. Chem. S. Born in 1922 in Tula. Russian physical chemist. Corresponding member of the General and Technical Chemistry Department of the Academy since 1968. He graduated from Moscow State University in 1947 and began work at the Institute of Chemical Physics of the AN SSSSR immediately. Since 1954, he also worked at the Moscow Physicotechnical Institute where, since 1961, he has headed the subdepartment of chemical physics. Since 1969, he has been Deputy Director of the Chemical Physics Institute in Moscow, and since 1978, Chief of the Physical Methods Division of the Chemical Physics Institute in Moscow. Since 1977, he has occupied the post of dean of the Molecular and Chemical Physics Faculty at the Physical Technical Institute in Moscow. In 1984, he was awarded--with others-- the Lenin Prize for his work on using lasers in chemical chain reactions. His works deal with the kinetics of chemical reactions occurring under irradiation and with the application of physical methods to chemistry, especially in the spectroscopic study of the reactions of many free radicals and ions. (GSE 25, p. 344.)

Prof. Leonid Al. Bolshov, tel.232-24-21

Scientist-secretary: Dr. Boris F. Reutov, tel.938-18-54

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Tatiana I. Belyaeva, tel.938-53-45

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Academicians

Ageev, Mikhail I. Corresponding member of the Problems of Machine Building and Control Processes Department of the Academy and the Far Eastern Department of the Academy since December 1987; academician in 1993.

Alemasov, Viascheslav E., D. Tech. S. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1984; and academician in 1993. Since 1988, he has been Chairman of the Kazan' Affiliate of the Academy.

Demirchian, Kamo S., C. Tech. S. Born in 1928. Academician Deputy secretary of the Physical and Technical Problems of Energetics Department of the Academy since

July 1986. Academician of that department since 1984. In 1985, he was awarded the P. N. Iablochskii Prize for his work.

Favorskii, Oleg N., D. Tech. S. Born in 1929. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1981; academician in 1993.

Fortov, Vladimir E. Born in 1946. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since December 1987; academician in 1993. Since 1979, Head of the Penetration Mechanics Laboratory of the Chemical Physics Institute in Moscow.

Glebov, Igor A., D. Tech S. Born in 1914 in Petrograd (St. Petersburg). Russian specialist in electric power. Corresponding member of the Physical and Technical Problems of Energetics Department of the AN SSSR and the RAS since 1974 and academician since 1976. He graduated from the M. I. Kalinin Leningrad Polytechnical Institute in 1938. He served in the Soviet army from 1941 to 1946. From 1946 to 1951, he was a staff member of a SRI of the academy and of an SRI of the Food Processing Industry from 1951 to 1961. He joined the staff of the All-Union SRI of Electric Machine Building in 1961, becoming its Director in 1973. The Electrical Machine Building Scientific Research Institute is located in St. Petersburg and was established in 1956. It has become the center for Russian research and development of electric machine manufacturing. His own works are on electric power systems, applications of mathematical modeling in power engineering, design of electric machines and semiconductor converters. He is President of the International Conference of Large High-tension Electric Systems. Since 1979, Chairman of Science and Technology Commission of the Council of the Union of the USSR Supreme Soviet. Since 1979, he has been on the Presidium of the academy. Until 1989, he served as Chairman of the St. Petersburg Scientific Center that was founded in 1982 and since 1979 he has headed the Interdepartmental Coordinating Council of the USSR Academy of Sciences. This council has some 14 Scientific Councils subordinate to it. He was awarded a State Prize in 1968. In 1976, he was given the P. N. Iablochskii Prize for his work in electrical engineering. He is currently a member of the Departmental Bureau Governing Body of the Physical and Technical Problems of Energetics Department. (GSE 30, p. 385.)

Glukhikh, Vasilii A., D. Tech. S. Born in 1919. Corresponding member since 1981, and, academician since December 1987. Since 1974, he has been Director of the D. V. Efremov Electrophysical Apparatus Scientific Research Institute in St. Petersburg. The institute was established in 1946 for the purpose of designing and building particle accelerators. It does research in fundamental and plasma physics. It is directly subordinate to State Committee for Utilization of Atomic Energy.

Khlopkin, Nikolai S., C. Tech. S. Born in 1923. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1976; academician in 1993.

Khristianovich, Sergei A. Born October 1908 in St. Petersburg. Russian scientist in mechanics. He was a member of the national academy's Presidium from 1946 to 1956. While a corresponding member of the national academy since 1939, he has been an academician of the Physical and Technical Problems of Energetics Department of the academy since 1943 (originally elected to the Physical Mathematical Department). Since 1977, he has been a board member of the GKNT General Assembly. After graduation from Leningrad State University he joined the staff of the State Hydrologic Institute, and was a staff member of the Central Aerodynamic and Hydrodynamic Institute from 1937 to 1953. He was named professor at the Moscow Physico-Technical Institute in 1947. He was a staff member of the Institute of Chemical Physics of the national academy from 1956-1957. From 1957-1961 he was Deputy Chairman of the Siberian Division of the

AN SSSR, and from 1957 to 1965, he also served as Director of the Theoretical and Applied Mechanics Institute of the Siberian Department. From 1965 to 1972, he was associated with the All-Union SRI of Physico-Technical and Electronic Measurements Institute, and in 1972, he took a position at the Institute of Problems in Mechanics of the national academy. His principal works are on the mechanics of liquids and gases and on the mechanics of deformable solids. He supervised the development of the first transonic wind tunnels in Russia (1944-47). He has researched the propagation and reflection of weak shock waves (1955-63), steam-gas turbines and methods of intracycle removal of sulfur from mazut at steam power stations (1960-76). State prizes: 1942, 1946, and 1952. (GSE 28, p. 612.)

Kirillin, Vladimir A., D. Tech. S. Born in 1913 in Moscow. Soviet state and party figure and specialist in energetics and thermophysics. Corresponding member of the academy since 1953, and academician since 1962 when he was elected to the Technical Sciences Department. He served as Vice President of the academy from 1963 to 1965. In 1965 he was department Chairman of the Council of Ministers of the USSR and as Chairman of the GKNT (Committee for Science and Technology). From 1985 to 1988, he was Academician Secretary of the Physical and Technical Problems of Energetics Department. He graduated from the Moscow Power Engineering Institute in 1936. He worked at the Kashir State Regional Electric Power Plant, at the Unifold Boiler Construction Bureau, and at the Moscow Power Engineering Institute where he became a professor in 1952. He served in the Soviet Navy during WW II, was Deputy minister of higher education from 1954 to 1955, vice-Chairman of the State Committee on New Technology in 1955, and Head of the department of science, higher educational institutions, and schools of the Central Committee of the CPSU from 1955 to 1962. His main work is in thermophysical properties of various substances, water and water vapor, heavy water and its steam at high parameters, and thermodynamic properties of a great number of solids at high temperatures. He has been involved in the development of MHG generators that directly convert heat into electric energy. He became a candidate member of the CC CPSU in 1961 and a full member of that body in 1966. Since 1980, he has been Deputy Director of the High Temperature Institute in Moscow, that investigates thermophysical and electrophysical properties of matter at high temperatures. In 1988, he was appointed an advisor to the national academy's Presidium. Recipient of the State Prize, 1951, and the Lenin Prize, 1966. (GSE 12, p. 507.)

Kiriukhin, Vladimir I., D. Tech. S. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1984; academician in 1993.

Konopatov, Aleksandr D. Born in 1922 in Krasnodar Krai. Russian scientist in the physics and technology of power generation. Corresponding member since 1976; academician since 1993. He graduated from the Moscow Institute of Aviation Technology in 1945. His research is primarily in gas dynamics, the stability of operation of power plants, and their reliability, efficiency, and lifetimes. Recipient of the State Prize, 1970; Lenin Prize, 1976. (GSE 30, p. 535.)

Koroteev, Viktor A., C. GM. S. Corresponding member of the Physical and Technical Problems of Energetics Department and of the Urals Department since December 1987; academician since 1993. In 1975, he was Director of the V. I. Lenin Ilmenskii State Reserve in Miass in Cheliabinsk Oblast. This organization was established in 1920 to conduct geological and biological research in the forests of the Southern Urals Mountains. He has been Deputy Chairman of the Urals Department since August 1988. He currently is serving on the Bureau of the Physical and Technical Problems of Energetics Department of the Academy in Moscow.

Koval'chuk, (Kovalchuk) Boris M., D. Tech. S. Born in 1940. Engineer. Specialist in the fields of electronics and electrotechnics and electrophysics. Corresponding member since December 1987, and an academician since 1992. He has authored 130 scientific works and is credited with 11 inventions. He graduated from the Tomsk Polytechnical Institute imeni S. M. Kirov in 1962 and worked at the Nuclear Physics Electronics, and Automation Institute in Tomsk from 1962 to 1970. In 1970 he became Head of a laboratory of the Department of High Energy Electrotechnics and in 1978, he was made Head of the Pulsed Power Laboratory of the High Currents Electronics Institute in Tomsk. He is on the Scientific Council on Pulsed Power. Chairman of the section on the physical Technical Problems of controlling the sources of extra high power energy of micro and nano wave bands. He headed the base for the production of pulsed energy, including work on the synthesis of thermonuclear war heads on guided missiles, the study of the physics of powerful electronic and ionic rays, the generation of SVCh radiation, and research in laser technology. He has guided the research of two doctoral candidates and the work of five aspirants for the candidate degree. He was given the Laureate Lenin Komsomol Prize in 1968. He received the State Prize in 1981. He also has been awarded a medal in recognition of his work.

Leont'ev, (Leontiev) Anatolii I., Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since December 1987; academician in 1993. He is currently a member of the Bureau Governing Body of the Physical and Technical Problems of Energetics Department of the Academy.

Mishin, Vasilii P. Born in 1917 in Moscow Oblast. Russian scientist in mechanics, control processes, and the physico-Technical Problems of power engineering. Academician since 1966. Principal membership in the Mechanics and Control Processes Department. He graduated from the Serge Ordzhonikidze Moscow Aviation Institute in 1941 and worked in research and design organizations thereafter. He was promoted to professor at that institute in 1959. His works are principally in applied mechanics. Lenin Prize, 1957. He received the S. P. Korolev Gold Medal named for the famed rocket scientist in 1967 in recognition of his work. (GSE 16, p. 375.)

Nakoriakov, Vladimir E., D. Tech. S. Born in 1935. Engineer. Specialist in the mechanics of heterological systems and solid state physics. Since 1981, he has been a corresponding member of the Problems of Machine Building and Control Processes Department of the AN SSSR and the RAS and an academician and Deputy Chairman of the Siberian Department since December 1989. He is author and co-author of 250 scientific works of which six are significant monographs and he is credited with eight inventions. He graduated from the Tomsk Polytechnical Institute in 1958 and from 1958 to 1964, he worked at the Transportation Energetics Institute. In 1965 he joined the staff of the Thermal Physics Institute. In 1974, he was named Head of the Two-Phase Laboratory of Thermal Physics Institute in Novosibirsk, becoming Deputy Director in 1986, and in 1988, he was named the Director of that institute that was founded in 1959 to study heat transfer, thermal physics of ionized gases, and gas dynamics. He is responsible for experiments leading to the development of a theory that shows a greater velocity being achieved in filtration through heat exchange during condensation and a forced flow in various media. He has been a professor at the Novosibirsk University since 1976 and served as Prorector and rector of that university from 1983 to 1985. While serving at the university, he guided the doctoral work of six students and the research of 40 aspirants for the candidate degree. He was named to the Siberian Department Presidium in 1983, becoming Deputy Chairman of the Siberian Department in 1985. He received the Government's Laureate Prize in 1983 and holds other medals and awards.

Novikov, Ivan I., D. Tech. S. Born in 1916 in a village in the Riazan Oblast. Russian scientist in the physics of heat and heat engineering. He has been a corresponding member and a member of the Siberian Department since 1958; academician in 1993. He graduated from Moscow State University in 1939 and began work in a scientific institute of the Soviet Navy. From 1948 to 1950, he headed the Physics of Heat subdepartment of the Moscow Power Engineering Institute and from 1950 to 1956, he headed the Scientific and Technical Department of the Ministry of the Medium Machine-building Industry of the USSR. From 1956 to 1958, he was Director of the Moscow Physical Engineering Institute, and from 1958 to 1964, he was Director of the Institute of the Physics of Heat of the Siberian Department of the AN SSSR. From 1964 to 1967, he was 1st vice Chairman of the State Committee on Standards of the USSR, and from 1966 to 1970, he was Head of the subdepartment of Physical and Engineering Measurements at the Moscow Physical Engineering Institute. Since 1970, he has headed a laboratory for electron microscopy and physical research methods at the Baikov Metallurgical Institute of the AN SSSR and the RAS. His works have dealt with problems associated with atomic energy, the thermodynamics of gases and solids, similarity theory in the physics of heat, and the study of thermophysical properties of heat-transfer agents. Recipient of the State Prize, 1951, 1953. (GSE 18, p. 307.)

Ponomarev-Stepnoi, Nikolai N., C. Tech. S. Born in 1928. Corresponding member since 1984, and an academician since December 1987. Since 1977, he has been a Deputy Chairman of the Nuclear Reactor Division of the I. V. Kurchatov Atomic Energy Institute in Moscow. He is currently on the Bureau Governing Body of the Physical and Technical Problems of Energetics Department in Moscow.

Rudenko, Iurii N., C. Tech. S. Born in 1931 in Donetsk Oblast. Engineer. Specialist in power engineering. Corresponding member since 1976, and academician since 1987. Following graduation from St. Petersburg Correspondence Industrial Institute in 1955, he held positions at the Orsk-Khalitovo Metallurgical Combine and later at the St. Petersburg Polytechnic Institute--until 1960. From 1960 to 1963, he was a group leader and the Head of the operational mode service of the Interconnected Dispatcher Control of the Siberian Integrated Power Grid. In 1963, he joined the faculty of the Siberian Power Engineering Institute of the Siberian Department of the AN SSSR, becoming its Director in 1973. Academician Secretary to the Physical and Technical Problems of Energetics Department since 1988. He was on the national committee's working group on organizing a conference on the construction of large power engineering systems. In 1985 he served as Deputy Chairman of the Academy's Council on the problems of power engineering. He was a delegate to the 27th congress. He received the State Prize in 1986, and holds other orders and medals for his scientific contributions. (GSE 30, p. 621.)

Sarkisov, Ashot A., Vice Adm Eng. Born in 1924. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1981; academician in 1993.

Sheindlin, Aleksandr E., D. Tech. S. Born in 1916 in Kuybyshev. Russian specialist in heat physics and power engineering. Academician of the Physical Technical Problems of Power Engineering Department of the Academy since 1974. In 1937, he graduated from the Moscow Power Engineering Institute and first worked as an engineer in a factory and then as an assistant at the institute. From 1945 to 1947, he worked at the Moscow Power Engineering Institute receiving a doctorate of Technical Sciences degree in 1954, becoming a professor in 1955. In 1960, he became Head of a laboratory at the Institute of High Temperatures of the AN SSSR, becoming the institute's Director in 1961. He was a founder of the High Temperature Institute in 1962. Since 1967 he has also been Head of a subdepartment of the Moscow Physico-Technical Institute. He directed the

construction and operation of the world's first experimental model magneto hydrodynamic installation (U-02 in 1964) for the direct conversion of heat energy into electricity and the first such industrial installation (U-25 in 1971.) From 1961 to 1989, he was Founding-Director of the High Temperatures Institute in Moscow that was created in 1962 to research thermophysical and electrophysical properties of matter at high temperatures. It is subordinate to the academy's Physical and Technical Problems of Energetics Department. Lenin Prize, 1959; Recipient of the State Prize, 1976; Polzunov Prize, 1963. He is currently a member of the Physical and Technical Problems of Energetics Department Bureau Governing Body. (GSE 29, p. 571.)

Skripov, Vladimir P. In 1982, he received the I. I. Popzuinov Prize for his scientific work. Corresponding member of the Physical and Technical Problems of Energetics Department and of the Urals Department since December 1987; academician in 1993.

Styrikovich, Mikhail A., D. Tech. S. Born November 1902 in St. Petersburg. A high temperature scientist and thermal power engineer. He was a corresponding member of the national academy from 1946 until 1964. Since 1964, he has been an academician of the Physical and Technical Problems of Energetics Department of the academy. Since 1965, he has served on the Presidium of the Academy. From 1977, he was a board member of the GKNT General Assembly. He graduated from the Leningrad Institute of Technology in 1927. From 1928-46, he worked at the Boiler and Turbine Institute and taught at the Moscow Power Engineering Institute from 1939-71. From 1939-60 he worked at the Institute of Power Engineering of the Academy becoming Head of the Department of mass exchange of the Laboratory of High Temperatures that since 1962 has been called the Institute of High Temperatures of the Academy. His principal research thrusts are in the development of heat and power installations, working processes of steam boilers, problems of heat transfer in boiling liquids under high pressures. He developed standards for thermal and aerodynamic calculations of boiler units. He has done research in aerodynamics, heat and mass exchange, scale formations under conditions of two-phase flow, structure of boiling boundary layers, and mass exchange and physicochemical processes in magneto hydrodynamic generators. He is an honorary Vice President of the International Executive Council of the World Energy Conference and Vice President of the International Center for Heat and Mass Transfer. In 1988, he was appointed an advisor to the national academy's Presidium. He is currently a member of the Physical and Technical Problems of Energetics Department Bureau Governing Body. (GSE 25, p. 183.)

Subbotin, Valerii I., D. Tech S. Born in 1919 in Baku. Russian specialist in high temperature physics. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1968; and, academician since December 1987. He was made a member of the Presidium in October 1988. He graduated from Baku Industrial Institute in 1942. From 1943 to 1948, he served on the board of the Caucasus Power Engineering Complex and from 1948 to 1953, he was a research worker at the Institute of Power Engineering of the Azerbaijan Academy of Sciences. In 1953, he joined the staff of the Institute of Physics and Energetics in the city of Obninsk, becoming Deputy Director in 1969. He is also Head of the subdepartment of high-temperature physics at the Moscow Physical Engineering Institute where he became a professor in 1960. Lenin Prize, 1964. He is currently a member of the Physical and Technical Problems of Energetics Department Bureau Governing Body. (GSE 25, p. 187.)

Tikhodeev, Nikolai N. Born in 1927. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1979; academician in 1993. He is currently a member of the Department's Bureau Governing Body.

Tuchkevich, Vladimir M., D. PM. S. Born in 1904 in Chernovtsy Oblast. Russian physicist. Academician of the Physical and Technical Problems of Energetics Department of the Academy since 1970. Since 1971, he has been on the Presidium of the academy. He graduated from the University of Kiev in 1928, and joined the staff of the Ukrainian Meteorological Institute. From 1931 to 1935, he was on the staff of the All-Ukrainian Institute of Roentgenology and from 1935-36 on the staff of the Leningrad X-Ray Institute. In 1936, he joined the staff of the Leningrad PhysicoTechnical Institute, becoming its Director in 1967. He taught at the Kharkov Electrical Engineering Institute from 1931 to 1935, and at the Leningrad Polytechnic Institute from 1935 to 1960. From 1967 to 1987, he served as Director of the A. F. Ioffe Physical Technical Institute in St. Petersburg that was founded in 1918 to do research in semiconductor physics, mathematical physics, plasma physics, and astrophysics. According to one source the institute employs approximately 2500 scientists, 500 of whom hold the doctors degree. It is subordinate to the academy's General Physics and Astronomy Department. His main works are in the physics of semiconductors and the development of semiconductor devices. He devised the X-Ray dosimeter and developed a system for demagnetizing ships. In 1988, he was appointed an advisor to the national academy's Presidium. Lenin Prize, 1966. In 1982, he shared the B. P. Konstantinov Prize in physics with B. A. Mamirin and L. Sh. Tsemekhman. (GSE 26, p. 408.)

Zhukov, Mikhail F. D. PM. S. Born in 1917 in an Orel Oblast village. Russian scientist in aerodynamics and low temperature plasma. Corresponding member of the Physical and Technical Problems of Energetics of the AN SSSR and the RAS and of the Siberian Department since 1968, and academician since 1992. He has produced 200 scientific works which include five textbooks and eight major monographs among which are "The Applied Dynamics of Thermochemical Plasma" (1975) and "The Thermochemical Cathode" (1985) and "The High Temperature Flow of Firing During the Processes of Machining Powdery Materials" (1990). He graduated from the Department of Mathematics and Mechanics of Moscow State University in 1941. From 1941 to 1946, he worked at the N. E. Zhukovskii Central Aerodynamic and Hydrodynamic Institute and from 1946 to 1959, at the Main Institute of Aviation Engine Construction. In 1959, he became Deputy Director of the Institute of Theoretical and Applied Mechanics of the AN SSSR, and in 1970, he became Deputy Director of the Institute of Thermal Physics of the Siberian Department of the AN SSSR and the RAS located in Novosibirsk and in 1988 he became Director of that institute that had been created in 1959 to study heat transfer, the physics of hydrodynamics and gas dynamics, and thermal physics of ionized gases. From 1976 to 1980, he served as Head Scientific Secretary for the AN SSSR and was on its Presidium. From 1960 to 1965 he was a professor at the Novosibirsk State University and from 1977 to 1988 he taught at the Novosibirsk Electro-Technical Institute where he guided the work of eight doctoral candidates and 40 aspirants for the candidate degree. He chairs the Scientific Council on New Materials for Technology. He received the State Prize in 1982, and holds several other medals for his scientific engineering contributions. (GSE 9, p. 648.)

Corresponding Members

Batenin, Viacheslav M., D. Tech. S. Born in 1939. Corresponding member of the Physical and Technical Problems of Energetics of the Academy since December 1987. Listed as a senior researcher in the High Temperatures Institute in Moscow and in 1979 he was Deputy Chief of the International Programs department of that institute. In 1987, he was named Director of the High Temperature Institute which was established in 1962 for researching the thermophysical and electrophysical

- properties of matter at high temperatures. He is currently a member of the Departmental Bureau, its governing body. (LDA 89-11378.)
- Biberman, Leon M., D. PM. S.** Born in 1915. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1979. Since 1972, he has been Chief of the Theoretical Laboratory of the High Temperatures Institute in Moscow. He is currently a member of the Departmental Bureau Governing Body. (Tel. 362-53-10)
- Danilevich, Yanush B.,** Born in 1931. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since December 1987. He is, at present the Director of the Department of Electric Energy Problems in St. Petersburg. He is currently a member of the Department's Bureau--its governing body.(LDA 89-11378.)
- Didenko, Andrei N, .D. Tech. S.** Born in 1932. Specialist in Accelerator and Physics Electronics. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1984. He graduated from the Tomsk State University in 1955 and began working at the Tomsk Polytechnic Institute imeni C. M. Kirov in 1970 where he was designated a professor. He was given the chair in electron physics in 1977. From 1968 to 1987, he was the Director of the Scientific Research Institute of Nuclear Physics, and in 1988 he became Chairman of the Scientific Council on Electronics and Automation. He was a member of the Presidium's Commission on Atomic Energy and was designated an Honored Scientist of the Soviet Union. He was Deputy Chairman of a Scientific Council under the purview of the GKNT dealing with the processing of construction materials. Currently he is one of the Deputy Academician Secretaries of the Physical and Technical Problems of Energetics Department of the Academy
- Filippov, Gennadii A.** Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1987. For a period after 1987, he was a Deputy to the Academician Secretary of the Department. (LDA 89-11378.)
- Grigor'ev, (Grigoriev) Valentin A., D. Tech. S.** Born in 1929. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1981. Currently a member of the Departmental Bureau--its governing body.
- Iyevlev, Vitalii M.** Born in 1926. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1964.
- Khabibullaev, Pulat K., D. PM. S.** Academician of the Uzbek Academy's Physical and Mathematical Sciences Department since 1984. President of the Uzbek Academy since 1984. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1984. Since 1979, he has been Director of the Nuclear Physics Institute in Tashkent that was established in 1956 and that conducts fundamental research in the areas of nuclear physics and the utilization of atomic energy in science and in the national economy. Its facilities include a cyclotron and a nuclear reactor.
- Kostenko, Mikhail V.** Born in 1912 in Nikolaev. Russian scientist in power engineering. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1962. Originally elected to the Technical Sciences department. He graduated from the Leningrad Polytechnic Institute in 1938. He became a professor there and Head of the subdepartment of high-voltage engineering in 1955. His work is in calculations of oscillations and waves in electric circuits. In 1979, he was awarded the P. N. Iablovskii Prize. (GSE 13, p. 437.)
- Kovalev, Nikolai N.** Born in 1908 in Poltava. Russian scientist in mechanics and hydroturbine building. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1953. Originally elected to the Technical Sciences department. Also corresponding member of the Mechanics

and Control Processes Department of the Academy since 1953. He graduated from the Leningrad Engineering Institute in 1930 and began work at the Leningrad Metals Plant. In 1945, he became Chief designer of hydroturbines. Since 1959, he has been at the Central Boiler and Turbine Institute in St. Petersburg. From 1939 to 1967, he taught at the Leningrad Polytechnic Institute. He has been Chairman of the Scientific and Technical Society for Power Engineering and the Electrical Power Industry since 1958. His work has been in the design of hydroturbines. State Prizes, 1946, 1950; Lenin Prize, 1959. (GSE 12, P. 619.)

Kruzhilin, Georgii N. Born in 1911 in a village in Rostov Oblast. Russian scientist in heat engineering and atomic power engineering. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1953. Originally elected to the Technical Sciences department. He graduated from the Leningrad Institute of Physics and Mechanics in 1934 and worked at the Central Boiler and Turbine Institute from 1933 to 1946. He was on the staff of the Atomic Energy Institute from 1946 to 1955. He became Head of a laboratory at the G. M. Krzhizhanovskii Institute of Power Engineering in 1955. His works have been in the development and construction of atomic experimental and power installations. (GSE 13, p. 528.)

Kulakov, Anatolii V., D. PM. S. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1984.

Lavrov, Lev N. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since December 1987. (LDA 89-11378.)

Lidorenko, Nikolai S., D. Tech. S. Born in 1916 in Kursk. Russian scientist in electrical and power engineering. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1966. He also holds membership in the General Physics and Astronomy Department and in the Physical Chemistry and Technology of Inorganic Materials Department of the Academy. He graduated from the Novocheerkassk Polytechnic Institute in 1940. Since 1950, He has been of the Current Sources Scientific Research Institute in Moscow which is subordinate to the Ministry of Instrument Building, Automation Equipment and Control Systems. It is in this institute that the solar and electrochemical power sources for the Russian Space program are developed. In 1963 he gained professorial status and became a Head of a subdepartment of the Moscow Polytechnical Institute in 1965. His main work is in the conversions of energy and the design of physical models of information. Lenin Prize, 1960. (GSE 14, pp. 482-83.)

Makarov, Aleksei A., D. Econ. S. Born in 1937. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1984. Corresponding member of the Economics department of the academy since 1979. Also member of the Siberian department. Since 1974, he has been Deputy Director of the Power Engineering Institute in Irkutsk, subordinate to the Siberian department, and which is involved in the research and development of the electrification of Siberia, including power generation and transmission. Since 1984, he has been Director of the Organization and Management Problems Scientific Research Institute in Moscow, which was subordinate to the GKNT. He is, at present Director of the Energy Research Institute in Moscow. He is currently a member of the Physical and Technical Problems of Energetics Bureau--the departmental governing body.

Malyshev, Nikolai A. Born in 1911. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1976.

Merenkov, Anatolii P., D. PM. S. Born in 1936. Mathematician. Specialist in mathematical modeling, optimization and systems research in energetics. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1990. He is the Director of the Siberian

Energetics Institute of the Siberian Department of the RAS located in Irkutsk. He is the author of 10 scientific works of which one is a major monograph on linear programming methodology. He has co-authored another 80 works of which six were monographic in nature. He has advanced the theory and method for estimating and optimizing the synthesis of the hydraulic chain. His work is in the direction of the decisive development or evolution of a synthesis of scientific-technical disciplines of a universal mathematical and automated system of research, planning, and remote control, for the functioning of heat, water, oil and gas supplies and other hydraulic systems. He is a leader in the development of mathematical modeling that has had practical applications in the economy. As a professor at the Irkutsk State University he has guided the work of 112 aspirants for the candidate degree. He is on the scientific Council of the RAS on complex problems of energetics, on the scientific councils for mathematics, informatics, and for the mechanics, energetics and mining sciences of the Siberian Department of the RAS. He is on the review board for the doctorate of science degree for the Siberian Energetics Institute and for the Irkutsk Computer Center and is on the Presidium of the Irkutsk Scientific Center.

Neporozhnyy, Petr S. D. Tech. S. Born in 1910 in Kiev Oblast. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1979. Soviet state and party leader. He was elected a member of the Central Committee of the Communist Party in 1971 and 1976. From 1977, he was a board member of the General Assembly of the GKNT. He graduated from the Leningrad Institute of Water Transportation in 1933. From 1933 to 1935, he served in the Soviet Navy. Designated a professor in 1952. From 1935 to 1937, he worked at a design institute in Leningrad and on the construction of the Chirchik Hydroelectric power plant. From 1937 to 1940, he was in the Peoples' Commissariat for Heavy Industry, and from 1940 to 1954, he was Chief engineer and Head of a design institute in Tashkent and also Chief engineer for construction of hydroelectric power plants in the Leningrad Oblast and in the Ukraine. From 1954 to 1959, he was Deputy Chief of the Council of Ministers of the Uk SSR and Chairman of the State Committee on Construction of the Uk SSR. From 1959 to 1962, he was the 1st Deputy minister of the USSR for Construction of Electric Power Plants and in 1962-63, he was Minister of Electric Power Development and Electrification of the USSR. From 1963 to 1965, he served on, and after 1965 he was Chairman of the State Production Committee on Power Engineering and Electricity of the USSR--a ministerial position. He was a Deputy to the 7th, 8th and 9th convocations of the Supreme Soviet. Lenin Prize, 1968. (GSE 17, p. 460.)

Rutberg, Philipp G., D. Tech. S. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy in 1993. He is currently the Director of the Electrophysics Problems Institute in St. Petersburg. He is a member of the Department's Bureau--its governing body.

Semenov, Iurii P. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since December 1987. (LDA 89-11378.)

Sidorenko, Viktor A., D. Tech. S. Born in 1929. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1981. Since 1975, he has served as Chairman of the Nuclear Reactor Division of the I. V. Kurchatov Atomic Energy Institute in Moscow.

Solov'ev, Pavel A., D. Tech. S. Born in 1917. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1981.

Tal'roze, Viktor L., D. Chem. S. Born in 1922 in Tula. Russian physical chemist. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1968. He graduated from Moscow State University in 1947 and began work at the Institute of Chemical Physics of the AN SSSSR immediately. Since 1954, he also worked at the Moscow Physico-

Technical Institute where, since 1961, he has headed the subdepartment of Chemical physics. Since 1969, he has been Deputy Director of the Chemical Physics Institute in Moscow, and since 1978, Chief of the Physical Methods Division of the Chemical Physics Institute in Moscow. Since 1977, he has occupied the post of dean of the Molecular and Chemical Physics Faculty at the Physical Technical Institute in Moscow. In 1984, he was awarded--with others-- the Lenin Prize for his work on using lasers in Chemical chain reactions. His works deal with the kinetics of Chemical reactions occurring under irradiation and with the application of physical methods to chemistry, especially in the spectroscopic study of the reactions of many free radicals and ions. He is currently on the Physical and Technical Problems of Energetics Department's Bureau Governing Body. (GSE 25, p. 344.)

Vasil'ev, (Vasilev) Iurii S. Corresponding member of the Physical Problems of Power Engineering Department of the Academy since December 1987. (LDA 89-11378.)

Vershinin, Iurii N., D. Tech. S. Corresponding member of the Physical and Technical Problems of Energetics and of the Urals Departments since December 1987.

Zhimerin, Dmitrii G., D. Tech. S. Born in 1906 in Dubki in Tula Oblast. Soviet government figure and scientist in the field of energy. From 1952 to 1961, he was a candidate member of the Central Committee of the CPSU. Corresponding member of the Physical and Technical Problems of Energetics Department of the Academy since 1970. In 1971, he became 1st vice Chairman of the GKNT. He graduated from Moscow Institute of Energy in 1931. He worked as an engineer becoming Head of the Administration of the Southern Electric Power Plants. In 1940, he became Deputy peoples' commissar of electric power plants of the USSR and in 1942, the peoples' commissar. From 1946 to 1953, he was minister of electric power plants of the USSR; from 1957 to 1958, he was vice Chairman of GOSPLAN of the USSR and from 1957 to 1958, he served as vice Chairman of the GOSPLAN of the RSFSR. His work led to the creation of the Integrated European Power Grid. From 1964 to 1971, he headed the G. M. Krzhizhanovskii State Scientific Research Energy Institute. (GSE 9, p. 639.)



Scientific Research Institute Subordinate to the Physical and Technical Problems of Energetics Department

1. United High Temperatures Institute (UIHTAS) in Moscow.

Located at 13/19, Izorskaia (aya), I-412, Moscow, 127412. Tel. 485-83-45; Telegrams: Moscow, I-412, IVTAN; Teletype: 417639; telex: 411959 IVTAN SU, Fax: 485-99-22. President of the United Institute of High Temperature (UIHTAS) is Corresponding Member Viacheslav M. Batenin, who from 1979 to 1987 was Deputy Director of the International Programs Department of the Institute.

Batenin, Viacheslav M., D. Tech. S. Born in 1939. Corresponding member of the Physical Technical Problems of Power Engineering of the Academy since December 1987. Listed as a senior researcher in the High Temperatures Institute in Moscow and in 1979 he was Deputy Chief of the International Programs department of that institute. In 1987, he was named Director of the High Temperature Institute which was established in 1962 for researching the

thermophysical and electrophysical properties of matter at high temperatures. (LDA 89-11378.)

Retrospect: Established in 1962 under A. E. Sheindlin. It became part of the Academy system in 1967. The institute is the center for MHD research in Russia. It researches thermophysical and electrophysical properties of matter at high temperatures. The Director of the institute is Viatcheslav M. Batenin, D. Tech. S. Although this Department has only one Scientific Research Institute under its jurisdiction, it is an extremely complex institute with an "experimental complex", a special design bureau, an International Programs Department, and a scientific information center servicing some 14 laboratories--several of which have departments and subdepartments within them. Established as late as 1962, by 1980 it had some 119 scientists assigned to its laboratories and other offices. This institute is one of the centers for the application of nuclear power in the production of energy--both in theoretical and practical application.

(Older material)

The historical organization and structure of the institute is as follows: **Structure and Personnel:** Director: Viacheslav M. Batenin, D. Tech. S. has been Director of the institute since '87; Deputy Director: Baibuz, Viktor F., C. Chem. S., since '67; Deputy Director: Pishchikov, Sergei I., C. Tech. S., since '73; Deputy Director: Shelkov, E. M., C. Tech. S., since '70; Scientific Secretary: Nefedov, Anatoli P., C. Tech. S., since '78.

Applied Super-Conductivity Laboratory: Chief Zenkevich, Vladimir B., C. Tech. S., since '68; Deputy Chief Andrianov, Vladimir V., D. Tech. S., since '72; Tovma, Vladimir A., since '74; Volovik, Albert V., since '76;

Complex Problems of Power Engineering Laboratory: Chief Melentiev, Lev A., CPSU, since '74.

Atomic Energetics and Computer Modeling Department: Chief Belostotskii, Albert M., since '74; Junior researchers: Krasnov, Isai B., since '76; Sapozhnikov, Mikhail V., since '76; Zomergrad, Valeri F.

Economic Modeling of Atomic Energetics subdepartment: Chief Cherniavskii, Sergei Ya. since '76; Senior researcher: Lokshin, Vladimir, since '76; Junior researchers: Baskakova, Natalia, since '76; Chernasheva, Tatiana P., since '76; Moskalena, Olga I., since '76;

Economic Modeling Department: Chief Levental, Grigorii G., since '74.

Computer Engineering Laboratory: Chief Maliuzhonok, Gennadii P., C. Tech. S., since '74; Senior researcher: Novikov, Ye. I., since '74.

Controlled Fusion Laboratory: Chief Nedospasov, Artur V., D. PM. S., since '75;

Electro-Physical Laboratory: Chief Abramian, Ye. A., D. Tech. S., D. PM. S., since '74; Deputy Chief Kuleshov, G. D., since '78; Junior researchers: Katoshin, Iurii G., since '79; Vorobiev, V. V., since '79.

Heat Exchange Laboratory: Chief Petukhov, Boris S., D. Tech. S. since '64; Senior researcher: Zeigarnik, Vladimir A., since '76.

Heat Resistant Materials Laboratory: Chief Telegin, Georgii P., since '75; Deputy Chief Romanov, Aleksandr I., since '74.

Ceramics department: Group Chief Krasulin, Iurii L., D. Tech. S., since '75.
Nonoxide Ceramics Group: Chief Gorlov, A. V., since '75. Senior researchers: Gordon, V. G., since '75; Ivanov, Albert B., since '75; Visotskii, Dmitri A., C. Tech. S., since '75.

Electrode Processes department: Chief Gokhshtein, Yankel P., D. Chem. S., since '75.

the Magneto-Hydrodynamics Laboratory: Chief Shumiatskii, Boris Ya., D. Tech., CPSU, since '64.

Channel Design Department: Chief Medin, Stanislav A., C. Tech. S., since '73.

MHD Power Plant Department: Chief Morozov, Grigorii N., since '75.

Mass Transfer Laboratory: Chief Stirikovich, Mikhail A., D. Tech. S., since '66; Deputy Chief Mostinskii, Igor L., D. Tech. S., since '77; Deputy Chief Tsiklauri, Georgii V., C. Tech. S., since '78.

Channel Construction Department: Chief Kirillov, Viktor V., C. Tech. S., since '72. **MHD Seeding Department:** Chief Mostinskii, Igor L., D. Tech. S., since '78.

Plasma Laboratory: Chief Asinovskii, Erik I., since '69; Senior researchers: Kirillin, Aleksandr V., (Son of V. A. Kirillin, former Chairman of the GKNT), since '73; Lebedev, P. N., since '79; Pakhomov, Ye. P., since '76.

Solid State Thermophysics Laboratory: Chief Chekhovskoi, Vitali Ya., since '67; Deputy Chief Peletskii, Vladislav E., since '76; Senior researcher: Barkhatov, L. S., since '76; Ulashik, A., since '76.

Thermonuclear Power Engineering: Chief Shpilrain, Evald E., D. Tech. S., since '77.

Thermophysics Laboratory: Chief Gurvich, Lev V., D. Chem. S., since '68.

Reaction Calorimetry Department: Chief Medvedev, Vadim A., D. Chem. S., since '66.

Spectroscopy Department: Chief Gorokhov, Lev N., since '74.

Radio Physics Department: Chief Lebedev, Sergei V., C. PM. S., since '72; Senior researchers: Dikhter, I. Ya., since '76; Savvatimskii, A. I., since '76.

the Theoretical Laboratory: Chief Biberman, Leon M., since '72; Deputy Chief Yakubov, Igor T., D. PM. S., since '69; Senior researchers: Lagarkov, A. N., since '69; Mnatsakanian, Artem Kh., C. PM. S., since '71; Norman, Genri E., since '68; Yezhov, Iurii S., C. Tech. S., since '72.

Scientific Information Center: Chief Yakimovich, Konstantin A., C. Mech. S., since '77.

Special Design Bureau: Chief Pashkov, Sergei A., since '75; Deputy Chief Maslennikov, Gennadii I., since '76; Deputy Chief Sidorov, Vladimir S., C. Tech. S., since '78

Computations department: Chief Maslennikov, Viktor M., C. Tech. S., since '74; Senior researcher: Viskubenko, Iurii A., since '73.

MHD Channel Department: Chief Kirillov, Vladimir G., since '75.

MHD Materials Department: Chief Virnik, Adolf M., since '75.

Superconducting Magnets Department: Chief Kirienin, Igor A., C. Tech. S., since '75.

Experimental Complex: Chief Pishchikov, Sergei I., C. Tech. S., since '75; Deputy Chief Maksimenko, Vladilen I., since '77; Deputy Chief Sokolskii, Aleksei G., since '78; Deputy Chief Zamislov, Oleg B., since '75; Senior researchers: Balashov, Nikolai A., since '75; Batenin, Viacheslav M., C. Tech. S., (n.d.); Dubinin, Vladimir V., since '77; Iserov, A. D., since '79; Kutukov, G. G., since '77; Manushin, Viktor T., since '79; Momotov, Iurii M., since '75; Novosadov, Viacheslav B., since '75; Pinkhasik, Dmitri M., C. Tech. S., since '73; Privalov, Nikolai P., since '75; Sokolov, Iurii N., C. Tech. S., since '69; Tager, S. A., since '74; Tolchinskii, Lev S., since '73; Vasilieva, Inna A., D. PM. S., since '69; Zalkind, V. I., since '76.

International Programs department: Chief Gorbunova, Nina I., C. Tech. S., since '78; Deputy Chief Batenin, Viacheslav M., C. Tech. S., since '79; Denisov, N. N., since '79; Senior researchers: Piankov, Sergei G., since '75; Sokolov, Iurii N., C. Tech. S., since '75; Visotskii, Dmitri A., C. Tech. S., since '78.



(1997 updated list)

1. United High Temperatures Institute (UIHTAS) in Moscow.

Located at 13/19, Izorskaia (aya), I-412, Moscow, 127412. Tel. 485-83-45; Telegrams: Moscow, I-412, IVTAN; Teletype: 417639; telex: 411959 IVTAN SU, Fax: 485-99-22. President of the United Institute of High Temperature (UIHTAS) is Corresponding Member Viacheslav M. Batenin, who from 1979 to 1987 was Deputy Director of the International Programs Department of the Institute.

2. Security Problems of Atomic Energy Development Institute (ISAED) in Moscow.

Located at 52 B. Tulskaia (aya) st., Moscow, 113191. Tel. 952-24-21; Telex: 911504; Fax: 238-20-65. Professor Leonid A. Bolshov is the current Director of the Institute.

Energy Research Institute (IER) in Moscow

Located at 44, Building 2, Vavilova St., U-333, Moscow, 117333. Tel: 123-05-81; Fax: 310-70-65. The Director of this institute is Corresponding Member Aleksei A. Makarov.

3. Electrophysics Problems Institute (IEP RAS) in St. Petersburg

Located at 18 Dvortsovaia (aya) Quay, D-65, St. Petersburg. Philipp G. Rutberg is the current Director of this institute. (Tel. 315-17-57 (SPb))

4. The Department of Electric Energy Problems (DEEP RAS) in St. Petersburg

Located at 18 Dvortsovaia (aya) Quay, D-65, St. Petersburg, 191065. Telex: KOD 122770 DEEP RAS; fax: (812) 298-72-39. The Director of this department is Corresponding Member Yanush B. Danilevich.

5. The All-Russian Scientific Research Institute of Manufacture of Electrical Machinery (ASRIMEM) in St. Petersburg.

Located at 18 Dvortsovaia (aya) Quay, D-65, St. Petersburg, 191065. (Telegrams: St. Petersburg Dinamika; Teletype: 122770 KOD. This institute is under the direction of Academician Igor A. Glebov. The Russian Academy of Sciences carries out scientific-systematic direction of the research in this institute.

6. The State Scientific Industrial Enterprise Quantum in Moscow.

The Russian Academy of Sciences is responsible for directing the systematic and scientific research within this complex which is located at I-626 Moscow, 129626. Telegrams: Moscow, Skat; Teletype: 112764 Skat; Fax: 287-18-71. The Quantum is under the direction of Anatolii B. Slutskii, Telephone: 287-97-42.

7. The G. M Krzizanovskii State Scientific Research Energy Institute in Moscow.

Located at 19 Leninskii ave., V-71, Moscow, 117972. (Tel. 954-62-47; telegrams: Moscow V-71 ENIN; Fax: 954-42-50. This important institute is under the direction of Edward P. Volkov.

8. The N. E. Bauman State Technical University in Moscow.

The Russian Academy of Sciences is responsible for carrying out scientific-systematic direction of energy problems studied in the University. It is located at 14a, Krasnakazarmennaia (aya) st., E-250, Moscow, 105835. (Telex: 411610 MET; Fax: 361-16-20. The rector of the university is Professor Evgenii V. Ametistov.

9. The St Petersburg State Technical University in St. Petersburg.

The Russian Academy of Sciences is responsible for the oversight of the scientific-systematic direction of the University. The rector of the University is Corresponding Member Iurii S. Vasiliev. The University is located at 29 Politechnicheskaja (aya) st., K-251, St. Petersburg, 195251. Tel. 247-16-16.



The National Power Engineering Research Structure: There are other power engineering research institutes in the former Soviet Union--at least 11 others, in fact, located in seven other cities. Although these other institutes are independent of the Moscow Department of Physical and Technical Problems of Energetics, a number of their scientists maintain close contacts with their Moscow peers.



The electrification of the former Soviet Union has been a major priority of successive Soviet governments since the revolution. There is a closer linking between these engineers and Russian scientists because of the need to develop grids for the delivery of power nationwide.

Before 1940

1. Electrodynamics Institute in Kiev. 2. Physics and Power Engineering Institute in Riga.

1940s

3. Power Engineering Institute in Irkutsk. 4. A. V. Likov Heat and Mass Transfer Institute in Minsk. 5. Technical Thermal Physics Institute in Kiev.

1960s

6. Odessa Technical Thermal Physics Institute in Odessa (Branch). 7. Nuclear Power Engineering Institute in Minsk. Founded in 8. Physical and Technical Problems of Energetics Institute in Kaunas. 9. Problems of Modeling in Power Engineering Institute in Kiev.

1980s

10. Thermal Physics and Electrophysics Institute in Tallinn. 11. Physical Technical Institute in Ashkhabad.



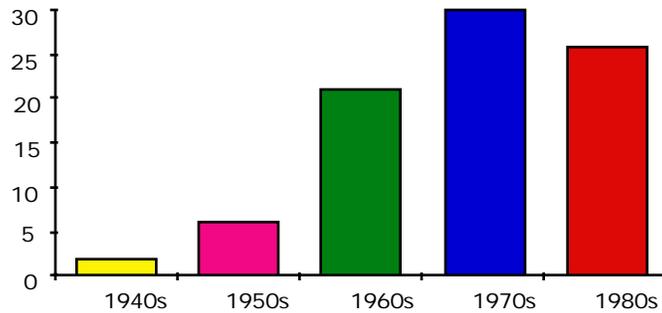
**Department of Problems of Machine-building, Mechanics and Control
Systems (DPMACS) in Moscow**
32a, Leninskii ave., Moscow, 117993, tel.938-14-04

Retrospect: In 1984, with the establishment of the Information Science, Computer Technology, and Automation Department within the academy, the older Mechanics and Control Systems Department changed its name and focus. It is now called the Problems of Machine Building, Mechanics and Control Systems Department. This department like the Physical Technical Problems of Power Engineering Department, is more closely linked with Ministerial Associated Research Organizations and with national industries than are some of the other departments of the Russian Academy of Sciences.

Membership Considerations: In size of membership of the department, the Problems of Machine Building and Control Systems Department ranked second only to the General Physics and Astronomy Department of the Russian Academy of Sciences in the 1980s.

Figure 17

Problems of Machine Building, Mechanics and Control Processes Department Members, by Decade of Assignment



Compiled from: LDA 87-11012, 1987.

Administrative Responsibilities: In 1987, a large number of the academicians and corresponding members of this department were Directors and Deputy Directors of SRIs in Russia: 19 Directors and eight Deputy Directors. Two members served on the Presidium of the Russian Academy of Sciences and one had been elevated because of age to the status of advisor to that body. One member was Chairman of the Radio Engineer and Electronics Committee of the Science and Technology Society; one was Chairman of the Scientific Instrument Building Department under the Presidium of the academy. One was Deputy minister of the USSR Ministry of Higher and Secondary Specialized Education; one was not only on the Federated Republic State Council of Ministers but also served as the minister of the Republic Ministry of Higher and Secondary Education. There were three Rectors and two Pro-Rectors of major institutions of higher education in Russia in this Department: the Rector of the Radio Engineering, Electronics and Automation Institute in Moscow; the Rector of the V. I. Lenin Kazakh Polytechnical Institute; the Rector of the Physical Technical Institute in Moscow; the pro-Rector of the N. Y. Bauman Higher Technical School in Moscow, and, the pro-Rector of the Ordzhonikidze Aviation Institute. Twelve of the members were also members of the Siberian Department; two of the Ukrainian SSR academy, one of the Latvian and one of the Byelorussian academies of sciences. Two also served as board members of the General Assembly of the GKNT. One was first Deputy Chairman of the St. Petersburg Scientific Center, a major coordinating body for the Academy of Sciences of the USSR. One member was also on the USSR National Committee on Theoretical and Applied Mechanics. Two were members of the Urals and two were members of the Far Eastern Departments. One member was a Vice President of the national academy. Sixty-four of the 90 members of the department were members of the Communist Party--some 71 percent. By 1989, membership in the department had grown to 106 members and party membership stood at only 55 percent--a significant drop. As this brief summary shows, members of this department are closely linked with other research institutes, political and industrial (ministerial) structures, and with other subject-matter and geographic departments of the

academy. The aircraft and space vehicle industries are well represented in the membership in this department.

Academicians--age and schools: The average age of the academicians of the Problems of Machine Building, Mechanics, and Control Systems Department of the AN SSSR and the Russian Academy of Sciences in 1991 was 73. Two were in their 90s; eight in their 80s; 11 in their 70s; 15 in their 60s, and three in their 50s. The institutions from which 29 of the 42 academicians is known. Because of its close relationship with the design and production of aircraft, a considerable number of these 29 graduated from technological schools: eight graduated from the S. Ordzhonikidze Moscow Institute of Aviation; four from the N. E. Zhukovskii Air Force Engineering Academy; three from the Moscow Higher Technical School, and five from the Moscow State University. One each graduated from the Briansk Institute of Transportation Machine Building, the Urals Polytechnic Institute, the Leningrad Industrial Institute, the Kazan' Aviation Institute, the Leningrad Institute of Civil Aviation Engineering, the Moscow Power Engineering Institute, the Moscow Institute of Dirigible Construction, and the Leningrad Polytechnic Institute.

Corresponding Members--age and schools: The average age of the 38 corresponding members whose birth dates is known was 68.4 years in 1991. The 64 corresponding members included at least 10 Directors of institutes, three Deputy Directors, two major designers, one laboratory Head. Several were members of other academy geographic departments. The 13 institutes from which 22 of the corresponding members are known to have graduated include: two each from the Moscow Institute of Aviation, the Moscow Power Engineering Institute, the N. E. Zhukovskii Air Force Academy, and the N. E. Bauman Moscow Higher Technical School, and, one each from the Moscow Engineering Physics Institute, the S. M. Kirov Urals Industrial Institute, the F. E. Dzerzhinskii Higher Naval School and the A. N. Krylov Naval Architecture and Armaments Academy, the Moscow Institute of Railroad Transportation, the Leningrad Polytechnic Institute, the Leningrad Electrical Engineering Institute, the Moscow Institute of Hydromelioration, the University of Saratov, and the Moscow State University.

(1997 update)

Bureau of the Department

Academician-secretary of the Department

Academician Gorimir G. Chernii, tel. 938-14-04, 939-11-59

Chernii, Gorimir G., D. PM. S. Born in 1923 in Kamenets-Podolskii. Russian scientist in mechanics. He served in the Red Army from 1941 to 1945. Academician of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1981. He graduated from the Moscow State University in 1949. From 1949 to 1958, he was on the staff of the Central Institute of Aircraft Engine Construction. He became a professor at Moscow State University in 1958, and became Director of the University Research Institute in Mechanics in 1960. His works are in aerodynamics. He holds the State Prize. In 1976, he was awarded the S. A. Chaplign Prize in technical sciences for his work in engineering. He is presently the Academician Secretary for the Department of the Problems of Machine Building, Mechanics, and Control Systems of the Academy. (GSE 29, p. 125.)

Deputies of the Academician-secretary:

Academician Konstantin S. Kolesnikov, tel.267-44-39

Kolesnikov, Konstantin S., D. Tech. S. Born in 1919. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1981, and academician since December 1987. Since 1966, prorector of the N. E. Bauman Moscow Higher Technical School. This school is a training center for design and technological engineers and conducts machine building research. He is presently a deputy to the Academician Secretary of the Problems of Machine Building, Mechanics, and Control Systems of the Academy.

Academician Evgenii Al. Fedosov, tel.157-70-47

Fedosov, Evgenii A. Born in 1929. Academician of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1984. He is presently a deputy to the Academician Secretary of the Problems of Machine Building, Mechanics, and Control Systems of the Academy.

**Responsible for scientific-organizing activities:
Prof. Grigorii Al. Lubimov, tel.938-14-04**

Bureau Members:

Academician Rostislav Ap. Beliakov, tel.158-18-72

Beliakov, Rostislav A., D. Tech. S. Born in 1919 in Murom, Vladimir Oblast. Russian aircraft designer. Academician of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1981. Following graduation from the S. Ordzhonikidze Moscow Institute of Aviation in 1941, he worked in the aviation industry, and was named principal designer at the A. I. Mikoyan Experimental Design office in 1971 where he supervised the design of various kinds of fixed-wing aircraft. He holds the State Prize and the Lenin Prize. (GSE 30, p. 24.)

Academician Iosif Iz. Vorovich, tel.28-57-11(Rostov-na-Donu)

Vorovich, Iosif I. Born in 1920 in Starodub in Briarisk Oblast. Russian specialist in continuum mechanics and the theory of elasticity. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1970; academician since 1993. Graduate of the N. E. Zhukovskii Air Force Engineering Academy in 1944. His works are in mathematical problems of continuum mechanics, non-linear theory of shells, problems of stress concentration and thick plates, and problems in the theory of elasticity. (GSE 5, p. 608.)

Academician Dmitrii M. Klimov, tel.434-32-38, 434-46-10

Klimov, Dmitrii M., D. PM. S. Born in 1933. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1981; academician since 1993. Since 1978, he has been Deputy Director of the Problems of Mechanics Institute in Moscow that was established in 1965 to conduct research on gas dynamic processes, including combustion instability, plasma, laser beams, and shock waves.

Academician Veniamin P. Miasnikov, tel.31-04-39, 31-04-52(VI.)

Miasnikov, Veniamin S. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes of the AN SSSR since December 1987. Also member of the Far Eastern department and deputy chairman of the Far Eastern department since August 1988. Academician of the Department in 1993. (LDA 89-11378.)

Academician Genrih V. Novozilov, tel.251-52-93, 943-81-16

Novozhilov, Genrikh V. Born in 1925 in Moscow. Russian aircraft designer, a student of S. V. Ilyushin. Academician of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1984. He graduated from the S. Ordzhonikidze Moscow Aviation Institute in 1949, and worked in the aviation industry, becoming the principal designer at the S. V. Ilyushin Experimental Design Office in 1970. He directed the development of the Il-76T transport plane and the Il-86 Soviet wide-body airbus passenger plane. Lenin Prize, 1970. (GSE 30, p. 567.)

Academician Iurii S. Osipov, tel.954-35-06

Osipov, Iurii S., D. PM. S. Born in 1936. He has been a corresponding member since 1984; and academician of the Machine Building, Mechanics and Control Processes Department and of the Urals Department since December 1987. From 1972 to 1981, he was Chief of an unidentified laboratory of the Mathematics and Mechanics Institute located in Ekaterinsburg (Sverdlovsk) that was established in 1962 and that develops the theory of function and control, algebra and problems of mathematical physics. Since 1981, he has been director of the Central High Altitude Hydrometeorological Observatory in Moscow, that was established in 1970 and that is a part of the nation's meteorological observation network and is directly subordinate to the State Committee for Hydrometeorology and Environmental Control. He has been President of the Russian Academy of Sciences since 1990. Dr. Osipov now heads the famous Steklov Mathematical Institute located in Moscow with a branch in St. Petersburg.

Academician Mihail F. Reshetnev, tel.973-20-32(ë.)

Reshetnev, Mikhail F., D. Tech. S. Born in 1924. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1976, and academician since 1984. Engineer. Specialist in the mechanics of machine construction, especially in the engineering of the composition of computer materials and systems construction. He was instrumental in creating "Orbit" and "Ekran" of the Siberian Far East. He graduated from the Moscow Aviation Institute in 1950 and worked at an experimental construction design bureau. He was a delegate to the 25th and 27 congresses. He is an honored scientist of the former Soviet Union. He was awarded the Lenin Prize in 1980 and holds other awards and medals. (GSE 30, p. 618.)

Academician Valentin V. Rumiantsev, tel.135-43-09

Rumiantsev, Valentin V., D. PM. S., head of the Mechanics Department of the Computing Center, was born in 1921 in the Saratov district. Corresponding member Information Sciences, Computer Technology, and Automation Department of the Academy in 1970 and an academician of the Russian Academy in 1992. He received his master of science in Mechanics from Saratov State University in 1945, his candidate degree from the Institute of Mechanics of the academy in 1948, his

doctorate in physical and mathematical sciences from that same institute in 1953. In 1956, he was made a professor of theoretical mechanics at Moscow State University. From 1948 to 1964, he was a junior researcher, a senior researcher, and a head of the Department of Analytical Mechanics of the Institute of Mechanics. From 1965 to the present he has served in various capacities from senior researcher, to head of the laboratory of stability theory and mechanics control systems, to head of the Department of mechanics of the Computing Center. He has served a professor of the chair of theoretical mechanics on the faculty of Mechanics and Mathematics at Moscow State University. His interests are in analytical mechanics, the theory of stability and stabilization, applied mathematics, mathematical modeling in the technical and natural sciences.

Academician Anatolii F. Sidorov, tel.44-25-80 (Ekaterinburg)

Sidorov, Anatolii F. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since December 1987; academician in 1993. He is located in Ekaterinburg.

Academician Nikolai S. Solomenko, tel.355-76-37 (SPb)

Solomenko, Nikolai S. Born in 1923. Academician of the Problems of Machine Building and Control Processes Department of the Academy since 1984. In 1983, he was elected a member of the U.S.S.R. National Committee on Theoretical and Applied Mechanics. Since 1985, he has served as First Deputy Chairman of the Presidium of the St. Petersburg Scientific Center that was founded in 1982. He is author of more than 140 scientific works in the field of mechanics and control processes. He is a holder of the U.S.S.R. State Prize for his research. He heads the Scientific Council on Problems of Automation and Control of the Academy's Inter-Agency Coordinating Council in St. Petersburg

Academician Vladimir M. Titov, tel.35-71-58 (N.)

Titov, Vladimir M., D. PM. S. Born in 1933. Specialist in the physics and the mechanics of impulses, and of their explosive processes. Corresponding member of the Problems of Machine Building and Control Processes Department of the Academy since 1979, and academician since 1992. He graduated from the Moscow Physico-Technical Institute in 1957. In 1960 he joined the Institute of Hydrodynamics of the Siberian Department. In 1974, he became Deputy Director, and in 1986 he was made Director of that institute. He is a professor, holding the chair in the physics of explosive processes at the Novosibirsk State University. He is on the nation Scientific Council on Theoretical and Applied Mechanics (1976) and head editor of The Physics of Corrosion and Explosion--since 1981.

Academician Konstantin V. Frolov, tel.237-27-31

Frolov, Konstantin V. Born in 1932 in Kirov, Kalugo Oblast. Russian authority on machine vibrations. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1976. Since 1984, he has been an academician and since 1985, he has been academic secretary of the Department . Since 1985, he has been a Vice President of the AN SSSR and the RAN. In March of 1986, he was elected a candidate member of the Central Committee of the CPSU. He graduated from the Briansk Institute of Transportation Machine Building in 1956 and joined the staff of the Institute of Machine Science (now the A. A. Blagonravov State Scientific Research Institute of Machine Science

in Moscow.) Since 1975, he has served as the Director of that institute that was established in the 1930s and that does research in the dynamics and kinetics of machinery friction and wear, mechanical engineering, and strength considerations. It is jointly subordinate to the Ministry of the Machine Tool and Tool Building Industry and to the Problems of Machine Building, Mechanics, and Control Processes Department of the AN SSSR and the RAN. He founded the branch of biomechanics dealing with the effects of exposure to machine vibrations and formulated the scientific principles underlying the theory of systems used to protect human operators from such vibrations. (GSE 28, p. 390.)

Academician Timur M. Eneev, tel.250-79-65, 250-78-33

Eneev, Timur M. Born in 1924 in Grozny. Russian specialist in mechanical and control processes. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1968; academician in 1993. Graduate of Moscow State University in 1948. From 1950 to 1953, he worked as a researcher at the V. A. Steklov Institute of Mathematics. In 1953, he became a senior researcher at the Institute of Applied Mathematics of the AN SSSR. His works include the dynamics and flight control of spacecraft and the application of celestial mechanics to problems of cosmogony. Lenin Prize, 1957. (GSE 30, , p. 229.)

Corresponding Member Nikolai An. Makhutov, tel. 135-77-71

Makhutov, Nikolai A. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy of the Academy since 1987.

Corresponding Member Evgenii D. Teriaev, tel.954-24-10

Teriaev, Evgenii D. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since December 1987. Deputy Academician Secretary of the Department since March 1988. (LDA 89-11378.)

Academician of Georgia AS Iveri V Prangishvili, tel. 334-89-10

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Academicians

Avduevskii, Vsevolod S., D. Tech. S. Born in 1920 in Berezovka, Odessa Oblast. Russian specialist in aeromechanics and the scientific and Technical Problems associated with space flight. Academician since 1979. He graduated from the S. Ordzhonikidze Moscow Institute of Aviation in 1944, and became a staff member at the P. I. Baranov Central Institute of Aircraft Engine Construction. He later was

associated with a number of other research institutes. In 1955, he started teaching at the Moscow Institute of Aviation and was named a professor there in 1961. His works are on the theory of heat transfer, the boundary layer, combustion, and the gas dynamics of jets and separated supersonic flows. He produced a series of papers on spacecraft-based investigations of the Venusian atmosphere. Lenin Prize, 1970, and the Zhukovskii Medal for the best work in the theory of aviation in 1971. (GSE 30, p. 19.)

Belotserkovskii, Oleg M., D. PM. S. Born in 1925. Academician of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1979. Since 1963, he has been Rector of the Physical Technical Institute in Moscow subordinate to the Ministry of Higher and Secondary Specialized Education. Since 1978, he has been Deputy Director of the Computer Center in Moscow. The center was established in 1955 and is now under the control of the Information Science, Computer Technology and Automation Department of the Academy. That department was created in 1984.

Beliakov, Rostislav A., D. Tech. S. Born in 1919 in Murom, Vladimir Oblast. Russian aircraft designer. Academician since 1981. Following graduation from the S. Ordzhonikidze Moscow Institute of Aviation in 1941, he worked in the aviation industry, and was named principal designer at the A. I. Mikoyan Experimental Design office in 1971 where he supervised the design of various kinds of fixed-wing aircraft. He holds the State Prize and the Lenin Prize. He is a member of the Bureau Governing Body of the department. (GSE 30, p. 24.)

Belotserkovskii, Oleg M., D. PM. S. Born in 1925. Academician of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1979. Since 1963, he has been Rector of the Physical Technical Institute in Moscow subordinate to the Ministry of Higher and Secondary Specialized Education. Since 1978, he has been Deputy Director of the Computer Center in Moscow. The center was established in 1955 and is now under the control of the Information Science, Computer Technology and Automation Department of the Academy. That department was created in 1984.

Byushgens, Georgii S., D. Tech. S. Born in 1916 in Moscow. Russian scientist in the field of mechanics. Academician since 1981. He graduated from the Moscow Aviation Institute in 1940 and began work at the Central Aerohydrodynamics Institute in Moscow. Since 1973, he has been Deputy Director of the Institute, that does aerodynamic strength calculations on aircraft. His works are in the dynamics, stability, controllability, and aerodynamics of airplanes. Lenin Prize, 1961. (GSE 4, p. 31.)

Bolotin, Vladimir V. Born in 1926 in Tambov. Russian specialist in mechanical engineering. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1974; academician in 1993. He graduated from the Moscow Institute of Railroad Transportation in 1948. He was Head of a subdepartment at the Moscow Power Engineering Institute in 1958. From 1958 to 1964, he was associated with the Institute of Mechanics of the AN SSSR. His work is in the mechanics of deformable media. (GSE 30, p. 27.)

Burtsev, Vsevolod S., D. Tech. S. Born in 1927 in Moscow. Russian scientist in control processes and computer technology. Corresponding member since 1976; academician of the Problems of Machine Building, Mechanics, and Control Systems Department since 1993. He graduated from the Moscow Power Engineering Institute in 1951 and joined the staff of the Institute of Precision Mechanics and Computer Technology. He became a professor at the institute in 1965 and its Director in 1973. From 1973 to July 1987, he was the Director of the S. A. Lebedev Precision Mechanics and Computation Techniques Institute in Moscow that was established in 1948 subordinate to the academy's General

Physics and Astronomy Department for the purpose of developing computer hardware and software, concentrating on high speed computers. His works have included the principles and methods of building digital computers, theoretical and practical problems of automatic control, and the principles of implementing multi-processing systems. Recipient of the State Prize, 1972; Lenin Prize, 1966. (GSE 30, p. 29.)

Chernii, Gorimir G., D. PM. S. Born in 1923 in Kamenets-Podolskii. Russian scientist in mechanics. He served in the Red Army from 1941 to 1945. Academician since 1981. He graduated from the Moscow State University in 1949. From 1949 to 1958, he was on the staff of the Central Institute of Aircraft Engine Construction. He became a professor at Moscow State University in 1958, and became Director of the University Research Institute in Mechanics in 1960. His works are in aerodynamics. He holds the State Prize. In 1976, he was awarded the S. A. Chaplign Prize in Technical Sciences for his work in engineering. He is currently the Academician Secretary of the department, replacing Frolov. (GSE 29, p. 125.)

Chernous'ko, (Chernousko) Feliks L., C., PM. S. Born in 1938. Corresponding member of Problems of Machine Building, Mechanics and Control Systems Department of the Academy since December 1987; academician in 1993. Since 1972, he has been Head of the Optimal Control of Motion Laboratory of the Physical Mechanics Division of the Problems of Mechanics Institute in Moscow.

Dollezhal, Nikolai A., C. Tech. S. Born in 1899 in a village in Zaporozhe Oblast. Russian scientist and power engineer. Academician since 1962. Originally elected to the Technical Sciences Department. Principal membership in the Physical Technical Problems of Power Engineering Department. After graduating in 1923 from the Moscow Higher Technical School, from 1932 to 1934, he was technical Director of the Nitrogen Mechanical Engineering Institute in St. Petersburg. From 1935 to 1938, he was Head engineer of the Bolshevik factory in Kiev, and from 1942 to 1953, he directed the All-Union ARO Design, Planning, and Scientific Research Institute of Chemical Mechanical Engineering in Moscow. He became a Director of a Scientific Research Institute in 1953. He developed the theory of automatic valves in a piston compressor. He was the Head designer for the reactor in the world's first atomic electric power plant in Nobninsk. Recipient of the State Prize, 1949, 1952, 1953, and 1970; Lenin Prize, 1957. (GSE 8, p. 349.)

Eneev, Timur M. Born in 1924 in Grozny. Russian specialist in mechanical and control processes. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1968; academician of the Problems of Machine Building, Mechanics, and Control Systems Department in 1993. Graduate of Moscow State University in 1948. From 1950 to 1953, he worked as a researcher at the V. A. Steklov Institute of Mathematics. In 1953, he became a senior researcher at the Institute of Applied Mathematics of the AN SSSR. His works include the dynamics and flight control of spacecraft and the application of celestial mechanics to problems of cosmogony. Lenin Prize, 1957. He is, at present, a member of the Bureau Governing Body of the department. (GSE 30, , p. 229.)

Fedosov, Evgenii A. Born in 1929. Academician of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1984. He is currently a Deputy of the Academician Secretary of the department.

Frolov, Konstantin V. (See above).

Ganiev, Rivner F. Corresponding member since December 1987 of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy; academician of the Problems of Machine Building, Mechanics, and Control Systems Department since 1993.

Ishlinskii, Aleksandr Iurii D. PM. S. Born July 1913 in Moscow. Russian scientist in mechanics. Since 1948, he has been an academician of the Mechanics Department of the Ukrainian Academy of Sciences, and since 1960, he has been an academician of the Mechanics and Control Systems Department of the Russian Academy of Sciences of sciences. He graduated from Moscow State University in 1935 and has been a professor there since 1944. From 1948 to 1955 he was Director of the Institute of Mathematics of the Ukrainian Academy of Sciences. Since 1964, he has been the Director of the Problems of Mechanics Institute in Moscow that was established in 1965 to conduct research on gas dynamic processes, including combustion instability, plasma, laser beams, and shock waves. Since 1971, he has been a board member of the GKNT General Assembly. His main work is concerned with theories of elasticity, plasticity, vibrations, and gyroscopes. He has studied the problems of shock absorption for instruments during sudden deceleration (1958), developed the theory of the space gyrocompass and other gyroscopic instruments (1952-63), and conducted important research on the general theory of inertial navigation and autonomous control systems (1957-1968). He has been Chairman of the All-Union Council of Scientific and Technical Societies since 1970. He has been Vice President of the World Federation of Engineering Organizations since 1971. Lenin Prize, 1960. (GSE 11, p. 255.)

Klimov, Dmitrii M., D. PM. S. Born in 1933. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1981; academician of the Problems of Machine Building, Mechanics, and Control Systems Department since 1993. Since 1978, he has been Deputy Director of the Problems of Mechanics Institute in Moscow that was established in 1965 to conduct research on gas dynamic processes, including combustion instability, plasma, laser beams, and shock waves. He is presently a member of the Bureau Governing Body of the department.

Kochina, Pelageia Ia., D. PM. S. Born in 1899 in Astrakhan. Russian scientist in the field of hydrodynamics. Academician since 1958 and also member of the Siberian Department from that same date. She started work in 1919 at the Main Geophysical Observatory and graduated from Petrograd University in 1921. From 1925 to 1931, she taught at the Institute of Transportation in Leningrad and from 1931 to 1935 at the Institute of Civil Aviation Engineering. In 1935, she began working at the Institute of Mathematics and in 1939 at the Institute of Mechanics of the AN SSSR. In 1959, she began work at the Institute of Hydrodynamics of the Siberian Department. Since 1971, she has been at the Institute of Problems of Mechanics of the AN SSSR and the RAS where she has been Head of the Mathematics Division of that institute. Her works include the theory of filtration, dynamic meteorology, the theory of tidal flow in basins, and the movement of groundwater and of crude oil in porous media. Recipient of the State Prize, 1946. (GSE 13, p. 356.)

Kolesnikov, Konstantin S., D. Tech. S. Born in 1919. Corresponding member since 1981, and academician of the Problems of Machine Building, Mechanics, and Control Systems Department since December 1987. Since 1966, Pro-Rector of the N. E. Bauman Moscow Higher Technical School. This school is a training center for design and technological engineers and conducts machine building research. He is currently a Deputy to the Academician Secretary of the department.

Kovalev, Sergei N., D. Tech. S. Born in 1919. Academician since 1981.

Krasovskii, Aleksandr A. Born in 1921 in Kirovgrad. Russian scientist in the field of automatic control systems. He graduated from the N. E. Zhukovskii Air Force Engineering Academy where he now works. He became a professor there in 1954. Corresponding member since 1968; academician of the Problems of Machine Building, Mechanics, and Control Systems Department in 1993. His works are in the theory of automatic control. He has made substantial contributions to the theory

of automatic self-adjusting systems and air flight control systems. (GSE 13, p. 487.)

Krasovskii, Nikolai N. Born in 1924 in Ekaterinburg (Sverdlovsk). Russian scientist in the field of mechanics and control processes. Academician of the Problems of Machine Building, Mechanics and Control Systems Department of the Russian Academy of Sciences and of the Urals Department since 1968. He graduated from the Urals Polytechnic Institute in 1949, becoming a professor there in 1957 and a professor at Urals University in 1959. Since 1970, he has been the Director of the Institute of Mathematics and Mechanics of the Russian Academy of Sciences. His works are on the stability of motion and the dynamics of control systems. (GSE 13, p. 487.)

Kurzhaniskii, Aleksandr B., D. PM. S. Born in 1939. Corresponding member of the Problems of Machine Building and Control Systems Department since 1981 and of the Urals Department since 1988; academician of the Problems of Machine Building, Mechanics, and Control Systems Department in 1993.

Kuznetsov, Nikolai A., D. Tech. S. Corresponding member of the Machine Building, Mechanics and Control Systems Department of the AN SSSR from December 1987; and academician of the Problems of Machine Building, Mechanics, and Control Systems Department since 1993. Since 1991, he has been Director of the Problems of Information Transmission Institute in Moscow which was established in December 1961 by a decision of the Presidium of the AN SSSR "On the reorganization of the laboratory of information transmission systems into the Institute for the Problems of Information transmission." From 1962 to 1990 under Professor M. S. Pinsker, D. PM. S., and since 1991 the Mathematical Information Theory Laboratory under Professor N. A. Kuznetsov--scientists in the laboratory have worked on the probabilistic, algebraic and combinatorial aspects of information and coding theory, carried out fundamental studies on the potential performance of various systems for information transmission and storage, on the construction of new classes of codes using concatenation approaches, on convolution codes and founding probabilistic decoding algorithms, on the application of algebraic geometry methods in coding theory, and on methods of source coding and the design of data compression algorithms.

Kuznetsov, Nikolai D., Gen. Lt. Eng. Born in 1911 in Aktiubinsk. Russian scientist, specialist in jet engines. Academician since 1974. He graduated from the N. E. Zhukovskii Air Force Academy in 1938. From 1943 to 1946, he was a Deputy Head designer and from 1946 to 1956, he was a Head designer. Since 1956, he has been a General designer. Under his leadership, engines for Tu-114, Tu-154, Au-22, and Il-62 aircraft and the Tu-144 supersonic passenger aircraft were developed. He was a Deputy to the 6th, 7th, and 8th convocations of the Supreme Soviet of the RSFSR. Lenin Prize, 1956. (GSE 13, p. 576.)

Matrosov, Vladimir M., D. PM. S. Born in 1932 in Shipunovo, Altai Krai. Russian specialist in theoretical mechanics and applied mathematics. Corresponding member since 1976, and academician of the Problems of Machine Building, Mechanics, and Control Systems Department since December 1987. He graduated from Kazan' Aviation Institute in 1956 where he taught until 1975, becoming a professor there in 1970. From 1975 to 1980, he was Director of the Siberian Energetics Institute. In 1980, he was named Director of the Irkutsk Computer Center. He has been a professor since 1970 holding a chair in applied mathematics at the Irkutsk State University. He is an Honored Scientist of the former Soviet Union. He became Rector of the V. I. Lenin Kazakh Polytechnical Institute and Director of the Irkutsk Computer Center in 1983. He was the Director of a series of works published from 1962-1981, for which he--among others received the USSR State Prize in 1984. The work was entitled "The Development of the Method of Lyapunov Vector Functions for the Analysis of the Stability and Other Dynamic Properties of

- Nonlinear Systems." His works are in the dynamics of non-linear systems and the stability of motion. (GSE 30, p. 561.)
- Mishin, Vasilii P.** Born in 1917 in Moscow Oblast. Russian scientist in mechanics, control processes, and the physico-Technical Problems of power engineering. Academician since 1966. Also member of the Physical Technical Problems of Power Engineering Department. In 1941, after graduation from the Ordzhonikidze Moscow Aviation Institute, he worked in several research and design organizations and became a professor at the institute in 1959. His work is in applied mechanics. Lenin Prize, 1957. (GSE 16, p. 375.)
- Mitenkov, Fedor M.** Born in 1924. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1979; academician of the Problems of Machine Building, Mechanics, and Control Systems Department in 1993.
- Myasnikov, Veniamin P.** Corresponding member of the Problems of Machine Building, Mechanics and Control Systems of the AN SSSR from December 1987; academician of the Problems of Machine Building, Mechanics, and Control Systems Department in 1993. Also member of the Far Eastern Department and Deputy Chairman of the Far Eastern Department since August 1988. He is currently a member of the Bureau Governing Body of the department.
- Negin, Evgenii A.** Born in 1921 in Bor, Gorkiy Oblast. Russian scientist in mechanics. Academician since 1979. He graduated in 1944 from N. E. Zhukovskii Air Force Engineering Academy, and since 1949, he has been engaged in scientific research, primarily in gas dynamics. Recipient of the State Prize, 1951 and 1953; Lenin Prize, 1959. (GSE 30, , p. 565.)
- Nigmatulin, Robert I., D. PM. S.** Born in 1940. Engineer. Corresponding member of the Machine Building, Mechanics, and Control Systems Department and of the Siberian Department since December 1987, and academician since 1990. He has written 40 scientific works of which four are significant monographs. He has 21 inventions and has co-authored another 130 scientific publications of which three are monographs. He graduated from the Moscow Technical Correspondence School imeni N. E. Bauman in 1963 and from the Moscow State University in 1965. He began working at the Bauman school. From 1963 to 1986, he worked at the Institute of Mechanics, as a junior and senior researcher, leader of a sector and Head of a laboratory. In 1986, he was named Deputy Director of the Handling Problems of the North Institute in Tiumen. He was a professor at the Moscow State University from 1978 to 1986, and held a chair at the Tiumen State University from 1986. As a professor there he has guided the work of 10 doctoral students and 35 aspirants for the candidate degree. He is on the national committee on theoretical and applied mechanics. He is an Honored Scientist of both the AN SSSR and of the GKNT.
- Novozhilov, Genrikh V.** Born in 1925 in Moscow. Russian aircraft designer, a student of S. V. Ilyushin. Academician since 1984. He graduated from the S. Ordzhonikidze Moscow Aviation Institute in 1949, and worked in the aviation industry, becoming the principal designer at the S. V. Ilyushin Experimental Design Office in 1970. He directed the development of the Il-76T transport plane and the Il-86 Soviet wide-body airbus passenger plane. Lenin Prize, 1970. He is currently a member of the Bureau Governing Body of the department. (GSE 30, p. 567.)
- Obraztsov, Ivan F., D. Tech. S.** Born in 1920 in Kalinin Oblast. Russian scientist in structural mechanics and the theory of the strength of aircraft. Academician of the Problems of Machine Building, Mechanics, and Control Systems Department of the AN SSSR and the RAS since 1974. Member of the RSFSR Council of Ministers. In 1944, he graduated from the S. Ordzhonikidze Moscow Institute of Aviation, taught and became a professor there in 1957. He served as Rector of the institute from 1958 to 1972. Since 1968, he has been President of the Znanie Society of the

RSFSR. Since 1972, he has served as the Minister of the RSFSR Ministry of Higher and Secondary Specialized Education of the RSFSR. He was a Deputy to the 7th and 8th convocations of the Supreme Soviet of the RSFSR. He is currently Director of the Applied Mechanics Institute in Moscow. (GSE 18, p. 364.)

Okhotsimskii, Dmitrii E., C. PM. S. Born in 1921 in Moscow. Russian scientist in mechanics. From 1945 to 1966, he worked at the Institute of Mathematics of the AN SSSR. Since 1966, he has been at the Institute of Applied Mathematics of the AN SSSR and the Russian Academy of Sciences. He has been a professor in the Department of Mechanics and Mathematics at Moscow State University since 1961. In 1967, he headed the Engineering Mathematics Laboratory of the M. V. Keldysh Applied Mathematics Institute in Moscow. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1960; academician in 1993. Originally elected to the Technical Sciences Department. His works are in flight dynamics, control of aircraft flight, and the development of algorithms for the behavior of complex cybernetic locomotive and manipulative systems with elements of artificial intelligence where the systems adapt to an unknown situation. Recipient of the State Prize, 1970; Lenin Prize, 1957. (GSE 19, p. 116.)

Oleynik, Aleksandr Ia. (Hydromechanics) Born in 1929. Corresponding member of the Mechanics Department of the Ukrainian Academy of Sciences since 1973; academician of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy in 1993. Director of the Hydromechanics Scientific Research Center in Kiev since 1972. The institute studies high velocity hydrodynamics. Recipient of the State Prize for Science and Technology in 1981. Awarded the A. N. Dinnik Prize for Mechanics and Machine Building in 1990.

Osipov, Iurii S., D. PM. S. Born in 1936. He has been a corresponding member since 1984; and academician of the Machine Building, Mechanics and Control Systems Department and of the Urals Department since 1987. From 1972 to 1981, he was Head of an unidentified laboratory of the Mathematics and Mechanics Institute located in Ekaterinburg (Sverdlovsk) that was established in 1962 to develop the theory of function and control, and study algebra and the problems of mathematical physics. He was Director of that institute succeeding V. D. Batkhtin. From 1987 to 1990, Dr. Osipov was Director of the Mathematics and Mechanics Institute in Ekaterinburg. In 1990, he succeeded Marchuk as President of the Russian Academy of Sciences, a position which he continues to hold. He is also member of the departmental Bureau Governing Body.

Ovsiannikov, Lev V., D. PM. S. Born in 1919 in Gorkiy Oblast. Russian mathematician and engineer. Corresponding member of Problems of Machine Building, Mechanics and Control Systems Department of the AN SSSR from 1964, and academician of both departments since December 1987. He graduated from Moscow State University in 1941 and the St. Petersburg Air Force Academy in 1945. In 1949, he began work at the Siberian Department of the AN SSSR. He joined the Hydrodynamics in 1959, and he became assistant-Director of that institute 1970. He was appointed a professor at the University of Novosibirsk in 1963, holding the chair in hydrodynamics from 1966. He served as Dean of the Engineering Mathematics Faculty from 1967 to 1970. From 1976 to 1989, he was Director of the M. A. Lavrent'ev Hydrodynamics Institute in Novosibirsk that researches the mechanics of fluids gases, and plasma. His work includes the theory of group properties of differential equations, transonic gas dynamics, and hydrodynamics of flows with free surfaces. He is on the national committee on theoretical and applied mechanics. He received the Lenin Prize in 1958, and the State Prize in 1987. (GSE 18, p. 612-3.)

Panin, Viktor E., D. PM. S. Born in 1930. Specialist in mechanics and solid state physics. Corresponding member since 1981, and academician since 1987--of the

Machine Building and Control Systems Department. He graduated from the Tomsk State University in 1952. From 1955 to 1979, he was on the staff of the Siberian Physico-Technical Institute, heading the Department of the Physics of Metals of that institute from 1969 to 1979. In 1979, he joined the Department of Solid State Physics and Materials and headed that Department from 1979 to 1980. He was named Deputy Director of the Atmospheric Optics Institute in 1981--that was established in 1969 and engages in research on spectroscopy, laser probing of the atmosphere and other electro-optical devices--and served in that capacity until 1984. In 1984, he became Director of the Physics of Strength of Materials Institute. He was named a Deputy Chairman of the Presidium of the Tomsk Scientific Center in 1983. He has been a professor at the Tomsk State University since 1970. He is an Honored Scientist of the former Soviet Union. He is a member of the GKNT. He is also Chairman of the "special-purpose" program for powder metallurgy.

Popov, Evgenii P., Major General Engineers, D. Tech. S. Born in 1914 in Moscow. Russian scientist in mechanics and control processes. He graduated from the N. E. Bauman, Moscow Higher Technical School in 1939. From 1939 to 1943, he served as a mechanic in an air force squadron. From 1943 to 1964, he taught at the A. F. Mozhaiskii Leningrad Air Force Engineering Academy, becoming a professor in 1948. Between 1964 and 1971, he was Chairman of the section on applied problems of the Presidium of the AN SSSR and has been Head of a subdepartment of the Moscow Higher Technical School since 1971. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1960; academician of the Problems of Machine Building, Mechanics, and Control Systems Department in 1993. Originally elected to the Technical Sciences Department. His works are in control theory, non-linear automatic control systems, automatic aircraft control, and control systems for manipulators. Recipient of the State Prize, 1949 and 1972. (GSE 20, p. 411.)

Pugachev, Vladimir S., D. Tech. S. Born in 1911 in Riazan. Russian scientist in mechanics, problems of control, and mathematics. Academician of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1981. He graduated from the N. E. Zhukovskii Air Force Academy in 1931 and taught and researched at the academy until 1972. He has held a professorship there since 1939. He became Head of a laboratory of the Institute of Problems of Control in 1956. He has taught at the S. Ordzhonikidze Moscow Institute of Aviation since 1972. His works are in the statistical theory of control processes, flight dynamics, and the theory of canonical expansion of random functions. Recipient of the State Prize, 1948. (GSE 21, p. 343.)

Raushenbakh, Boris V., D. Tech. S. Born in 1915 in Petrograd. Russian scientist in mechanics and control processes. Academician of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1984. He graduated from the Leningrad Institute of Civil Aviation Engineers in 1938, where he specialized in theory, and began work at the Iet Scientific Research Institute. In 1947, he began teaching at the Moscow Physico-Technical Institute, being named a professor there in 1959. He is a corresponding member of the International Academy of Astronautics. Lenin Prize, 1960. In 1987, he was awarded the B. N. Petrov Gold Medal I, named after the well-known automation scientist, for his work in control sciences. (GSE 21, p. 508.)

Reshetnev, Mikhail F., D. Tech. S. Born in 1924. Corresponding member since 1976, and academician of the Problems of Machine Building, Mechanics, and Control Systems Department since 1984. Engineer. Specialist in the mechanics of machine construction, especially in the engineering of the composition of computer materials and systems construction. He was instrumental in creating "Orbit" and "Ekran" of the Siberian Far East. He graduated from the Moscow Aviation Institute in 1950 and worked at an experimental construction design bureau. He is a member

of the Department of the Problems of Machine Building, Mechanics and Control Systems Department. He was a delegate to the 25th and 27 congresses. He is an Honored Scientist of the former Soviet Union. He was awarded the Lenin Prize in 1980 and holds other awards and medals. He is a member of the Bureau Governing Body of the department. (GSE 30, p. 618.)

Rumiantsev, Valentin V., D. PM. S., Head of the Mechanics Department of the Computing Center, was born in 1921 in the Saratov district. Corresponding member Information Sciences, Computer Technology, and Automation Department of the Academy in 1970 and an academician of the Problems of Machine Building, Mechanics and Control Systems Department of the Russian Academy in 1992. He received his master of science in Mechanics from Saratov State University in 1945, his candidate degree from the Institute of Mechanics of the academy in 1948, his doctorate in Physical and Mathematical Sciences from that same institute in 1953. In 1956, he was made a professor of theoretical mechanics at Moscow State University. From 1948 to 1964, he was a junior researcher, a senior researcher, and a Head of the Department of Analytical Mechanics of the Institute of Mechanics. From 1965 to the present he has served in various capacities from senior researcher, to Head of the laboratory of stability theory and mechanics control systems, to Head of the Department of mechanics of the Computing Center. He has served a professor of the chair of theoretical mechanics on the faculty of Mechanics and Mathematics at Moscow State University. His interests are in analytical mechanics, the theory of stability and stabilization, applied mathematics, mathematical modeling in the technical and natural sciences. He presently is serving on the Bureau--the governing body of the Problems of Machine Building, Mechanics, and Control Systems Department.

Ryzhov, Iurii A. D. Tech S. Born in 1930. Corresponding member since 1981, and academician of the Problems of Machine Building, Mechanics, and Control Systems Department since December 1987. From 1976 to 1987, he was Pro-Rector of the Ordzhonikidze Aviation Institute in Moscow, that trains engineers for work in aircraft and aircraft component design. In 1987, he became Rector of that institute.

Sedov, Leonid I., D. PM. S. Born in November 1907 in Rostov-on-Don. Russian scientist in mechanics and applied mathematics. He has been a corresponding member of the academy since 1946 and an academician of the Problems of Machine Building, Mechanics, and Control Systems Department since 1953. He was originally elected to the Technical Sciences Department. His principal membership is in the Mechanics and Control Systems Department. He graduated from Moscow State University in 1930. He became a professor there in 1937. From 1930 to 1947, he served on the staff of the Central Aerohydrodynamics Institute. In 1945, he also joined the staff of the Institute of Mathematics of the AN SSSR. His most important works are in the fields of hydromechanics, aeromechanics, and continuum mechanics. In 1965, he became Chairman of the Scientific Council on Liquid and Gas Mechanics of the AN SSSR. Since 1974, he has been Head of the Statistical Mechanics Department of the V. A. Steklov Mathematics Institute in Moscow. He has studied the problem of impact of bodies against water and problems of hydroplaning. He has also solved problems dealing with strong explosives and with gas dynamics. Recipient of the State Prize 1952. (GSE 23, p. 277.)

Semikhatov, Nikolai A., D. Tech. S. Corresponding member of the Problems of Machine Building and Control Systems Department since 1984, and of the Urals Department since 1988; academician of the Problems of Machine Building, Mechanics, and Control Systems Department in 1993.

Sidorov, Anatolii F. Corresponding member since December 1987; academician of the Problems of Machine Building, Mechanics, and Control Systems Department of the

Russian Academy of Sciences in 1993. He is a member of the department's Bureau--its governing body.

Solomenko, Nikolai S. Born in 1923. In 1983, he was elected a member of the USSR National Committee on Theoretical and Applied Mechanics. Academician of the Problems of Machine Building and Control Systems Department of the Academy since 1984. Since 1985, first Deputy Chairman of the Presidium of the St. Petersburg Scientific Center that was founded in 1982. Author of more than 140 scientific works in the field of mechanics and control processes. Holder of the USSR State Prize for his research. He heads the Scientific Council on Problems of Automation and Control of the academy's Inter-Agency Coordinating Council in St. Petersburg. He is presently a member of the Bureau Governing Body of the department. He is the Director of the Transport Problems Institute in St. Petersburg.

Spasskii, Igor D., D. Tech. S. Corresponding member of the Problems of Machine Building and Control Systems Department of the Academy since 1984. Academician since December 1987. Holder of the Lenin and USSR State Prizes for his work in developing large power machine building complexes.

Struminskii, Vladimir V., D. Tech. S. Born in 1914 in Orenburg. Russian specialist in aerodynamics, aircraft, and the theory of airplane design. Academician of the Problems of Machine Building and Control Systems Department of the Academy since 1966. Also member of the Siberian Department. He graduated from Moscow State University in 1938, worked at the N. E. Zhukovskii Central Aerodynamic and Hydrodynamic Institute from 1941 to 1966. He served as Director of the Institute of Theoretical and Applied Mechanics of the Siberian Department from 1966 to 1971. In 1971, he became Director of the Department of Physical Aeromechanics in the Institute of Problems of Mechanics of the AN SSSR. His works are in the theory of three-dimensional boundary layer and the vortex wing theory. His contributions have been important in achieving supersonic flight speeds. Recipient of the State Prize, 1947 and 1948; the N. E. Zhukovskii First Prize and Gold Medal I, 1947, and the Lenin Prize, 1961. (GSE 24, p. 606.)

Svishchev, Georgii P., D. Tech. S. Born in 1912 in St. Petersburg. Russian scientist, specialist in aviation and mechanics. Academician since 1976. Since 1985, member of the Presidium of the national academy of sciences. In 1988, he was appointed an advisor to the Russian Academy of Sciences's Presidium. He graduated from the Moscow Institute of Dirigible Construction in 1935 and worked in a design bureau for dirigible construction. From 1940 to 1954, he worked in the N. E. Zhukovskii Central Aerohydrodynamics Institute, becoming Deputy Director in 1950. From 1954 to 1967, he headed the P. I. Baranov Central Institute of Aircraft Engine Construction. In 1967, he was made Director of the N. E. Zhukovskii Aerohydrodynamics Institute of the Ministry of the Aviation Industry in Moscow. Established in 1918, the institute performs aerodynamic strength calculations on aircraft and coordinates research on aviation technology. His works were in aerodynamics of aircraft and engine installations. Recipient of the State Prize, 1946 and 1952. (GSE 23, p. 637.)

Tishchenko, Marat N. Born in 1931 in Kharkov. Corresponding member of the Problems of Machine Building, Mechanics, and Control Systems Department of the Academy since December 1987; academician of the Problems of Machine Building, Mechanics, and Control Systems Department in 1993. He graduated from the S. Ordzhonikidze Moscow Institute of Aviation in 1956, and began work in the aviation industry. Since 1970, he has been Head designer at the M. L. Mil' Experimental Design Office. His work is mainly in the design of several types of helicopters. He holds the Lenin Prize. (GSE 30, p. 668.)

Titov, Vladimir M., D. PM. S. Born in 1933. Specialist in the physics and the mechanics of impulses, and of their explosive processes. Corresponding member

of the Problems of Machine Building and Control Systems Department of the Academy since 1979, and academician of the Problems of Machine Building, Mechanics, and Control Systems Department since 1992. He graduated from the Moscow Physico-Technical Institute in 1957. In 1960 he joined the Institute of Hydrodynamics of the Siberian Department. In 1974, he became Deputy Director, and in 1986 he was made Director of that institute. He is a professor, holding the chair in the physics of explosive processes at the Novosibirsk State University. He is on the nation Scientific Council on Theoretical and Applied Mechanics (1976) and Head editor of The Physics of Corrosion and Explosion--since 1981. He is currently a member of the Bureau Governing Body of the Problems of Machine Building, Mechanics, and Control Systems Department of the Academy.

Trapeznikov, Vadim A., D. Tech. S. Born in 1905 in Moscow. Russian scientist in electrical-machine building, automation, and control processes. Academician since 1960. Originally elected to the Technical Sciences Department. He graduated in 1928 from the Moscow Higher Technical School and served on the staff of the All-Union ElectroTechnical Institute until 1933. From 1930 to 1941, he taught at the Moscow Power Engineering institute becoming a professor in 1939. He joined the staff of the Institute of Automation and Tele-mechanics (now the Institute of Problems of Controls) in 1941 and became its Director in 1951. He became Head of a subdepartment of the Moscow Physico-Technical Institute in 1954 and Chairman of the National Committee of the USSR on Automatic Control in 1959. He was selected as first Deputy Chairman of the GKNT in 1965. From 1951 to 1987, he served as Director of the Control Problems Institute in Moscow. The institute was founded in 1939 and is jointly subordinate to the academy's Mechanics and Control Systems Department and the Ministry of Instrument Making, Automation Equipment and Control Systems. It specializes in automation research, systems analysis and computer modeling. His works have included design, construction of electrical machines and transformers, developing techniques for building high-speed automatic devices and modular automatic systems, methods of simulating automatic control systems, and studies of the economics of scientific and technological progress. Recipient of the State Prize, 1951. (GSE 26, p. 318.)

Tsyarkin, Iakov, Z., D. Tech. S. Born in 1919. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1974; academician of the Problems of Machine Building, Mechanics, and Control Systems Department in 1993.

Tupolev, Aleksei A., D. Tech. S. Born in 1925 in Moscow Russian aircraft designer. Academician since 1984. He graduated from the Moscow Institute of Aviation in 1949. In 1942, he joined the staff of his father's experimental design office where he became a senior designer in 1963 and Head designer in 1973. He has directed the design of several supersonic aircraft. Recipient of the State Prize, 1967. (GSE 26, p. 439.)

Utkin, Vladimir F., D. Tech. S. Born in 1923. Academician of the Mechanics Department of the Ukrainian Academy of Sciences since 1976. Academician since 1984--of the Problems of Machine Building, Mechanics and Control Systems Department of the AN SSSR and the Russian Academy of Sciences. Member of the Presidium since October 1988.

Vasil'ev, (Vasilev) Oleg F., D. Tech. S. Born in 1925 in Moscow. Russian scientist in the fields of applied hydrodynamics and hydraulics. Corresponding member of the Problems of Machine Building, Mechanics, and Control Systems Department of the Russian Academy of Sciences since 1992; academician of the Problems of Machine Building, Mechanics, and Control Systems Department since 1993. He has authored or co-authored 250 scientific works of which four are major monographs. He graduated from the Moscow Institute of Hydromelioration in 1948

and taught at the Moscow Institute of Engineering and Construction until 1959. In 1970, he began working in the Department of Applied Hydrodynamics in the Institute of Hydrodynamics of the Siberian Department of the AN SSSR. The institute was established in 1957 to conduct theoretical and experimental research on gases, plasma, and the mechanics of fluids. From 1977 to 1980, he served as Deputy Director and Head of a Department and as a specialist at the Institute of Applied Systems Analysis in Austria. In 1980, he organized and was Head of a laboratory on the hydrophysics and ecology of reservoirs of the Hydrodynamics Institute of the Siberian Department. In 1985 he was the organizer, and in 1987 was named the Director of the Water and Ecological Problems Institute in Barnaul that was subordinate to the Siberian Department. His works are in the theory of non-stationary and eddy currents of liquids and gases, the hydraulics of open river beds, pipe systems, and hydraulic works. Since 1962, he has been a professor at the Novosibirsk State University, and from 1980 to 1987, he was on the faculty of the Engineering Institute in Novosibirsk. He has directed the work of three doctorate students and 25 aspirants for the candidate degree. He has been on the Council on the Biosphere since 1970, on the Council on Mathematical Modeling since 1987; a member of the Presidium's National Committee on Theoretical and Applied Mechanics, and a member of Interdepartmental Association Reservoir Research. He was made an honorary member of the Hungarian Hydrological Society in 1978 and received an honorary doctorate in engineering sciences from an East German University in 1985. (GSE 4, p. 525.)

Voitsekhovskii, Bogdan V. Born in 1922 in Soroka, Virinita Oblast. Russian hydrodynamics specialist. Corresponding member of the Problems of Machine Building, Mechanics, and Control Systems Department of the AN SSSR and the RAS and of the Siberian Department since 1964, and academician since 1990. He graduated from the Moscow Engineering Physics Institute in 1953. Since 1958, he has been Head of a division of the Hydrodynamics Institute of the Siberian Department of the AN SSSR and the Russian Academy of Sciences, and from 1965 to 1973, he served as its Deputy Director. In 1973 he was named Head of a laboratory at the Hydrodynamics Institute. The institute performs theoretical and experimental research in the mechanics of fluids, gases, and plasma. His works are in the detonation of gases, high-Head pulsed and continuous jets, pulse hydraulic drives and their uses in breaking rocks, percussion drilling, and metal-working. From 1963 to 1973, he was a professor holding the chair in explosive processes at the Novosibirsk State University. He has written 13 scientific works of which two are major monographs, co-authored another 72, and has 99 inventions to his credit. Lenin Prize, 1965. (GSE 5, p. 55.)

Vorovich, Iosif I. Born in 1920 in Starodub in Briarisk Oblast. Russian specialist in continuum mechanics and the theory of elasticity. Corresponding member since 1970; academician of the Problems of Machine Building, Mechanics, and Control Systems Department since 1993. Graduate of the N. E. Zhukovskii Air Force Engineering Academy in 1944. His works are in mathematical problems of continuum mechanics, non-linear theory of shells, problems of stress concentration and thick plates, and problems in the theory of elasticity. He is a member of the Bureau Governing Body of the department. (GSE 5, p. 608.)

Corresponding Members

Abgarian, Karlen A., D. Tech. S. (Armenian Computer Technologist) Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1987. Since 1979, he has been Director of the Computer Center in Erevan which is subordinate to the Physical and Mathematical Sciences department of the Armenian Academy of Sciences. It was established in

1957 to do research in computer optical processing and computer technology and development. (LDA 89-11378.) x/

Anfimov, Nikolai A., D. Tech. S. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1984.

Babeshko, Vladimir A. Corresponding member of the Problems of Machine Building, Mechanics, and Control Systems Department of the Academy since December 1987. In 1986, he was named Rector of the Kuban State University which is located in Krasnodar and which was established in 1970. (LDA 89-11378.)

Babushkin, Mark N. Born in 1924 in Volgograd Oblast. Soviet scientist in control problems. Corresponding member of the Problems of Machine Building Department of the Academy since 1976. Also corresponding member of the Far Eastern Scientific Center. He graduated from the F. E. Dzerzhinskii Higher Naval School in 1947 and from the A. N. Krylov Naval Academy of Naval Architecture and Armaments in 1954. He served on the teaching staff of the academy from 1954 to 1972, becoming a professor there in 1968. In 1973, he was appointed Director of the Khabarovsk Scientific Research Integrated Institute of the Far Eastern Scientific Center (now department) of the AN SSSR. Since 1973, he has been Director of the Complex Scientific Research Institute in Khabarovsk. This institute studies the biogeochemical and geological processes of the earth, methods of mineral prospecting, and geochemical characteristics of ancient regions. It is subordinate to the academy's Far Eastern Scientific Center. His works have been in the theory of multivariable control systems and integrated ship automation, and the theory of analog computers. (GSE 30, p. 20.)

Belianin, Petr N. Born in 1926. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1984. Since 1973, he has been Director of the Aviation Technology and Organization of Production Scientific Research Institute in Moscow under the administration of the Ministry of the Aviation Industry. The institute follows the scientific and technical progress in the aviation industry.

Chertok, Boris E. Born in 1912 in Loda, Poland. Soviet scientist in aircraft and spacecraft control systems. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1968. He graduated from the Moscow Power Engineering Institute in 1940, served thereafter on the staffs of a number of research and design organizations. In 1947, he joined the faculty of the N. E. Bauman Higher Technical School, becoming a professor there in 1966. His works have been in automation, aircraft and space flight control systems. Lenin Prize, 1957; State Prize, 1976. (GSE 29, p. 132.)

Dulov, Viktor G., D. PM. S. Born in 1929. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1979. From 1978 to 1984, he served as Director of the Computer Center in Krasnoyarsk. Since 1984, he has been Director of the Theoretical and Applied Mechanics Institute in Novosibirsk subordinate to the Siberian department. Established in 1957, the institute studies physical gas dynamics, combustion kinetics, hypersonic aerodynamics, shock wave processes, magnetohydrodynamics, and measurement techniques for gas flows. It also maintains a wind tunnel for aerodynamics research.

Generalov, Nikolai A., C. PM. S. Born in 1933. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy in 1987. Since 1986, he has been one of the Deputy Directors of the Problems of Mechanics Institute in Moscow, established in 1955 to research gas dynamic processes, including combustion instability, plasma, laser beams, and shock waves.

Grigoliuk, Eduard I. Born in 1923 in Moscow. Russian scientist in mechanics. Corresponding member of the Problems of Machine Building, Mechanics and

- Control Systems Department of the Academy since 1958. He is also a member of the Siberian department. In 1944, he graduated from the Moscow Institute of Aviation and taught there. From 1946 to 1950, he lectured at the N. E. Bauman Higher Technical School. From 1953, he taught at the Institute of Mechanics of the AN SSSR. He has been a professor at the Moscow Institute of Aviation since 1965. His work has been in the mechanics of deformable bodies. (GSE 7, p. 425.)
- Grigorian, Samuel S.** Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since December 1987. In 1986, He was awarded the M. A. Lavrent'ev Gold Medal for his work in mathematics and engineering.
- Il'iushin, Aleksei A., D. PM. S.** Born in 1911 in Kazan. Russian scholar in continuum mechanics. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1943. Originally elected to the Technical Sciences department. He graduated from Moscow University in 1934, becoming a professor there in 1938. From 1936 to 1960, he worked at the Institute of Mechanics of the AN SSSR, becoming its Director in 1953. He served as Rector of Leningrad University from 1950 to 1952. His works have been in the theory of elasticity and plasticity. State Prize, 1948. (GSE 10, p. 139.)
- Il'gamov, M. A., D. PM. S.** Born in 1934. Deputy Chairman of the Kazan Affiliate of the AN SSSR from 1988. Corresponding member of the Problems of Machine Building, Mechanics, and Control Systems Department of the Russian Academy in 1993. Director of the Mechanics and Machine Building Institute in Moscow.
- Inozemtsev, Vladimir G.** Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since December 1987. (LDA 89-11378.)
- Khimich, Georgii L.** Born in 1908 in Ulanovo. Russian specialist in heavy machine building. Corresponding member of the Problems of Machine Building and Control Systems since 1968. Also member of the Urals Scientific Center. He graduated from the S. M. Kirov Urals Industrial Institute in 1936 and began working at the S. Ordzhonikidze Urals Heavy Machine Building Plant. In 1956, he became Chief designer of the plant's rolling equipment. State Prize Laureate, Chief of the department for Comprehensive Problems of Machine Building of the Urals Scientific Center. His work has been in the design and construction of a number of unique rolling mills and continuous steel-casting installations. State Prize, 1950. (LDA 89-11378.) (GSE 28, p. 586.)
- Klyuyev, Vladimir V.** Corresponding member of the Problems of Machine Building, Mechanics, and Control Systems Department since December 1987. Since 1975, he has been the Director of the Introscopy Scientific Research Institute, located in Moscow, which was established in 1964 to research non-destructive testing of all types of physical fields and radiation. The institute is directly subordinate to the Ministry of Instrument Making, Automation Equipment, and Control Systems. (LDA 89-11378.)
- Kovalev, Nikolai N.** Born in 1908 in Poltava. Russian scientist in mechanics and hydroturbine building. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1953. Originally elected to the Technical Sciences department. Also corresponding member of the Mechanics and Control Systems Department of the Academy since 1953. He graduated from the Leningrad Engineering Institute in 1930 and began work at the Leningrad Metals Plant. In 1945, he became Chief designer of hydroturbines. Since 1959, he has been at the Central Boiler and Turbine Institute in St. Petersburg. From 1939 to 1967, he taught at the Leningrad Polytechnic Institute. He has been Chairman of the Scientific and Technical Society for Power Engineering and the Electrical

Power Industry since 1958. His work has been in the design of hydroturbines. State Prizes, 1946, 1950; Lenin Prize, 1959. (GSE 12, P. 619.)

Larionov, Vladimir P., D. Tech. S. Born in 1938. Engineer. Specialist in machine building and construction. Corresponding Member of the Academy in 1993. Since 1962, he has directed the work of the Physical Technical Problems of the North Institute in Yakutsk. He is a professor, recipient of the Prize of the Council of Ministers of the Soviet Union, Deputy Head for science of the Yakutsk ASSR, and was a Peoples' Deputy of the Soviet Union. He is author of 12 scientific works of which the monograph "Electrospark Welding Construction" stands out. He has co-authored another 169 publications. He is Deputy Chairman of a Scientific Council of the GKNT on machines and materials and the exploitation and introduction of foreign practices into production as well as on the Russian Academy of Sciences national committee on welding, a member of the Supreme Soviet for science. In 1991, a new International research Center for Northern Territories Development in Siberia was established that links together the work of scientists of three Siberian Department Institutes: the Institute of Cryosphere of Earth in Tiumen, the Institute of Physico-Engineering Problems of the North in Yakutsk, and the Institute of Philology in Akademgorodok-Novosibirsk. As Director of the Institute of Physico-Engineering Problems of the North in Yakutsk, Dr. Larionov will play a major role in the development of this new international research institute. (LDA 89-11378.)

Lipanov, Aleksei M. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since December 1987. He also holds membership in the Urals Department of the Academy. (LDA 89-11378.)

Lopato, Georgii P., D. Tech. S. Born in 1924. Corresponding member of the Problems of Machine Building, Mechanics, and Control Systems Department of the Academy since 1979. Since 1972, he has been Director of the Electronic Computers Scientific Research Institute in Minsk, which designs and produces computer systems. The institute is directly subordinate to the Ministry of the Radio Industry in Moscow.

Makhutov, N. A. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy of the Academy since 1987.

Malmeister, Aleksandr K., D. Tech. S. Born in 1911. Since 1958, academician of the Physical and Technical Sciences department of the Latvian Academy of Sciences. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1970. President of the Latvian Academy of Sciences from 1970 to 1984.

Nepobedimyy, Sergei P. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1984.

Neyland, Vladimir Ia. Corresponding member of the Problems of Machine Building and Control Systems Department of the Academy since December 1987. (LDA 89-11378.)

Pavlenko, Vladimir A., D. Tech. S. Born in 1917. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1979. Since 1952, he has been Director of Analytical Instrument Building in Leningrad. Since 1978, Chief of the Scientific Instrument Building department of the Russian Academy of Sciences.

Peshkxonov, Vladimir G. Corresponding member of the Problems of Machine Building, Mechanics, and Control Systems Department of the Academy since December 1987. (LDA 89-11378.)

Petrov, Viacheslav V., D. Tech S. Born in 1912. Corresponding member of the Problems of Machine Building, Mechanics, and Control Systems Department of the Academy since 1972.

Protasov, Viktor D. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since December 1987. (LDA 89-11378.)

Radovskii, Vitalii P. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since December 1987. (LDA 89-11378.)

Ragul'skis, (Ragulskis) K. M, D. Tech. S. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since December 1987. (LDA 89-11378.)

Shamshev, Kirill N. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since December 1987. (LDA 89-11378.)

Skladnev, Nikolai N. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since December 1987. (LDA 89-11378.)

Sychev, Vladimir V., D. PM. S. Born in 1924. Since 1966, he has been Deputy Director of the Zhukovskii Aerohydrodynamics Institute in Moscow which coordinates research on aviation technology. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1979. In 1984, he received the I. I. Popzunov Prize for his contributions to Russian engineering.

Teriaev, Evgenii D. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since December 1987. He served as Deputy Academician Secretary of the Department from March 1988 until replaced recently. He is presently a member of the Bureau Governing Body of the Department. (LDA 89-11378.)

Urzhumtsev, Iurii S., D. Tech. S. Born in 1929. Since 1973, corresponding member of the Physical and Technical Sciences department of the Latvian Academy of Sciences. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1981. From 1979 to 1986, he was the Director of the Institute of Physical-Technical Problems of the Northern Yakutsk Branch of the Siberian Department. In 1986, he began working in the Latvian SSR. He is among the top ranks of scientists from the Siberian Department of the Russian Academy of Sciences.

Vasil'ev, (Vasilev) Valerii V. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since 1984.

Zamyshliaev, Barrikad V. Corresponding member of the Problems of Machine Building, Mechanics and Control Systems Department of the Academy since December 1987. (LDA 89-11378.)



Research Institutes under the Problems of Machine Building, Mechanics, and Control Systems Department

At present the Problems of Machine Building, Mechanics and Control Systems administers seven Scientific Research Institutes--two of which were jointly subordinate to the Academy of Sciences of the USSR and the USSR Ministry of Machine Tool and Tool Building Industry and the Ministry of Instrument Making, Automation Equipment and Control Systems. The research institutes subordinate to the department by date of founding are listed below:

1. The A. A. Blagonravov Mechanical Engineering Institute in Moscow (Formerly: The A. A. Blagonravov Machine Science Research Institute in Moscow.)

Located at 4 Griboedova st., Center, Moscow, GSP, 101830. Tel. 924-98-00; fax: 135-77-69.

Retrospect: Established in 1938 under E. A. Chudakov, the institute researches the dynamics and kinetics of machinery friction and wear, mechanical engineering, and strength considerations. Jointly subordinate to the Mechanics and Control Systems Department of the RAS. It was named in honor of A. A. Blagonravov in 1976. Director Frolov, Konstantin V., since 1975. Structure and Scientific Personnel: Director Frolov, Konstantin V., since '75; Deputy Directors: Liuttsau, Vsevolod G., C. Tech. S., since '78; Pinegin, Sergei V., since '75; and Sergeev, Valdimir I., since '75.



2. Control Problems Institute in Moscow.

**Located at 65 Profsouznaia (aya) st., U-342, Moscow, GSP-7, 117806.
Tel. 334-89-20, teletype: 417470 IATAN; fax: 420-20-16.**

Retrospect: Established in 1939. Subordinate to the Ministry of Industry of the Russian Federation although the Academy guides its scientific research methodology. The institute studies automation, systems analysis, and computer modeling. The Control Problems Institute in 1980 listed no laboratories and only five scientists in its central office. Because of the problems of scientific instrumentation needs in Russia, this institute is destined to grow.

Structure and Scientific Personnel: Director Prangishvili, Iverii V., D. Tech. S., August '87; Deputy Directors: Kortnev, Anatoli, since '76; Medvedev, Vladimir D., since '78; and Raspopov, Boris P., August '88. This research center is organized in four divisions with 13 laboratories.

The Chemical Division has four laboratories:

1. the Heterogeneous Systems Laboratory,
2. the Mechanics of Anomalous Fluids Laboratory,
3. the Polymer Mechanics Laboratory, and
4. theoretical Elasticity Laboratory.

The Mathematics Division--one laboratory

The Physical Mechanics Division has four laboratories:

1. the Classical Mechanics Laboratory,
2. the Friction and Wear Laboratory,
3. the Optimal Control of Motion Laboratory, and
4. the Random Vibrations in Nonlinear Systems Laboratory.

The Physics and Gas Dynamics Division supervises the work of four laboratories:

1. the Combustion Instability Laboratory,
2. the Mechanical Action of Laser Beams Laboratory,
3. the Plasma Mechanics Laboratory, and
4. the Shock Wave Laboratory.



3. Problems of Mechanics Institute in Moscow.

Located at 101 Vernadskogo ave., U-526, Moscow, 117526. Tel. 434-00-17; fax: 938-20-48.

Retrospect: Established in 1965. It conducts research on gas dynamic processes, including combustion instability, plasma, laser beams and shock waves. **Structure and Scientific Personnel:** Director From 1974 to 1989, Aleksandr Iurii Ishlinskii, D. PM. S., was Director of the institute. Since 1989, the Director of the institute has been Dmitrii M. Klimov, D. PM. S. Deputy Directors: Generalov, Nikolai A., C. PM. S., November '86; Klimov, Dmitri M., D. PM. S., since '78; and, Riazantsev, Iurii S., D. PM. S., since '78.

Structure and Scientific Personnel:

Control Mechanics Division

Heterogeneous Systems Laboratory: Chief Librovich, Vadim B., D. PM. S., '70;
Mechanics of Anomalous Fluids Laboratory: Chief Kalashnikov, Vitali N., C. Tech. S. '72;
Polymer Mechanics Laboratory: Chief Novikov, Nikolai P., C. PM. S., '72;
Theoretical Elasticity Laboratory: Chief Goldenveizer, Aleksei L., D. PM. S., '70;

Mathematics Division: Chief Kochina, Pelageia Ya., D. PM. S., '71;

Physical Mechanics Division: Chief Struminskii, Vladimir V., D. Tech S., '71;
Classical Mechanics Laboratory: Chief Klimov, Dmitri M., D. PM. S., '71; Senior researcher Cherapalo, Gennadi, '73;
Friction and Wear Laboratory: Chief Mikhin, Nikolai M., '78;
Optimal Control of Motion Laboratory: Chief Chernousko, Feliks L., D. PM. S., '72;
Random Vibrations in Nonlinear Systems Laboratory: Chief Dimentberg, Mikhail F., C. Tech. S., '78; Junior Res. Zhuravlev, V. F., '78;

Physics and Gas Dynamic Systems Division: Chief Raizer, Iurii P., D. PM. S., '72;

Combustion Instability Laboratory: Chief Riazantsev, Iurii S., D. PM. S. '79; Senior researcher Gupalo, Iurii P. '69;

Mechanical Action of Laser Beams Laboratory: Chief Pilipetskii, Nikolai F., C. PM. S., '72; Senior researcher Dudkin, Viacheslav A., D. PM. S., '77; Melnikov, Nikolai A., '78; Zeldovich, Boris Ya., '79;

Plasma Mechanics Laboratory: Chief Yakushin, Mikhail I., C. Tech. S., '72;

Shock Wave Laboratory: Chief Kozlov, Gennadi I., C. Tech. S., '72; Senior researchers Abkaliev, A. Ye., '72; Generalov, Nikolai A., C. PM. S., '72; Masiukov, V. A., '72; Zimakov, V. P., '77;



4. Mechanics and Machine Building Institute in Kazan.

Located at 15 Gvardeiskaia (aya) st., Kazan, 420128. Tel. 76-44-41. The Institute is under the direction of Corresponding Member Marat Ak. Il'gamov, D. PM. S.

He was Born in 1934. He has been Deputy Chairman of the Kazan Affiliate of the AN SSSR from 1988. He became a corresponding member of the Problems of Machine Building, Mechanics, and Control Systems Department of the Russian Academy in 1993.



5. Applied Mechanics Institute in Moscow

Located at 32a Leninskii ave., U-334, Moscow, GSP-1, 117993. Tel. 938-51-15; fax: 938-07-11. Directed by Obratsov, Ivan F., D. Tech. S.

[**Ivan F. Obratsov** was born in 1920 in Kalinin Oblast. Russian scientist in structural mechanics and the theory of the strength of aircraft. Academician of the Problems

of Machine Building, Mechanics, and Control Processes Department of the AN SSSR and the RAS since 1974. Member of the RSFSR Council of Ministers. In 1944, he graduated from the S. Ordynonikidze Moscow Institute of Aviation, taught and became a professor there in 1957. He served as rector of the institute from 1958 to 1972. Since 1968, he has been President of the Znanie Society of the RSFSR. Since 1972, he has served as the Minister of the RSFSR Ministry of Higher and Secondary Specialized Education of the RSFSR. He was a Deputy to the 7th and 8th convocations of the Supreme Soviet of the RSFSR. (GSE 18, p. 364.)]



6. Metal Superplasticity Problems Institute in Ufa

Located at 39 St. Halturina st., Ufa-1, 450001. Tel. 24-64-07; teletype: 162508 "Fail"; telex: 412543 SUPER SU. The institute is under the direction of Oskar Ak. Kaibishev, Tel. 25-37-16.



7. Transport Problems Institute in St. Petersburg

Located at 13, 12 line U.O., St. Petersburg, 199178, Tek, 355-97-42; fax: 213-29-54. Directed by Nikolai S. Solomenko

Solomenko was born in 1923. In 1983, he was elected a member of the USSR National Committee on Theoretical and Applied Mechanics. Academician of the Problems of Machine Building and Control Systems Department of the Academy since 1984. Since 1985, first Deputy Chairman of the Presidium of the St. Petersburg Scientific Center that was founded in 1982. Author of more than 140 scientific works in the field of mechanics and control processes. Holder of the USSR State Prize for his research. He heads the Scientific Council on Problems of Automation and Control of the academy's Inter-Agency Coordinating Council in St. Petersburg. He is presently a member of the Bureau Governing Body of the department. Tel. 355-76-37.



8. The N. E. Bauman Special Machine Building Scientific Research Institute Attached to the Moscow State Technical University in Moscow. (The Problems of Machine Building, Mechanics and Control Systems Department of the Russian Academy of Sciences is responsible for directing the scientific-systematic research direction in this institute.)

Located at 10 Gospitalny st., B-5, Moscow, 107005. The Institute is under the direction of Professor Viacheslav P. Shmakov. Tel. 261-21-88.



9. The N. E. Bauman Structural Materials and Technological Processes Scientific Research Institute attached to the Moscow State Technical University in Moscow. (The Problems of Machine Building, Mechanics, and Control Systems Department is responsible for directing the systematic scientific directions of research in this institute.)

Located at 5, 2-nd Baumanskaia (aya) st., B-5 Moscow, 107005. The institute is directed by Dr. Gennadii P. Tregubov. Tel. 263-64-44.



10. The State Air Navigation Scientific Research Institute in Moscow. (The Problems of Machine Building, Mechanics, and Control Systems Department is responsible for directing the systematic scientific directions of research in this institute.)

Located at 26 Volokolamskoie road, Moscow, 123182. Teletype: 114525 Dioneia. Directed by Professor Tatiana G. Anodina. Tel. 198-42-18, 198-46-36/

(1997 listing) This is the latest listing of organizations under this department.

Institutions and Organizations of the Department

1. Institute of Mechanical Engineering named after A. A. Blagonravov (IMI)

4, Griboedova st., Centre, Moscow, GSP, 101830,
tel.924-98-00, fax: 135-77-69
Directed by Konstantin V. Frolov, tel.928-87-30

2. Institute of Mechanics and Machine Building (IMMB)

15, Gvardeiskaia st., Kazan, 420128, tel.76-44-41
Directed by Corresponding Member Marat Ak. Ilgamlv, tel.76-43-55

3. Institute of Applied Mechanics (IAM)

32a, Leninskii ave., V-334, Moscow, GSP-1, 117993
tel.938-51-15, fax: 938-07-11
Directed by Academician Ivan F. Obraztsov, tel.938-18-36

4. Institute of Mechanical Engineering Problems (IMEP)

61, Bolshoi ave., V.O., Saint-Petersburg, 199178,
tel.217-02-89, for telegrams: Saint-Petersburg GALIT
teletype: 121191 GALIT, fax: 217-86-14
Directed by Vladimir P. Bulatov, tel.217-86-14

5. Institute of Mechanics Problems (IMP)

101, Vernadskogo ave., V-526, Moscow, 117526
tel.434-00-17, fax: 938-20-48
Directed by Academician Dmitrii M. Klimov, tel.434-46-10

6. Institute of Metal Superplasticity Problems (IMSP)

39, St.Halturina st.,Ufa-1, 450001
tel.24-64-07, teletype: 162508 "Fail", telex: 412543 SUPER SU
Directed by Dr. Oskar Ak. Kaibishev, tel.25-37-16

7. Institute of Transport Problems (ITP)

13, 12 line V.O., Saint-Petersburg, 199178
tel.355-97-42, fax: 213-29-54
Directed by Nikolai S. Solomenko, tel.355-76-37

8. Institute of Control Problems (ICP)

65, Profsouznaia st., V-342, Moscow, GSP-7, 117806
tel.334-89-20, teletype: 417470 IATAN, fax: 420-20-16
Directed by Academician of Georgia AS Iveri V. Prangishvili,
tel.344-89-10

9. Scientific Research Institute of Special Machine Building attached to MSTU named after N. E. Bauman

(Russian Academy of Sciences carries out scientific-systematic direction)
10, Gospitalny st., B-5, Moscow, 107005
Directed by Prof. Viacheslav P. Shmakov, tel.261-21-88

10. Scientific Research Institute of Structural Materials and Technological Processes attached to MSTU named after N. E. Bauman

(Russian Academy of Sciences carries out scientific-systematic direction)
5, 2-nd Baumanskaia st., B-5, Moscow, 107005
Directed by Dr. Gennadii P. Tregubov, tel.263-64-44

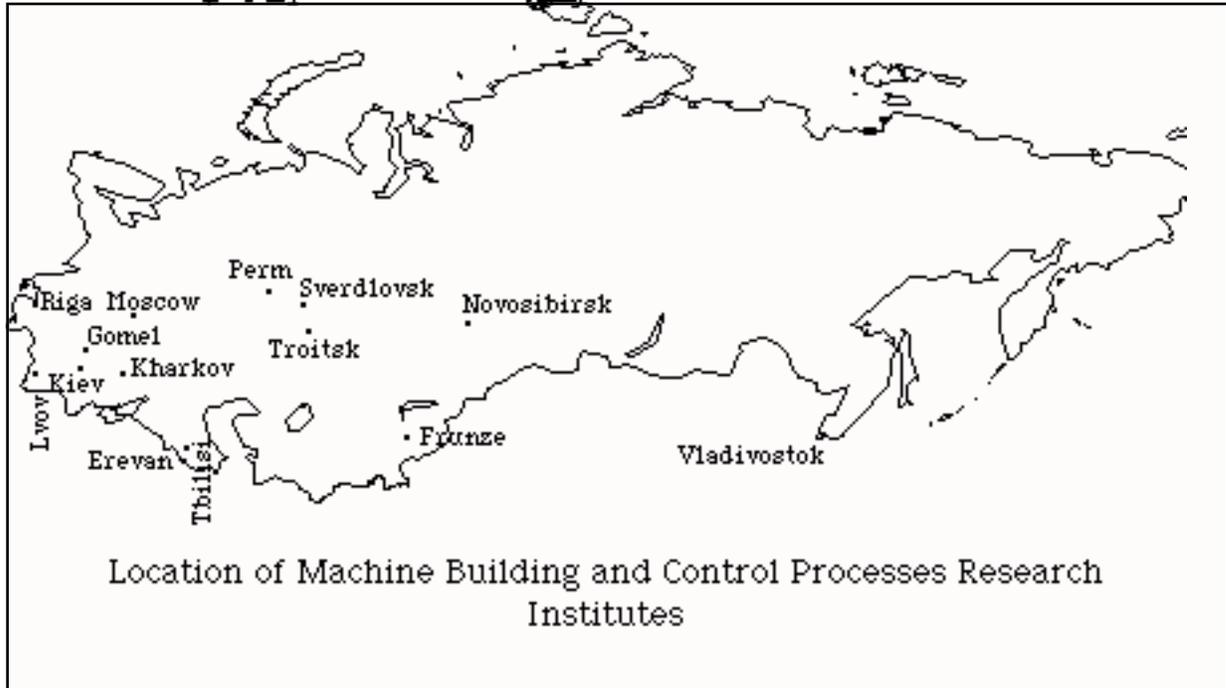
11. State Scientific Research Institute "Air Navigation"

(Russian Academy of Sciences carries out scientific-systematic direction)
26, Volokolamskoie road, Moscow, 123182
teletype: 114525 Dioneia
Directed by Prof. Tatiiana G. Anodina, tel.190-42-18, 190-46-36



National Research in Problems of Machine Building, Mechanics and Control Systems:

While only seven institutes are directly subordinate to this AN SSSR department, four others receive guidance in research. There are 22 other institutes in the former Soviet Union that perform the same kinds of engineering research and design, located in 13 cities outside of Moscow. The Moscow Department and its institutes continue to play an important role in these areas although Kiev boasts of a total of seven such research institutes in its environs.



Before 1950

1. Mechanics Institute in Kiev. 2. E. O. Paton Electric Welding Institute in Kiev. 3. Metal Physics Institute in Kiev. 4. G. V. Karpenko Physical Mechanical Institute in Lvov.

1950s

7. Metallurgy Institute in Ekaterinburg (Sverdlovsk). 8. Problems of Material Science Institute in Kiev. 9. Theoretical and Applied Mechanics Institute in Novosibirsk. 10. M. A. Lavrentiev Hydrodynamics Institute in Novosibirsk. 11. Casting Problems Institute in Kiev. 12. Automation Institute in Frunze. 13. Superhard Materials Institute in Kiev. 14. Polymer Mechanics Institute in Riga. 15. Strength Problems Institute in Kiev. 16. Metal Polymers Systems of Mechanics Institute in Gomel.

1960s

17. Machine Mechanics Institute in Tbilisi. 18. Automation and Control Systems Institute in Vladivostok. 19. Mechanics Institute in Erevan. 20. Problems of Machine Building Institute in Kharkov. 21. Industrial Lasers Scientific Research Center in Troitsk. 22. Continuum Mechanics Institute in Perm'.



(1997 update)

**Department of Informatics, Computer Equipment and Automatization
(DICEA)**

Located at 32a Leninskii ave., Moscow, GSP-1, 117993. Tel. 938-18-77.

Under the direction of Stanislav V. Emelianov.

Retrospect: The Informatics, Computer Equipment and Automation Department (formerly the Information Science, Computer Technology, and Automation Department) of the academy was created in 1984 as an amalgamation of personnel and laboratories from the older Mechanics and Control Processes Department (renamed the Problems of Machine Building, Mechanics, and Control Processes Department) and computer centers that were transferred from the Mathematics Department, and institutes and/or laboratories taken from the General Physics and Astronomy Department and from the Physical Chemistry and Technology of Inorganic Materials Department. In some instances, some of these institutes remained jointly subordinate to their originating department as well as to the newly-created Information Science, Computer Technology, and Automation Department. This restructuring is an example of the

pragmatic manner in which the Russian scientific management hierarchy reorganizes itself to solve scientific research problems.

Members of the Information Sciences, Computer Technology, and Automation Department: The academicians and corresponding members of the Department constitute an important scientific management bureaucracy. Fifteen academicians and 26 corresponding members were transferred into the new department that was created in 1984. Because of the high priority for the new department the quality of the scientists and technicians transferred to it were of the very highest caliber. It is particularly interesting to note that only 41.5 percent of the academicians and corresponding members of this new department were members of the Communist Party. In 1987, thirteen were Directors of institutes subordinate to this and other departments of the academy; two were Directors of AROs belonging to the Ministry of Electrical Equipment Industry; two were heads of important divisions or laboratories of the academy; one served on the board of the General Assembly of the GKNT; one was Vice President of the national academy; one was Vice President of the Lithuanian SSR academy; one was Third Secretary of the permanent Soviet Mission of the International Atomic Energy Commission in Vienna, and two were rectors of Engineering Institutes, and one was dean of the Management and Applied Mathematics faculty at the Physical Technical Institute in Moscow.

Growth: By 1989, the numbers of members of the department had grown to 52 of which 17 were academicians and the balance were corresponding members. The average age of the 15 academicians of the department in 1991 was 66 years. Ten of the 17 academicians held degrees from seven different universities or institutes. Two were non-degreed--by existing records--and the five others held doctoral degrees from unknown institutions. Of the 15 corresponding members whose birth dates are known, the average age was 60 years.

(1997 update)

Bureau of the Department

Academician-secretary

Academician Stanislav V. Emelianov, tel.938-16-74, 135-54-96

Emelianov, Stanislav V., D. Tech. S. Born in May 1929 in Voronezh. He has been a corresponding member of the academy since 1970, and an academician of the Information Science, Computer Technology, and Automation Department of the AN SSSR and the RAN since 1984. Member of the Presidium since October 1988. Russian scientist in the field of automated control. He graduated from the Moscow Aviation Institute in 1952. He created a new line of development in the theory of automated control, the theory of systems with variable structure. Such systems are used to control non-stationary units, as in buildings, movement control systems of aircraft, and in the automated landing systems of the supersonic passenger aircraft Tu 144. Systems with variable structure are also used in the metallurgical, chemical and food industries. He received the Lenin Prize in 1972. Since 1976, he has been a deputy director of the Systems Research SRI in Moscow. Since 1977, he has been director of the International Scientific Research Institute of Control Problems in Moscow that was established in 1977. (GSE 9, p.121.)

Deputies of the Academician-secretary:

Academician Oleg M. Belotserkovskii, tel.250-02-62

Belotserkovskii, Oleg M., D. PM. S. Born in 1925. Academician of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1979. Since 1963, he has been rector of the Physical Technical Institute in Moscow subordinate to the Ministry of Higher and Secondary Specialized Education. Since 1978, he has been Deputy Director of the Computer Center in Moscow. The center was established in 1955 and is now under the control of the Information Science, Computer Technology and Automation Department of the academy. This Department was created in 1984. He is presently deputy to the Academician Secretary of the Department.

Academician Kamil Ah. Valiev, tel.125-77-09

Valiev, Kamil A., D. PM. S. Born in January 1931 in the village of Verkhni Shander, Mamadysh Raion, Tatar ASSR. Russian specialist in semiconductor microelectronics. Since 1972, he has been a corresponding member of the academy, and an academician of the Information Sciences, Computer Technology, and Automation Department since 1984. In 1985, he was elected deputy academician-secretary of the academy's new Information Sciences Department. He graduated from Kazan' University in 1954. From 1957 to 1964 he taught at the Kazan' Pedagogical Institute. He was made a professor in 1966. He was head of a Department at a ministerial Scientific Research Institute from 1964-5, and Director-organizer of the Microelectronics Scientific Research Institute at Zelenograd, under the Ministry of the Electronics Industry from 1965 to 1977. In 1977, he was named the head of a Department at the Institute of Space Research of the AN SSSR. In 1984, he became Director of the Microelectronics Institute in Yaroslavl that is jointly subordinate to the General Physics and Astronomy Department and to the Information Sciences, Computer Technology, and Automation Department of the academy. The institute is a center for solving computer technology problems. His principal works deal with electron paramagnetic resonance, nuclear magnetic resonance and the production technology of integrated circuits. He also became a Deputy Director of the Institute of General Physics of the academy in 1984. He holds the Lenin Prize and the Azerbaiian SSR State Prize. He is presently deputy to the Academic Secretary of the Department. (GSE 30, p. 676.)

Academician Aleksandr An. Samarskii, tel.972-36-73

Samarskii, Aleksandr A., D. PM. S. Born in February 1919 in Amvrosievka in what is now Donetsk Oblast. Russian mathematician. He has been a corresponding member of the Mathematics Department of the Academy since 1966 and an academician since 1976. He graduated from Moscow State University in 1945 and became a professor there in 1959. His main work has been in mathematical physics and computer mathematics. He has made use of computational algorithms that are successfully applied to the computer solutions of important problems in various fields of science and engineering. In 1967, he was Head of the Laser Fusion Laboratory of the M. V. Keldysh Applied Mathematics Institute in Moscow. Since 1984, he has served as Deputy Director of the M. V. Keldysh Applied Mathematics Institute in Moscow, that is subordinate to the Information Science, Computer Technology and Automation Department of the national academy. State Prize, 1954, and the Lenin Prize, 1962.(GSE 22, p. 577.)

Responsible for scientific-organizing activities:

Corresponding Member Gennadii Iv. Savin, tel.51-54, 983-17-61

Savin, Gennadii I. Corresponding member of the Department of Informatics, Computer Equipment and Automatization (DICEA) of the Russian Academy in 1993. He is responsible for the scientific organization of research activities in the institutes subordinate to the Department.

Bureau Members:

Academician Anatolii S. Alekseev, tel.35-56-50(N.)

Alekseev, Anatolii S., D. PM. S. Born in 1928 in Pskov Oblast. Russian geophysicist. He was elected a corresponding member of the academy in 1972 and an academician in 1984. Since 1984, he has been an academician of the Information Sciences, Computer Technology and Automation Department of the National Academy and also of the Siberian Department. He graduated from Leningrad State University in 1952. From 1955 to 1963, he was on the staff of the St. Petersburg Division of the V. A. Steklov Institute of Mathematics of the AN SSSR and the RAN. In 1963, he joined the Computer Center of the Siberian Department, becoming Deputy Director of the center in 1980. He joined the Presidium of the Siberian Department in 1980. In 1964, he taught at the University of Novosibirsk, becoming a professor in 1970. Since 1980, he has been on the Presidium of the Siberian Department. He Developed principles for geological data gathering from vibration sounding of the earth's interior. His major work has been in seismology. He has headed the Scientific Society for the Mechanical Mathematical Sciences in Energetics, the Coordination of the Soviet Scientific Committee on the Earth's Vibration Processes, the Soviet Committee for Methods of Distance Finding, the Committee for Computing Technology, and the regional section of Siberia and the Far Eastern Scientific Service for Modeling Complex Mathematical Problems. Since 1976, he has been a member of the American Mathematical Society, and since 1981 a member of the American Photogrammetry Association, and since 1983 he has been a specialist (consultant) on sources of seismic control. In 1982, he received a State Prize and is the holder of a number of other medals recognizing his achievements. (Sib. Unpub. MSS., 1989) (GSE 30, p. 9.)

Academician Boris V. Bunkin, tel.158-89-72

Bunkin, Boris V., D. Tech. S. Born in July 1922 in the village of Aksinino, Moscow Oblast. He has been a corresponding member of the General Physics and Astronomy Department of the Academy since 1968; an academician since 1974. He graduated from the Moscow Aviation Institute in 1947 going to work on the staff there immediately. Since 1950 he has been with the Moscow Engineering Physics Institute. His major works are on radio engineering and in electronics. (GSE 4, p. 180.)

Academician Vsevolod S. Burtsev, tel.938-17-53

Burtsev, Vsevolod S., D. Tech. S. Born in 1927 in Moscow. Russian scientist in control processes and computer technology. Corresponding member since 1976 of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy; academician since 1993. He graduated from the Moscow Power Engineering Institute in 1951 and joined the staff of the Institute of Precision Mechanics and Computer Technology. He became a professor at the institute in 1965 and its Director in 1973. From 1973 to July 1987, he was the Director of the S. A. Lebedev Precision Mechanics and Computation Techniques Institute in

Moscow that was established in 1948 subordinate to the academy's General Physics and Astronomy Department for the purpose of developing computer hardware and software, concentrating on high speed computers. His works have included the principles and methods of building digital computers, theoretical and practical problems of automatic control, and the principles of implementing multi-processing systems. Recipient of the State Prize, 1972; Lenin Prize, 1966. (GSE 30, p. 29.)

Academician Evgenii P. Velihov, tel.237-45-32

Velikhov, Evgenii P., D. PM. S. Born in 1935 in Moscow. Russian theoretical physicist. Since 1974, he has been an academician of the General Physics and Astronomy Department of the Academy and since 1984, he has acted as academician secretary of the Information Science, Computer Technology, and Automation Department of the Academy. He graduated from Moscow State University in 1958 and began working in the Institute of Atomic Energy at once becoming head of one of its Departments in 1962. He has been a professor at Moscow State University since 1968. From 1971 to 1988, he served as deputy director of the I. V. Kurchatov Atomic Energy Institute in Moscow. In December of 1988, he was named director of this important institute that was created in 1943 to develop nuclear weapons. It is the largest institute in Russia that concentrates on nuclear research that includes all aspects of atomic energy, including plasma and solid state physics, fission and fusion reactors, and lasers. The institute is directly subordinate to the State Committee for Utilization of Atomic Energy. Since 1977, he has served as Vice President for the Physical and Mathematical Sciences Section of the academy. Since 1978, he has headed the Geophysical laboratory of the High Temperatures Institute in Moscow. Since 1978, he has served as a member of the Board of the general assembly of the GKNT. Since 1984, he has been deputy director for science of the Industrial Lasers Scientific Research Center in Troitsk that is under the U.S.S.R. Academy of Sciences. The center is comprised of scientific research divisions, a design bureau, and an experimental production facility that develops and introduces laser tools and methods into industry. His works are in low-temperature physics, plasma and magnetic hydrodynamics. Current member of Editorial board of Science in the U.S.S.R. Since 1986, he has been a Candidate Member of the Central Committee of the CPSU. In 1986, he was the recipient of the M. D. Millionshchikov Prize in atomic power engineering. (GSE 4, p. 565.)

Academician Iurii V. Guliaev, tel.200-52-58

Guliaev, Iurii V., D. PM. S. Born in 1935. Corresponding member of the General Physics and Astronomy Department of the academy since 1979, and academician of the Information Science, Computer Technology, and Automation Department since 1984. From 1972 to 1988, he was deputy director of the Radio Engineering and Electronics Institute in Moscow that does basic research in radio wave propagation, new electronic devices for detection, generation, and amplification of radio signals. In 1988, he was named Director of the Radio Engineering and Electronics Institute in Moscow. In 1988, he was also named Chairman of the Saratov Scientific Center under the AN SSSR and continues in that position under the Russian Academy of Sciences.

Academician Veniamin P. Efremov, tel.443-63-50

Efremov, Veniamin P., D. Tech. S. Corresponding member of the Information Sciences, Computer Technology and Automation Department of the Academy since 1984; academician since 1993.

Academician Iurii Iv. Zuravlev, tel.135-32-29

Zhuravlev, Iurii I., D. PM. S. He was born in 1935 in Voronezh. Corresponding member of the Information Sciences, Computer Technology, and Automation Department of the Academy in 1984 and an academician of the Russian Academy in 1992. Deputy Director of the Computer Center in Akademgorodok-Novosibirsk Siberian Department. He graduated with a master of science in mathematics from Moscow State University in 1957. He received his candidate degree in 1960 in the Physical and Mathematical Sciences from Moscow State University, and his doctorate in 1965. He became a professor in 1967. From 1960 to 1969, he was a junior researcher, then head of a department, and Deputy Director of the Institute of Mathematics of the Siberian Branch of the academy. From 1969 to the present time, he has headed a Department of the computing center of the academy. Since 1989, he has been a Deputy Director of the Computer Center. From 1966 to 1969, he was a professor at the Novosibirsk State University in Akademgorodok, and from 1970 to 1980 he was a professor at the Moscow Physical and Technical Institute. Since 1980, he has been a professor and head of a chair at the Moscow Institute of Electronic Engineering. His research interests have included mathematical logic, the theory of controlling systems, image recognition, operation research, and artificial intelligence.

Academician Fedor An. Kuznetsov, tel.35-59-50(N.)

Kuznetsov, Fedor A., D. Chem. S. Born in 1932. Physical Chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1984, and academician since December 1987. He also is a member of the Siberian Department of the Academy. He graduated from the Leningrad State University in 1955. He began work at the Inorganic Chemistry Institute of the Siberian Department in 1958, served as an aspirant, a junior researcher, and senior researcher in a major laboratory in that institute. From 1971 to 1983, he has acted as Head of the Epitaxial Layers Laboratory and of the Electronics Materials Laboratory of the Inorganic Chemistry Institute in Novosibirsk, being named its Director in 1983. The institute was established in 1957 in cooperation with the N. S. Kurnakov General and Inorganic Chemistry Institute for the purpose of studying complex compounds, splitting uranium and plutonium, and the extraction and investigation of rare earth metals. He has been a professor at the Novosibirsk University since 1976, holding the chair in inorganic chemistry since 1986. He is the Head editor of *Izvestiya*. In 1988 he was named chairman of the Scientific Council on Inorganic Chemistry. He is a member of the Electrochemical Society of the USA--since 1979. Recipient of the State Laureate Prize in 1981.

Academician Andrei L. Mikaelian, tel.148-08-45, 135-55-51

Mikaelian, Andrei L., D. Tech. S. Born in 1925. Corresponding member of the Information Science, Computer Technology, and Automation Department since 1984; academician in 1993. Together with V. I. Bobrinev he proposed high capacity holographic memory devices in 1966, based on the recording of a large number of holograms on the same surface (or volume) of photographic material. (GSE 7, p. 522.)

Academician Nikita N. Moiseev, tel.135-30-23

Moiseev, Nikita N., D. PM. S. Born in 1917 in Moscow. Specialist in general mechanics and applied mathematical sciences. Academician since 1984. He graduated from Moscow State University in 1941. From 1948 to 1950 he taught at the N. E. Bauman Moscow Higher Technical School. From 1950 to 1955, he taught at the University of Rostow. In 1956 he became a professor at the Moscow Physicotechnical Institute. In 1961, he was appointed Deputy Director of the computer center of the AN SSSR and still holds that post under the Russian Academy of Sciences. In 1969, he was also made Head of an unidentified laboratory under the Symbolic Information Processing Department of the Computer Center in Moscow. Since 1971, he has been dean of the Management and Applied Mathematics Faculty of the Physical Technical Institute in Moscow, under the Ministry of Higher and Secondary Specialized Education in Moscow. Created in 1952, this institute trains scientists for academy of science institutes and design bureaus. In 1977, he was made a co-director of the Computer Center in Moscow, that is now subordinate to the academy's Information Science, Computer Technology and Automation Department. His works are principally concerned with the dynamics of a solid containing a liquid, asymptotic and numerical methods in mathematical physics, the theory of linear and quasi-linear motions, and optimal control theory. (GSE 16, p. 419.)

Academician Iuras K. Pozela, tel.62-71-22(Vilnius)

Pozhela, Iuras K., D. PM. S. Born in 1925. Academician of the Physical, Technical, and Mathematical Sciences Department of the Lithuanian academy since 1968. He has been an academician of the Information Sciences, Computer Technology, and Automation Department of the Academy since 1984. From 1967 to 1984, he served as the Director of the Semiconductor Physics Institute in Vilnius that was founded in 1967. He has served as Vice President of the Lithuanian Academy of Sciences from 1972 to 1984 when he became its President. He has served as President of the Lithuanian academy since 1984.

Academician Germogen S. Pospelov, tel.135-61-95

Pospelov, Germogen S., D. Tech. S. Born in 1914 in the Moscow Oblast. Automatic control scientist. Since 1966, corresponding member of the Mechanics and Control Processes Department, and academician of the Information Sciences, Computer Technology Department of the Academy since 1984. He graduated from Moscow Power Engineering Institute in 1940 and served as an engineer in an air regiment during WW II. From 1946 to 1964, he taught at the N. E. Zhukovskii Air Force Engineering Academy where he became a professor in 1957. From 1964 to 1975, he served as deputy chairman and chairman of the section on applied problems of the Presidium of the AN SSSR. Since 1974, he has been Head of the Automated Control Systems Laboratory of the Computer Center in Moscow that was at that time subordinate to the academy's Mathematics Department. After 1984 it was made subordinate to the Information Sciences, Computer Technology, and Automation Department of the academy. His works are in automation of aircraft, the theory of nonlinear automatic systems, and the theory of control of large systems. Recipient of the State Prize, 1972. (GSE 20, pp. 461-462.)

Academician Vladimir S. Pugachev, tel.938-00-72

Pugachev, Vladimir S., D. Tech. S. Born in 1911 in Riazan. Russian scientist in mechanics, problems of control, and mathematics. Academician of the Problems of Machine Building, MNechanics and Control Processes Department of the Academy since 1981. He graduated from the N. E. Zhukovskii Air Force Academy in 1931 and taught and researched at the academy until 1972. He has held a professorship there since 1939. He became head of a laboratory of the Institute of Problems of Control in 1956. He has taught at the S. Ordzhonikidze Moscow Institute of Aviation since 1972. His works are in the statistical theory of control processes, flight dynamics, and the theory of canonical expansion of random functions. Recipient of the State Prize, 1948. (GSE 21, p. 343.)

Academician Nikolai N. Sheremetievskii, tel.365-27-70

Sheremet'evskii (Sheremetevskii), Nikolai N., D. Tech S. Born in 1916. Academician of the Information Science, Computer Technology, and Automation Department of the Academy since 1984. Since 1973, he has been Director of the Electromechanics Scientific Research Institute located in Moscow and directly subordinate to the Ministry of the Electrical Equipment Industry. The institute does research in electrical drive systems and remote control devices.

Corresponding Member Aleksandr M. Afanasiev, tel.125-76-20

Afnas'ev (Afnasev), Aleksandr M., D. PM. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984.

Corresponding Member Iurii G. Evtushenko, tel.135-00-20

Evtushenko, Iurii G., D. PM. S., Born in Krasnador in 1938. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1990. He graduated from the Moscow Physical-Technical Institute with a master of science in aerodynamics in 1962, received his candidate degree in Flight Dynamics in the Physical and Mathematical Sciences from the Moscow Physical-Technical Institute in 1967 and his doctorate in the Physical and Mathematical Sciences from the Computing Center of the Academy in 1981. In 1985, he was designated a professor. From 1966 to 1976 he was a junior and senior research at the computer center and from 1976 to 1981, he was head of the Optimization Software Department of that institute. He served as a Deputy Director of the Computer Center from 1981 to 1989 when he became its Director. In 1988, he became a member of the International Mathematical Programming Society. In 1992, he became editor-in-chief of the international journal *Optimization, Methods and Software*. His research interests include linear and nonlinear programming, decision support systems, optimal control, optimization techniques, numerical methods, and software for solving global multicriterion optimization problems. He is presently director of the Computing Center of the Russian Academy of Sciences. (CCAS)

Corresponding Member Viktor P. Ivannikov, tel.272-44-25

Ivannikov, Viktor P., D. PM. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984.

Corresponding Member Sergei P. Kurdiumov, tel.258-13-14

Kurdiumov, Sergei P., D. PM. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984.

Corresponding Member Igor Al. Mizin, tel.135-98-14

Mizin, Igor A., D. Tech S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984.

Corresponding Member Gennadii G. Riabov, tel.137-15-67

Ryabov, Gennadii G., D. Tech. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984. Since July 1987, he has served as Director of the S. A. Lebedev Precision Mechanics and Computation Techniques Institute in Moscow, replacing Vsevolod S. Burtsev.

Scientist-secretary: Dr. Anatolii V. Kortnev, tel.938-18-91

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Dr. Viktor M. Dmitriev, tel.53-50, 938-18-77

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Dr. Nikolai V. Popenko, tel.51-75, 938-13-92

Vadim N. Filippov, tel.938-51-74

(Older listing)

Academicians

Aleksandrov, Aleksandr D. Born in July 1912 in Volyn' in the Riazan Province. Russian mathematician. He has been a corresponding member since 1946, and an academician since 1964. He graduated from Leningrad State University in 1933, and began working there upon graduation. He served as the rector of Leningrad State University from 1952 to 1964. He has been at the Siberian Division (Department) since 1964. Aleksandrov's major contributions are in the field of geometry. He discovered methods for studying the metric properties of figures that opened a new field of research, the "irregular metric multiformities." The works of his school have produced near solutions to several classical problems of the theory of surfaces and have found a significant application in the theory of differential equations and the theory of elastic films. He has also done work in relativity theory. From 1964 to 1986, he headed the Mathematics Institute of the Siberian Department, moving in 1986 to the V. A. Steklov Mathematics Institute in St. Petersburg. Recipient of the State Prize, 1942; the international Lobachevskii Prize, 1951. (GSE vol. 1, p. 222; vol. 16, p.635; vol. 20, p. 652, and vol. 22, p. 178.)

Alekseev, Anatolii S., D. PM. S. Born in 1928 in Pskov Oblast. Russian geophysicist. He was elected a corresponding member of the academy in 1972 and an academician in 1984. Since 1984, he has been an academician of the Information Sciences, Computer Technology and Automation Department of the National Academy and also of the Siberian Department. He graduated from Leningrad State University in 1952. From 1955 to 1963, he was on the staff of the St. Petersburg Division of the V. A. Steklov Institute of Mathematics of the AN SSSR and the RAS. In 1963, he joined the Computer Center of the Siberian Department, becoming Deputy Director of the center in 1980. He joined the Presidium of the Siberian Department in 1980. In 1964, he taught at the University of Novosibirsk, becoming a professor in 1970.

Since 1980, he has been on the Presidium of the Siberian Branch. He Developed principles for geological data gathering from vibration sounding of the earth's interior. His major work has been in seismology. He has headed the Scientific Society for the Mechanical Mathematical Sciences in Energetics, the Coordination of the Soviet Scientific Committee on the Earth's Vibration Processes, the Soviet Committee for Methods of Distance Finding, the Committee for Computing Technology, and the regional section of Siberia and the Far Eastern Scientific Service for Modeling Complex Mathematical Problems. Since 1976, he has been a member of the American Mathematical Society, and since 1981 a member of the American Photogrammetry Association, and since 1983 he has been a specialist (consultant) on sources of seismic control. In 1982, he received a State Prize and is the holder of a number of other medals recognizing his achievements. (Sib. Unpub. MSS., 1989) He is currently serving on the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy. (GSE 30, p. 9.)

Apresian, Iurii D., D. Philology S., Academician in 1993 of the Information Sciences, Computer Technology, and Automation Department of the Academy. In the Computer Linguistics Laboratory (No. 15) of the Problems of Information Transmission Institute in Moscow, under the guidance of Professor Iurii D. Apresian, D. Philological S., he led in building a full-fledged multi-functional and multi-language linguistic processor for textual information on the basis of the "Meaning Text" approach, which is designed for the solution of one of the main problems in the field of artificial intelligence.

Belotserkovskii, Oleg M., D. PM. S. Born in 1925. Academician of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1979--and now academician of the Informatics, Computer Equipment and Automation Department of the Academy. Since 1963, he has been rector of the Physical Technical Institute in Moscow subordinate to the Ministry of Higher and Secondary Specialized Education. Since 1978, he has been Deputy Director of the Computer Center in Moscow. The center was established in 1955 and is now under the control of the Information Science, Computer Technology and Automation Department of the academy. This Department was created in 1984. He is currently a Deputy to the Academician Secretary of the Informatics, Computer Equipment and Automation Department of the Academy. He is also currently the Director of the Projecting Automation Institute in Moscow.

Bunkin, Boris V., D. Tech. S. Born in July 1922 in the village of Aksinino, Moscow Oblast. He has been a corresponding member of the General Physics and Astronomy Department of the Academy since 1968; an academician since 1974. He graduated from the Moscow Aviation Institute in 1947 going to work on the staff there immediately. Since 1950 he has been with the Moscow Engineering Physics Institute. His major works are on radio engineering and in electronics. He is currently a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy. (GSE 4, p. 180.)

Burtsev, Vsevolod S., D. Tech. S. Born in 1927 in Moscow. Russian scientist in control processes and computer technology. Corresponding member since 1976 of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy; academician of the Informatics, Computer Equipment and Automation Department since 1993. He graduated from the Moscow Power Engineering Institute in 1951 and joined the staff of the Institute of Precision Mechanics and Computer Technology. He became a professor at the institute in 1965 and its Director in 1973. From 1973 to July 1987, he was the Director of the S. A. Lebedev Precision Mechanics and Computation Techniques Institute in Moscow that was established in 1948 subordinate to the Academy's General Physics and Astronomy Department for the purpose of developing computer hardware and software, concentrating on high

speed computers. His works have included the principles and methods of building digital computers, theoretical and practical problems of automatic control, and the principles of implementing multi-processing systems. He received the State Prize in 1972; the Lenin Prize in 1966. He is currently a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy. He is currently the Director of the Highly Productive Computer Systems Institute in Moscow. (GSE 30, p. 29.)

Dorodnitsin, Anatolii A., D. Tech. S., born 1910 in Bashino, Tula District Russian, graduated in 1931 from Grozny Oil Institute, received his candidate degree in Physical and Mathematical Sciences from the Main Geophysical Observatory in St. Petersburg in 1939, and his doctorate in Technical Sciences from the Zhukovskii Central Aero-hydrodynamic Institute in 1942, was made a professor in 1949 and elected as an academician of the academy in 1953. He worked from 1936 to 1941 at the Main Geophysical Observatory, in 1941 at the Zhukovskii Central Aero-hydrodynamic Institute, from 1944-1946, he was professor of Moscow Aviation Institute, from 1945 to 1955, he was a senior researcher and Head of a department of the Steklov Mathematical Institute in Moscow, from 1948-1951, professor at Moscow State University; from 1952 to the present he has been a professor, Head of the Aerodynamics Group, Head of the Applied Mathematics Group, Head of the Mathematical Physics Group of the Moscow Physical-Technical Institute, and from 1955 to 1989, he served as Director of the computing center of the academy in Moscow. From 1989 to the present he has served as Director Emeritus of that center. Since 1960 he has been editor in Chief of the Journal of Computational Mathematics and Mathematical Physics. His research interests have included: aerohydrodynamics, computational mathematics, and mathematical physics, geophysics, informatics, mathematical modeling, and ecological problems.

Efremov, Veniamin P., D. Tech. S. Corresponding member of the Information Sciences, Computer Technology and Automation Department of the Academy since 1984; academician since 1993. He is currently serving on the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy. He is also a member of the High Energy Astrophysics Department of the Space research Institute. (efremov@hea.iki.rssi.ru)

Emelianov, Stanislav V., D. Tech. S. Born in May 1929 in Voronezh. He has been a corresponding member of the academy since 1970, and an academician of the Informatics, Computer Equipment and Automation Department (formerly the Information Science, Computer Technology, and Automation Department) of the AN SSSR and the RAS since 1984. He has been a member of the Presidium of the academy since October 1988. Russian scientist in the field of automated control. He graduated from the Moscow Aviation Institute in 1952. He created a new line of development in the theory of automated control, the theory of systems with variable structure. Such systems are used to control non-stationary units, as in buildings, movement control systems of aircraft, and in the automated landing systems of the supersonic passenger aircraft Tu 144. Systems with variable structure are also used in the metallurgical, Chemical and food industries. He received the Lenin Prize in 1972. Since 1976 he has been a Deputy Director of the Systems Research SRI in Moscow. Since 1977, he has been Director of the International Scientific Research Institute of Control Problems in Moscow that was established in 1977. He is currently the director of the Systems Analysis Institute located in Moscow as well as being Academician Secretary of the Department of Informatics, Computer Equipment and Automation. (GSE 9, p.121.)

Evtikhiev, Nikolai N., D. Tech S. Born in 1932. Evtikhiev has been a corresponding member of the Machine Building, Mechanical and Control Processes Department of the academy since 1979, and academician of the Information Science, Computer Technology, and Automation Department of the AN SSSR and the RAS since 1987.

Since 1975, he has been rector of the Radio Engineering, Electronics and Automation Institute in Moscow. The institute is directly subordinate to the Ministry of the Electronics Industry. Its scientists do research in electro-optics, laser technology, semiconductor electronics, reliefography, and automated control systems.

Guliaev (Gulyaev), Iurii V., D. PM. S. Born in 1935. Corresponding member of the General Physics and Astronomy Department of the academy since 1979, and academician of the Information Science, Computer Technology, and Automation Department since 1984. From 1972 to 1988, he was Deputy Director of the Radio Engineering and Electronics Institute in Moscow that does basic research in radio wave propagation, new electronic devices for detection, generation, and amplification of radio signals. In 1988, he was named Director of the Radio Engineering and Electronics Institute in Moscow. In 1988, he was also named Chairman of the Saratov Scientific Center under the AN SSSR and continues in that position under the Russian Academy of Sciences. He is currently serving on the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy.

Il'in, (Ilin) Vladimir A. Corresponding member of the Information Sciences, Computer Technology, and Automation Department of the Academy since December 1987; academician since 1993.

Konovvalov, Anatolii N., D. PM. S. Born in 1936. Mathematician. He is a specialist in mathematical modeling and computer experimentation. Corresponding member since 1990; academician since 1993. He heads a laboratory of the computer center of the Siberian Department of the RAS. He has written 41 scientific works of which five are monographs. He is also credited with 34 inventions. He is a professor at the Novosibirsk State University in Akademgorodok where he has guided the academic work of 18 aspirants for the candidate degree. He was on the Scientific Council on the complex problems of mathematical modeling of the AN SSSR. He is also on the Siberian Department's Scientific Council on mathematics and informatics and he is an honored consultant-specialist of the council. He received the State Prize in 1988.

Krasnoshchekov, Pavel S., C. PM. S. Corresponding member of the Information Sciences, Computer Technology, and Automation Department of the Academy since 1984; academician in 1993. In 1971, he was a senior researcher at the Computer Center in Moscow.

Kuznetsov, Fedor A., D. Chem. S. Born in 1932. Physical Chemist. Corresponding member since 1984, and academician of the AN SSSR from December 1987. He graduated from the Leningrad State University in 1955. He began work at the Inorganic Chemistry Institute of the Siberian Department in 1958, served as an aspirant, a junior researcher, and senior researcher in a major laboratory in that institute. From 1971 to 1983, he has acted as Head of the Epitaxial Layers Laboratory and of the Electronics Materials Laboratory of the Inorganic Chemistry Institute in Novosibirsk, being named its Director in 1983. The institute was established in 1957 in cooperation with the N. S. Kurnakov General and Inorganic Chemistry Institute for the purpose of studying complex compounds, splitting uranium and plutonium, and the extraction and investigation of rare earth metals. He has been a professor at the Novosibirsk University since 1976, holding the chair in inorganic chemistry since 1986. He is the Head editor of *Izvestiya*. In 1988 he was named Chairman of the Scientific Council on Inorganic Chemistry. He is a member of the Electro-Chemical Society of the USA--since 1979. Recipient of the State Laureate Prize in 1981. He is currently a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy.

Makarov, Igor M., D. Tech. S. Born October 1927 in Saratov. A Russian automatic control scientist. Since 1974, he has been a corresponding member of the Mechanics and Control Processes Department of the academy, and an academician of the new

department since 1987. He was named Head Scientific Secretary of the AN SSSR in June 1988 and holds that position under the RAS. He graduated from Sergo Ordzhonikidze Moscow Institute of Aviation in 1950 and joined the staff at the Institute of Problems of Control. In 1961, he began teaching at the Moscow Institute of Radio Engineering, Electronics, and Automation. He became professor there in 1972. From 1962 to 1975, he worked in the administrative apparatus of the Central Committee of the CPSU Communist Party. Since 1975, he has served as one of the seven Deputy ministers of Higher and Secondary Specialized Education of the USSR that was established in 1959 and which controls over 890 institutions. Since 1975, he has served as a board member of the GKNT General Assembly. In 1984, he received the USSR State Prize in Technology for his work--with others--for the development and introduction of management systems with the use of computers. His main works are on the theory of automatic control systems, the principles of building and designing automation equipment, the selection of structures for integrated engineering systems, and the theory of design, analysis and quality evaluation. (GSE 30, p. 557.)

Mikaelian, Andrei L., D. Tech. S. Born in 1925. Corresponding member of the Information Science, Computer Technology, and Automation Department since 1984; academician in 1993. Together with V. I. Bobrinev he proposed high capacity holographic memory devices in 1966, based on the recording of a large number of holograms on the same surface (or volume) of photographic material. He is currently a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy. He is also Director of the Optic-Neuron Institute in Moscow. (GSE 7, p. 522.)

Mikhalevich, Vladimir S., D. PM. S. Born in 1930. (Economic Cybernetics). He received the State Prize for Science and Technology in 1973. Since 1973, academician of the Mathematics, Mechanics, and Cybernetics Department of the Ukrainian Academy of Sciences. Academician of the Information Sciences, Computer Technology, and Automation Department of the Russian Academy since 1984. In 1971, he was awarded the N. M. Krylov Ukrainian SSR Academy of Sciences Prize for his work on methods of optimization. In 1981, he was awarded--among a group of authors--the former Soviet Union State Prize for series of work on development and widespread introduction of modern mathematical methods of optimization published from 1962-79. Since 1982, he has been Director of the V. M. Glushkov Cybernetics Institute in Kiev that was established in 1957 and given its present name in 1961. The institute researches in theoretical and economic cybernetics, computer engineering and design, system engineering, automatic control design, biomedical cybernetics, and science policy. Awarded the V. M. Glushkov Prize for Cybernetics, Computer Machine and Systems Theory in 1984. He heads the Ukrainian Scientific Council on Cybernetics which is headquartered under the Mathematics and Cybernetics Department of the Ukrainian Academy which is chaired by Professor Mikhalevich.

Moiseev, Nikita N., D. PM. S. Born in 1917 in Moscow. Specialist in general mechanics and applied mathematical sciences. Academician of the Informatics, Computer Equipment and Automation Department since 1984. He graduated from Moscow State University in 1941. From 1948 to 1950 he taught at the N. E. Bauman Moscow Higher Technical School. From 1950 to 1955, he taught at the University of Rostov. In 1956 he became a professor at the Moscow PhysicoTechnical Institute. In 1961, he was appointed Deputy Director of the computer center of the AN SSSR and still holds that post under the Russian Academy of Sciences. In 1969, he was also made Head of an unidentified laboratory under the Symbolic Information Processing Department of the Computer Center in Moscow. Since 1971, he has been dean of the Management and Applied Mathematics Faculty of the Physical Technical Institute in Moscow, under the

Ministry of Higher and Secondary Specialized Education in Moscow. Created in 1952, this institute trains scientists for academy of science institutes and design bureaus. In 1977, he was made a co-Director of the Computer Center in Moscow, that is now subordinate to the academy's Information Science, Computer Technology and Automation Department. His works are principally concerned with the dynamics of a solid containing a liquid, asymptotic and numerical methods in mathematical physics, the theory of linear and quasi-linear motions, and optimal control theory. He is currently a member of the Bureau Governing Body of the department. (GSE 16, p. 419.)

Pospelov, Germogen S., D. Tech. S. Born in 1914 in the Moscow Oblast. Automatic control scientist. Since 1966, corresponding member of the Mechanics and Control Processes Department, and academician of the Information Sciences, Computer Technology Department of the Academy since 1984. He graduated from Moscow Power Engineering Institute in 1940 and served as an engineer in an air regiment during WW II. From 1946 to 1964, he taught at the N. E. Zhukovskii Air Force Engineering Academy where he became a professor in 1957. From 1964 to 1975, he served as Deputy Chairman and Chairman of the section on applied problems of the Presidium of the AN SSSR. Since 1974, he has been Head of the Automated Control Systems Laboratory of the Computer Center in Moscow that was at that time subordinate to the academy's Mathematics Department. After 1984 it was made subordinate to the Information Sciences, Computer Technology, and Automation Department of the academy. His works are in automation of aircraft, the theory of nonlinear automatic systems, and the theory of control of large systems. Recipient of the State Prize, 1972. Currently a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy. (GSE 20, pp. 461-462.)

Pozhela, Iuras K., D. PM. S. Born in 1925. Mathematician. President of the Lithuanian Academy of Sciences since 1984. Academician of the Physical, Technical, and Mathematical Sciences Department of the Lithuanian Academy since 1968. He has been an academician of the Information Sciences, Computer Technology, and Automation Department of the Academy since 1984. From 1967 to 1984, he served as the Director of the Semiconductor Physics Institute in Vilnius that was founded in 1967. He has served as Vice President of the Lithuanian Academy of Sciences from 1972 to 1984 when he became its President. He is presently a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy.

Pugachev, Vladimir S., D. Tech. S. Born in 1911 in Riazan. Russian scientist in mechanics, problems of control, and mathematics. Academician of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1981. He graduated from the N. E. Zhukovskii Air Force Academy in 1931 and taught and researched at the academy until 1972. He has held a professorship there since 1939. He became Head of a laboratory of the Institute of Problems of Control in 1956. He has taught at the S. Ordzhonikidze Moscow Institute of Aviation since 1972. His works are in the statistical theory of control processes, flight dynamics, and the theory of canonical expansion of random functions. Recipient of the State Prize, 1948. He is currently a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy. (GSE 21, p. 343.)

Rumiantsev, Valentin V., D. PM. S., Head of the Mechanics Department of the Computing Center, was born in 1921 in the Saratov district, received his master of science in Mechanics from Saratov State University in 1945, his candidate degree from the Institute of Mechanics of the academy in 1948, his doctorate in Physical and Mathematical Sciences from that same institute in 1953. In 1956, he was made a professor of theoretical mechanics at Moscow State University, a corresponding

member Information Sciences, Computer Technology, and Automation Department of the Academy in 1970 and an academician of the Russian Academy in 1992. From 1948 to 1964, he was a junior researcher, a senior researcher, and a Head of the Department of Analytical Mechanics of the Institute of Mechanics. From 1965 to the present he has served in various capacities from senior researcher, to Head of the laboratory of stability theory and mechanics control systems, to Head of the Department of Mechanics of the Computing Center. He has served a professor of the chair of theoretical mechanics on the faculty of Mechanics and Mathematics at Moscow State University. His interests are in analytical mechanics, the theory of stability and stabilization, applied mathematics, mathematical modeling in the technical and natural sciences. Germogen S. Pospelov, D. Tech. S., consultant to the center, was born in 1914, and received his first degree in electrotechnics from the Moscow Energetics Institute in 1940. He received his candidate degree in the Technical Sciences from the Zhukovskii Air Force Military Academy in 1949, his doctorate from that same academy in 1956, and became a professor at that military academy in 1957. He was elected a corresponding member of the academy in 1966, and an academician in 1984. From 1945 to the present time, he has served as an engineer, professor, Head of the electrotechnical faculty of the Zhukovskii Air Force Academy, and Head of a laboratory, and a department and a consultant of the computing center. His research interests are in applied mathematics, automatic control, artificial intelligence, the theory of large systems, and mathematical program planning. He has also served as a professor of the chair of theoretical mechanics on the faculty of Mechanics and Mathematics at Moscow State University.

Rzhanov, Anatolii V., D. PM. S. Born in 1925 in Ivanova. Russian physicist. Academician of the Siberian Department and corresponding member of the General Physics and Astronomy Department of the national academy since 1962. Academician of the Information Science, Computer Technology, and Automation Department since 1984. He graduated from the Leningrad Polytechnic Institute in 1941. From 1944 to 1962, he worked at the Institute of Physics of the AN SSSR and since 1968, he has been Director of the Institute of Semiconductor Physics of the Siberian Department of the AN SSSR and the RAS in Novosibirsk. He joined the Presidium of the Siberian Department in 1976. The Physics Institute was established in 1964 to research microelectronics with emphasis on the physics of semiconductors, lasers, non-linear optics, and the stability of semiconductor materials. He has taught at the University of Novosibirsk since 1963 becoming a professor there in 1966. His works are in the physics of dielectrics and semiconductors and in semiconductor electronics. He discovered and studied the piez electric effect in polarized barium titanate ceramics, and he produced and conducted research on samples of point-contact and fused germanium diodes and triodes. (GSE 22, p. 528.)

Samarskii, Aleksandr A., D. PM. S. Born in February 1919 in Amvrosievka in what is now Donetsk Oblast. Russian mathematician. He has been a corresponding member of the Mathematics Department of the Academy since 1966 and an academician since 1976--and now of the Informatics, Computer Equipment and Automation Department. He graduated from Moscow State University in 1945 and became a professor there in 1959. His main work has been in mathematical physics and computer mathematics. He has made use of computational algorithms that are successfully applied to the computer solutions of important problems in various fields of science and engineering. In 1967, he was Head of the Laser Fusion Laboratory of the M. V. Keldysh Applied Mathematics Institute in Moscow. Since 1984, he has served as Deputy Director of the M. V. Keldysh Applied Mathematics Institute in Moscow, that is subordinate to the Information Science, Computer Technology and Automation Department of the national academy. State Prize, 1954, and the Lenin Prize, 1962. He is currently a Deputy to the Academician Secretary of

the Department of Informatics, Computer Equipment and Automation of the Academy. He guided the development of mathematical methods of modeling and managing the national economy with the application of a new generation of computers. He is also currently Head of the Mathematical Modeling Institute in Moscow. (GSE 22, p. 577.)

Savin, Anatolii I. Born in 1920. Academician of the Information Sciences, Computer Technology and Automation Department of the Academy since 1984.

Sheremet'evskii, (Sheremetevskii) Nikolai N., D. Tech S. Born in 1916. Academician of the Information Science, Computer Technology, and Automation Department of the AN SSSR and the RAS since 1984. Since 1973, he has been Director of the Electromechanics Scientific Research Institute located in Moscow and directly subordinate to the Ministry of the Electrical Equipment Industry. The institute does research in electrical drive systems and remote control devices. He is a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy.

Shipunov, Arkadii G., D. Tech S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984; academician in 1993.

Shokin, Iurii I., D. PM. S. Born in 1943. Mathematician. Specialist in computer and applied mathematics. Corresponding member of the Information Sciences, Computer Technology and Automation Department of the Academy since 1989; academician in 1992. He has authored 30 scientific works of which three are monographs and co-authored 120 publications of which three are significant monographs. He graduated from the Novosibirsk State University in 1966 and worked at the Computer Center of the Siberian Department from 1969 to 1975. From 1976 to 1983, he headed a laboratory of the Theoretical and Applied Mechanics Institute of the Siberian Department. In 1983, he was named Director of the Computer Center in Krasnoyarsk subordinate to the Siberian Department. Its scientists model problems of plasma physics, and Chemical kinetics. In 1992, the staff of the Computer Center totaled 302 people of whom 141 were research scientists and of whom seven held the doctorate and 53 the candidate degree. Since 1983, he has been a professor at the Krasnoyarsk State University where he has held the chair of applied mathematics and mechanics and supervised the academic research of 15 aspirants for the candidate degree. He was a member of the GKNT, and served on the natural sciences committee for developing research methods into the dynamics of fluids, and on the working group of the natural sciences federation on information processes. In 1991, he was named the Director of the Computer Technology Institute of the Siberian Department of the RAS in Novosibirsk, and in 1992 he became Head Scientific Secretary for the Siberian Department of the Academy.

Valiev, KamiA., D. PM. S. Born in January 1931 in the village of Verkhonii Shander, Mamadysh Raion, Tatar ASSR. Russian specialist in semiconductor microelectronics. Since 1972, he has been a corresponding member of the academy, and an academician of the new department since 1984. In 1985, he was elected Deputy academician-secretary of the academy's new Information Sciences Department. He graduated from Kazan' University in 1954. From 1957 to 1964 he taught at the Kazan' Pedagogical Institute. He was made a professor in 1966. He was Head of a department at a ministerial Scientific Research Institute from 1964-5, and Director-organizer of the Microelectronics Scientific Research Institute at Zelenograd, under the Ministry of the Electronics Industry from 1965 to 1977. In 1977, he was named the Head of a department at the Institute of Space Research of the AN SSSR. In 1984, he became Director of the Microelectronics Institute in Yaroslavl that is jointly subordinate to the General Physics and Astronomy Department and to the Information Sciences, Computer Technology, and

Automation Department of the academy. The institute is a center for solving computer technology problems. His principal works deal with electron paramagnetic resonance, nuclear magnetic resonance and the production technology of integrated circuits. He also became a Deputy Director of the Institute of General Physics of the academy in 1984. He holds the Lenin Prize and the Azerbaiian SSR State Prize. He is currently a Deputy to the Academician Secretary of the Department of Informatics, Computer Equipment and Automation of the Academy. (GSE 30, p. 676.)

Velikhov, Evgenii P., D. PM. S. Born in 1935 in Moscow. Russian theoretical physicist. Since 1974, he has been an academician of the General Physics and Astronomy Department of the AN SSSR and the RAS, and since 1984, he has acted as Academician Secretary of the new Information Science, Computer Technology, and Automation Department of the AN SSSR and the RAS until replaced by Academician Emilianov. He graduated from Moscow State University in 1958 and began working in the Institute of Atomic Energy at once becoming Head of one of its departments in 1962. He has been a professor at Moscow State University since 1968. Since 1971, he has served as Director of the I. V. Kurchatov Atomic Energy Branch Institute in Troitsk. In 1988, he was made Director of the I. V. Kurchatov Atomic Energy Institute in Moscow, that is subordinate to the Committee on the Utilization of Nuclear Energy. The Kurchatov institute and its branch institute in Troitsk are the largest institutes in Russia concentrating on nuclear research that includes all aspects of atomic energy, including plasma and solid state physics, fission and fusion reactors, and lasers. The institute is directly subordinate to the State Committee for Utilization of Atomic Energy. Since 1977, he has served as Vice President for the Physical and Mathematical Sciences Section of the academy. Since 1978, he has headed the Geophysical laboratory of the High Temperatures Institute in Moscow. Since 1978, he has served on the Board of the General Assembly of the GKNT. Since 1984, he has also been a Deputy Director for science of the Industrial Lasers Scientific Research Center in Troitsk that is under the USSR Academy of Sciences. The center is comprised of scientific research divisions, a design bureau, and an experimental production facility that develops and introduces laser tools and methods into industry. His works are in low-temperature physics, plasma and magnetic hydrodynamics. He was on the editorial board of Science in Russia. In 1986, he was the recipient of the M. D. Millionshchikov Prize in atomic power engineering. He is currently on the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy. (GSE 4, p. 565.)

Zhuravlev, Iurii I., D. PM. S. He was born in 1935 in Voronezh. Corresponding member of the Information Sciences, Computer Technology, and Automation Department of the Academy in 1984 and an academician of the Russian Academy in 1992. Deputy Director of the Computer Center in Akademgorodok-Novosibirsk Siberian Department. He graduated with a master of science in mathematics from Moscow State University in 1957. He received his candidate degree in 1960 in the Physical and Mathematical Sciences from Moscow State University, and his doctorate in 1965. He became a professor in 1967. From 1960 to 1969, he was a junior researcher, then Head of a department, and Deputy Director of the Institute of Mathematics of the Siberian Branch of the Academy. From 1969 to the present time, he has headed a department of the computing center of the Academy. Since 1989, he has been a Deputy Director of the Computer Center. From 1966 to 1969, he was a professor at the Novosibirsk State University in Akademgorodok, and from 1970 to 1980 he was a professor at the Moscow Physical and Technical Institute. Since 1980, he has been a professor and holds a chair at the Moscow Institute of Electronic Engineering. His research interests have included mathematical logic, the theory of controlling systems, image recognition, operation research, and artificial

intelligence. He is a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy.

Corresponding Members

Afanas'ev (Afanasev), Aleksandr M., D. PM. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984. He is a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy.

Agadzhanov, Pavel A., D. Tech. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984.

Aleksandrov, Maksim L., D. PM. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since December 1987. Since 1984 he has been Chief of the Scientific Instrument Building Department, an administrative office under the Presidium of the Academy. He is currently Director of the Analytic Instrument Making Institute in St. Petersburg. (LDA 89-11378.)

Babaian (aya)n, Boris A. Born in 1923. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984.

Basistov, Anatolii G., D. Tech S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984.

Cherniavskiy, G. M. Corresponding member of the Informatics, Computer Equipment and Automation Department of the Academy in 1993. He is also Director of the Program Investigation Center in Moscow.

Evtushenko, Iurii G., D. PM. S., Born in Krasnodor in 1938. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1990. He graduated from the Moscow Physical-Technical Institute with a master of science in aerodynamics in 1962, received his candidate degree in Flight Dynamics in the Physical and Mathematical Sciences from the Moscow Physical-Technical Institute in 1967 and his doctorate in the Physical and Mathematical Sciences from the Computing Center of the Academy in 1981. In 1985, he was designated a professor. From 1966 to 1976 he was a junior and senior research at the computer center and from 1976 to 1981, he was Head of the Optimization Software Department of that institute. He served as a Deputy Director of the Computer Center from 1981 to 1989 when he became its Director. In 1988, he became a member of the International Mathematical Programming Society. In 1992, he became editor-in-Chief of the international journal *Optimization, Methods and Software*. His research interests include linear and nonlinear programming, decision support systems, optimal control, optimization techniques, numerical methods, and software for solving global multicriterion optimization problems. He is presently a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy.

Gelovani, Viktor A., C. PM. S. Born in 1944. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since December 1987. (LDA 89-11378.)

Gribov, Boris G., D. Chem S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984.

Gus'kov, (Guskov) Gennadii Ia., D. Tech. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984.

Ivannikov, Viktor P., D. PM. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984. He

- is a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy.
- Kaliaev, Anatolii V.**, D. Tech S. Born in 1922. Since 1971, Rector of the V. D. Kalmikov Radio Engineering Institute at Taganrog. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984.
- Kolesnikov, Vladislav G.**, C. Tech S. Born in 1925. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984.
- Korobeynikov, Viktor P.**, D. PM. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since December 1987. He is also a member of the Far Eastern Department of the Academy. (LDA 89-11378.)
- Kotov, Vadim E.**, D. PM. S. Born in 1938. Mathematician/physicist. Specialist in Informatics and Computer Technology. Corresponding member of the Information Science, Computer Technology and Automation Department of the Academy since 1990. He is the Director of the Institute for Informatics Systems of the Siberian Department in Novosibirsk. He is the author of 39 scientific works, and co-author of 67 of which two were monographs. Among his own books three are important: "Vvedenie v teoriiu skhem programm" (1978)--"Introduction to Programming", "Seti Petri" (1984), and "Teoriia skhem programm" --"The Theory of Programming."(1984). He is a professor at Novosibirsk State University where he has guided the academic work of one doctoral and 20 aspirants for the candidate degree. He headed a working group on the theory of programming of the Department of Information Computer Technology, and Automation of the Academy.
- Kozlov, Dmitrii I.** Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984. Since 1984, third secretary of the Permanent Soviet Mission of the International Atomic Energy Agency in Vienna.
- Kurdiumov, Sergei P.**, D. PM. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984. He is a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy.
- Levin, Vladimir K.** Corresponding member of the Information Science, Computer Technology, and Astronomy Department of the Academy of the Academy since December 1987. (LDA 89-11378.)
- Miroshnikov, Mikhail M.**, D. Tech S. Born in 1926. Corresponding member of the Information Science, Computer Technology, and Automation Department of the AN SSSR since 1984. Since 1970, he has been Director of the S. I. Vavilov Optics Institute located in Leningrad and directly subordinate to the Ministry of Defense Industry. In 1984, the CPSU Central Committee and the USSR Council of Ministers awarded the USSR State Prize in Science and Technology to scientists at Gomel State University in Byelorussia; to researchers at the S. I. Vavilov State Optics Institute; to researchers at the Institute of General Physics of the AN SSSR; to scientists at the Vilnius State University; to scientific workers at the laboratory of the U. A. Arifov Electronics Institute of the Uzbek Academy of Sciences; and to scientists at the laboratory of the Institute of Applied Physics of the AN SSSR for the series of works "Higher Efficient Nonlinear Frequency Conversion in Crystals and the Development of Adjustable Sources of Coherent Optical Radiation," which were published during the period 1961-1982. The S. S. Vavilov Optics Institute develops and tests lenses, lasers and other optical instruments. Miroshnikov is author of more than 200 scientific works, and has been instrumental in the development of infrared imaging instruments for medicine, in machine building and in microelectronics. (LDA 89-11378.)

- Mizin, Igor A.**, D. Tech S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984. He is a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the Academy.
- Parkhomenko, Pavel P.**, D. Tech S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984.
- Petrov, Aleksandr A.**, D. PM. S. Corresponding member of the Information Science, Computer Technology and Automation Department of the Academy since 1991. Head of the Department of Mathematical Modeling of Economic Systems of the Computing Center in Moscow was born in 1934 in the Moscow district, received his first degree in Thermodynamics from the Moscow Physical and Technical Institute in 1957, his candidate degree in the Physical and Mathematical Sciences (applied mathematics) from the Computing Center in 1964, and his doctorate from the Computing Center in 1974. He became a professor in 1978, and was elected a corresponding member of the Russian Academy of Sciences in 1991. From 1958 to the present he has risen from a junior researcher, to Head of the Department of Mathematical Modeling of Economic Systems, and he has been an assistant, docent, and professor at the Moscow Physical and Technical Institute from 1960 to the present time. His interests include numerical methods for calculation of liquid oscillations within cavities of solid bodies, the development of mathematical models and the mathematical theory of processes in economics.
- Presnukhin, Leonid N.**, D. Tech S. Born in 1918. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984. Since 1970, he has served as Rector of the Electronic Engineering Institute at Zelenograd subordinate of the Ministry of Higher and Secondary Specialized Education. The institute trains specialists on new trends in the field of electronics technology.
- Reutov, Aleksandr P.** Born in 1926. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since December 1987. (LDA 89-11378.)
- Ryabov, Gennadii G.**, D. Tech. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984. Since July 1987, he has served as Director of the S. A. Lebedev Precision Mechanics and Computation Techniques Institute in Moscow, replacing Vsevolod S. Burtsev. He is a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automatization Department of the Academy.
- Ryzhiy, Viktor I.**, Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since December 1987. (LDA 89-11378.)
- Savin, G. I.** Corresponding Member of the Informatics, Computer Equipment and Automation Department of the Academy in 1993, and as a Deputy to the Academician Secretary of the department he is responsible for organizing the scientific activities for the department.
- Solomentsev, Iurii M.**, D. Tech. S. Born in 1939. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since December 1987. He is presently the Director of the Constructor Technological Informatics Institute in Moscow. (LDA 89-11378.)
- Stogniy, Anatolii A.**, D. PM. S. Born in 1932. Since 1976, he has been a corresponding member of the Mathematics, Mechanics, and Cybernetics department of the Ukrainian Academy of Sciences. He has been a corresponding member of the Information Sciences, Computer Technology, and Automation department since 1984. Since 1964, he has been Deputy Director of the V. M. Glushkov Cybernetics Institute at Kiev. In 1967, he was awarded the N. Ostrovskii Ukrainian Lenin

Komsomol Central Committee prize for his work on digital computer software. In 1968, he received the USSR State prize for software incorporated into the Mir computer. (LDA 87-111012.)

Sumarokov, Leonid N., D. Tech. S. Born in 1938. Corresponding member of the Information Science, Computer Technology, and Automation Department of the AN SSSR since 1984. Since September 1987, he has been one of the Deputy chairmen of the GKNT. Since 1977, he has been Director of the Scientific and Technical Information International Center in Moscow which was established in 1969. Subordinate to CEMA, it was to set up as a shared data base for scientific and technical cooperation between the Soviet Bloc Countries. (LDA 89-11378.)

Svitashev, Konstantin K., D. PM. S. Born in 1936. Physicist. Specialist in the elements of the bases in information systems, and diagnostics of semiconductor structures. Corresponding member of the Information Science, Computer Technology, and Automation Department since December 1987 and reconfirmed in 1992. He has authored and co-authored 104 scientific works of which two are major monographs. He graduated from the Leningrad State University in 1959. He worked as an engineer at the State Optics Institute imen S. I. Vavilov from 1959 to 1962. In 1962, he began working at the Semiconductor Physics Institute of the Siberian Department, in 1975 becoming its Deputy Director. In 1980, he was made Head of SKTB as a specialist in the electronics and the analytics of instrument making. He has been a professor at the Novosibirsk State University since 1985 and, as a professor has supervised the research of two doctoral students and of 11 aspirants for the candidate degree. He is editor of the journal Microelectronics. He received the Laureate Prize of the Soviet Ministers of the SSSR in 1984.

Vas'kov, (Vaskov) Semen T., D. Tech. S. Born in 1934. Engineer. Specialist in the automation of scientific research. Corresponding member of the RAS since 1992. He has authored and co-authored 72 scientific works of which one was of monograph length and consequence. In 1990, he was named Deputy Director and in 1992, he became General Director of the "Informatika"--the special scientific construction bureau of the Siberian Department of the ANR. He is on the Scientific Council of the academy for the automation of scientific research. He is a professor at both the Novosibirsk State University and the Kishenev Polytechnical Institute. His major work is in developing a system of digital cartography. As a professor, he has directed the work of seven aspirants for the candidate degree. He is a member of the Scientific Council on the "Sibir" program. He also serves on the UNESCO program on regional statistics. He has been a consulting specialist on the telecommunications project for the Siberian region.



Scientific Research Institutes Directly Subordinate to the Information Sciences, Computer Technology, and Automation Department

There are 13 Scientific Research Institutes directly subordinate to the department and they are given in the order of their founding below:

(1996 update)

1. Computing Center of the Russian Academy of Sciences (CCRAS) in Moscow.

**Located at 40 Vavilov st., GSP-1, Moscow, 117967.
(Tel.135-24-89;=20**

fax: 135-61-59; (E-mail: wcan@ccas.ru)

Under the direction of Iurii G. Evtushenko, tel. 135-24-89.

[**Yurii G. Evtushenko, born on December 28, 1938, in Krasnodar Director of Computer Center of the Russian Academy of Sciences E-mail: evt@ccas.ru.** 1962 M.Sc., Aerodynamics, Moscow Institute of Physics and Technology 1967 Ph.D., Physical and Mathematical Sciences (Flight Dynamics), Moscow Institute of Physics and Technology 1981 Doctor of Physical and Mathematical Sciences, Computing Center of the USSR Academy of Sciences (CCAS) 1985 Professor 1988 Member of the International Mathematical Programming Society 1990 Corresponding Member of the USSR Academy of Sciences

Professional Experience

1962-65 Post graduate student at Moscow Institute of Physics and Technology 1966-73 Junior Researcher, Computing Center of the USSR Academy of Sciences (CCAS) 1973-76 Senior Researcher, CCAS 1976-81 Head of Optimization Software Department, CCAS 1981-89 Deputy Director of CCAS 1989-p.t. Director of CCAS from 1992 to the present. Editor in Chief of International Journal: Optimization, Methods and Software

Research Interests 1. Linear and Nonlinear Programming, 2. Decision Support Systems, 3. Optimal Control, 4. Optimization Techniques, 5. Numerical Methods and Software for Solving Global Multycriterion Optimization Problems Publications-- 3 books and more than 100 papers

Institute Retrospect: Established in 1955. The center provides computer support to the academy institutes. Its scientists conduct mathematical and cybernetic research. The Director from 1955 to 1989 was Anatoli A. Dorodnicyn. Since 1989, Iurii G. Evtushenko, D. PM. S. has been its Director. From 1981 to 1989, he was Deputy Director of the Computing Center. Structure and Scientific Personnel: In mid-1996, the Computing Center of the Russian Academy of Sciences had some 400 researchers working there. The Center is organized into six major Divisions which are divided into some 26 Departments, sectors or independent units. That structure which is given on the homepage of the Computing Center on the internet is as follows:

1. The Division of Mechanics and Mathematical Physics

Department of Computational Methods (Head: Professor B. Paltsev)

DEPARTMENT OF CONTINUUM MECHANICS

Chief of the department-- Dr.Sc.(Mechanics) L. Shurshalov

Tel.: (095) 135-02-28, fax: (095) 135-61-59

E-mail: wcan@ccas.ru

Among the leading researchers of the department there are:

Dr. Sc. (Mech.) Yu. Shmyglevskii and Dr. A. Shipilin
Dr. Sc. (Mech.) V. Borisov and Dr. V. Krivtsov
Dr. Sc. (Math.) V. Gryn and Dr. V. Zubov
Dr. Sc. (Mech.) I. Mikhailov and Dr. V. Koterov
Dr. Sc. (Mech.) A. Charakhch'yan and Dr. V. Lul'ka
Dr. Sc. (Bio.) A. Tarko and Dr. V. Parkhomenko

The Department of Continuum Mechanics was among the first in the Computing Centre of the Russian Academy of Sciences. From the very beginning and until 1991. it was headed by the well-known scientist in aero-and hydrodynamics Prof. Yurii Shmyglevskii.

The department develops mathematical models and computational methods and algorithms for investigation of physical processes in continuum media.

Main directions of activity:

numerical and analytical approaches to the investigation of viscous flows;

direct and inverse problems in radiation gasdynamics;

subsonic, transonic and supersonic flows of ideal gases and fluids;

numerical simulation of deuterium compression in conical solid-body targets;

modeling and computation of electric processes in semiconductor devices;

modeling and calculation of flows in pipelines;

modeling and forecasting of large-scale changes in climate and biosphere;

two-phase flows of gas with solid particles with applications to some cosmic phenomena.

(Lev V. Shurshalov, born January 11, 1944 in Saratov. Scientific Secretary and Chief of the Department of Continuum Mechanics, E-mail: wcan@ccas.ru. 1966 M.Sc., Fluid and Gas Mechanics, Moscow State University 1972 Ph.D., Physical and Mathematical Sciences (Fluid and Gas Mechanics), Moscow State University 1987 Doctor of Physical and Mathematical Sciences, Moscow State University Professional Experience 1969-77 Junior Researcher, Computer Center of the USSR Academy of Sciences (CCAS) 1977-90 Senior Researcher, CCAS 1990-p.t. Scientific Secretary, Computer Center of the Russian Academy of Sciences (CCRAS) 1991-p.t. Chief of the Department of Continuum Mechanics, CCRAS Research Interests 1. Mathematical modeling in fluid and gas dynamics, 2. theory of explosions, 3. meteor physics, 4. computational methods)

Department of Computational Physics (Head: Academician O. Belotserkovskii)

Department of Mechanics (Head: Academician V. Romyantsev (Rumiantsev))

2. The Division of Informatics and Mathematical Cybernetics

Department of Pattern Recognition and Methods of Continuum Analysis (Head: Academician Iurii Zhuravlev)

Yurii I. Zhuravlev, born on January 14, 1935 in Voronez. Deputy Director of the Computing Center of the Russian Academy of Science 1957 M.Sc., Mathematics, Moscow State University 1960 Ph.D., Physical and Mathematical Sciences, Moscow State University 1965 Doctor of Physical and Mathematical Sciences 1967 Professor 1984 Corresponding Member of the USSR Academy of Sciences

1992 Academician of the Russian Academy of Sciences Professional Experience
1960-69 Junior Researcher, Head of Department, Deputy Director, Institute of
Mathematics of Siberian Branch of the USSR Academy of Sciences 1969-p.t.
Head of the Department of the Computing Center of the USSR Academy of
Sciences (CCAS) 1989-p.t. Deputy Director, CCAS 1966-69 Professor of
Novosibirsk State University 1970-80 Professor of Moscow Institute of Physics
and Technology 1980-p.t. Professor and Head of the Cathedra, Moscow Institute
of Electronic Engineering 1991-p.t. Editor in Chief of International Journal: Pattern
Recognition and Image Processing Research Interests 1. Mathematical Logic 2.
Theory of Controlling Systems 3. Image Recognition 4. Operation Research 5.
Artificial Intelligence

Department of Applied Intellectual Systems (Head: Professor V. Solodov)

Department of Artificial Intelligence (Head: Professor Dr. Dmitrii A. Pospelov)
(Formerly the Computer Service Sector, and later Laboratory and now Department of
Artificial Intelligence: (Head Pospelov, Dmitri A., D. Tech. S., since 1971, and at
present he heads all laboratories and named departments.)

(1997 update)

**Artificial Intelligence Problems Division
Computer Center Academy of Sciences of Russia,
Vavilova 40,
GSP-1, 117967, Moscow, Russia
phone: 007 +095 135-6193 or 135-3298
fax: 007 +095 135-6159
e-mail: pospelov@ccas.ru
or khoshevskii@ccas.ru or averkin@ccas.ru**

The Head of Division
Full Professor, Doctor of Sciences, Dimitry A. Pospelov

Division's Structure

Theoretical Problems Department
The Head-- Full Professor, Doctor of Sciences, Dimitry A. Pospelov

Expert Systems Department
The Head-- Associate Professor, Doctor of Sciences, Vladimir F. Khoshevskii

Fuzzy Sets Department
The Head-- PhD., Aleksey N. Averkin

Research Domains

Theoretical background of Knowledge Based Systems

Knowledge Representation in New Generation AI-systems

Special knowledge representation languages family, based on frame & production rules
from the one side and using demonization C-procedures--from the another. Special
environment for edit, compiling and debugging KB.

Fuzzy logics for expert systems

The inference module of expert system uses family of fuzzy logics. They are given by the axiomatic system of triangular norms and depends on several parameters. This fact allows to change the logic on each step of inference and makes inference rather flexible.

Modern communication in AI-systems

Special models of discourse including user's models and models of explanation, argumentation etc. based on ATN-approach.

Models & tools of Inference

Dialog CAD of inference engine including generation of its executable code.

Fuzzy inference simulation module

New methods are developed for inference modules designing for expert systems with high possibilities of fuzzy logic inference and knowledge acquisition, using probabilistic simulation. We must choose the best logic between several thousands fuzzy logics for the given knowledge base and for the given length of inference. For this purpose we use the probabilistic simulation of fuzzy knowledge base and of inference trees. Using the results of simulation we can compare the result of inference for different logics and choose the best logic for the real expert system.

Technology of Knowledge Based Systems Design & Implementation

Knowledge Based Models of Life Cycle for AI-systems

Development of technological knowledge bases for supporting, planning and managing AI-CAD based on cognitive graphics approach.

Fuzzy logics acquisition module

Expert system uses fuzzy logics, which simulates the reasoning process of expert. So it should be supplied by special methods of fuzzy knowledge and fuzzy logics acquisition. Special cognitive graphic interface is used to show to the expert the truth tables of fuzzy (multi-valued) logics, the distribution of truth values in knowledge base etc. Expert can use special graphic editor to change the logic and to see the possible results of inference before using the logic in the expert system. This module is still unknown in expert system shells and it is called "fuzzy logics acquisition module".

Cognitive Graphics in Knowledge Based Systems Design & Implementation

Special knowledge bases supporting processes of create and edit graphical patterns describing main components of AI-systems based on Chernoff's faces.

AI-software

Design & Implementation of REFAL-- Rewriting Rules Based Programming System

REFAL is based on Markov's approach to recursive functions. Source language have flexible possibilities for list processing and may be expanded by external C-functions. REFAL used as metalanguage for knowledge representation languages implementation, in symbolic processing etc.

Design & Implementation of PILOT/2--Knowledge Representation Tool for second generation expert systems

PILOT/2 is the language based on production rules and frames. The OPS5 and ART are its prototypes. PILOT-compiler generates C-program for Windows environment.

Design & Implementation of ATNL-- communication models description language ATNL is based on Woods' Augmented Transition Network model.

ATNL-compiler is implemented on REFAL and generates REFAL-program as a target program. This language is used for natural language communication, explanation, argumentation etc.

Design & Implementation of FrameBrush-- Cognitive Graphics Editor Special cognitive graphical editor Frame Brush produces frame representation of graphical patterns.

Design & Implementation of PiES WorkBench-- Intelligent CASE for Knowledge Based Systems PiES WorkBench--instrumental knowledge based system oriented on Expert Systems design and implementation. PiES WorkBench is in progress now and Windows is the basic environment here. All management, technological and special knowledge in this system represented in frame-oriented DBMS package FRAME/2 and KRL PILOT/2. Cognitive graphic approach is widely used in PiES WorkBench at the management, design and implementation stages of prototyping applied expert systems.

Fuzzy expert system shell

The prototype of the shell is designed. The new elements for the module are flexible family of fuzzy logics, fuzzy logics acquisition module and fuzzy inference simulation module implemented in C++ and in Windows 3.1 environment.

Applied Knowledge-Based Systems

Applied fuzzy expert systems in medicine and psychology

The prototype of ES in neurology (1500 rules) is made in Russian Center of rehabilitation for neurologic deceases. We are working together with Psychology faculty of Moscow State University to create psychological diagnostic system, using the fuzzy knowledge acquisition methods. For this purpose we use fuzzy expert system shell.

Expert Systems for Personal Psychological Diagnostics

Applied ES "Cattell" produces an individual textual person's portrete based on test of Cattell. Applied ES "Ayzenk" produces an individual textual person's portrete based on modification of Ayzenk test. Applied ES "Lusher" produces an individual textual person's portrete based on color test of Lusher.

Knowledge Acquisition Psychological Support (KAPS) Tool Kit

KAPS includes ESs "Cattell" and "Lusher" now, expert system "Ayzenk" is in progress. All these systems will be included in KAPS Tool Kit that based upon our original approach to knowledge acquisition process.

Intelligent Computer-Aided Instruction Systems based on Socratic's conversations

WHY is a prototype of these systems.

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Theoretical Problems Department: (under Dmitrii A. Pospelov)
(Formerly the Automated Control Systems Department: (Head Pospelov, Germogen S., D. Tech. S., since 1974 and who, at present, is an academician and the Chief consultant of the Computing Center

Expert Systems Department: (under Associate Professor, Doctor of Sciences, Vladimir F. Khoroshevskii

Fuzzy Sets Department: (under Ph. D., Aleksei N. Averkin)

Department of Applied Optimization Systems (Head: Professor V. Zhadan)

Department of CAD Methods for Developing Systems (Head: Professor V. Khachaturov)

Department of Mathematical Modeling of Conflict Situations (Head: Professor A. Kononenko)

Department of Computational and Information Systems (Head: Dr. F. Ereshko)

Department of Modeling Systems (Head: Dr. A. Abramov)

Department of Operations Research (Head: Professor Iurii Malashenko)

3. The Division of Mathematical Modeling of Systems and Decisions:
(Head: Academician P. Krasnoshekov)

[Pavel S. Krasnoshekov. Born on May 6, 1935, in Kalach, Voroneg district. Deputy Director and Chief of the Department of Mathematical Modelling of Systems and Decisions, 1958 M.Sc., Fluid and Gas Mechanics, Moscow State University 1964 Ph.D., Physical and Mathematical Sciences (Applied Mathematics), Steklov's Mathematical Institute of the USSR Academy of Sciences 1973 Doctor of Physical and Mathematical Sciences, Computing Center of the USSR Academy of Sciences 1984 Corresponding Member of the USSR Academy of Sciences 1992 Academician of the Russian Academy of Sciences]

Professional Experience

1961-66 Junior Researcher, Computing Center of the USSR Academy of Sciences (CCAS)

1966-73 Senior Researcher, CCAS

1973-89 Head of the Department of Theory and Methods of Computer Aided Design, CCAS

1989-p.t. Deputy Director, CCAS

1989-p.t. Chief of the Department of Mathematical Modelling of Systems and Decisions, CCAS

1975-p.t. Professor and Head of the Cathedra of Operation Research, Faculty of Computing Mathematics and Cybernetics, Moscow State University

Research Interests

1. Mathematical modelling in technical and natural sciences,
2. theory and methods of computer aided design for complex technical systems and objects,
3. modelling of war actions,
4. decisions making in inter and inner state relationships

Department of Mathematical Modeling of CAD Systems (Head: Professor Iurii Flerov)

Department of Imitation Systems (Head: Corresponding Member of RAS Iurii Pavlovskii)

Department of Mathematical Modeling of Technical Systems (Head: Professor A. Belolipetskii)

1997 update:

Division of Mathematical Modelling of Economic Systems

Head: Prof. Alexander A. Petrov, Corresponding Member of Russian Academy of Science Computing Center of Russian Academy of Sciences,

Vavilov street, 40, Moscow, 117967 Russia

Phone: (7-095)-135-3023 Fax: (7-095)-135-6159

E-Mail: petrov@ccas.ru

The division consists of 3 laboratories:

Mathematical methods for simulation of economic systems (A. Petrov)

Mathematical Methods for Economic Decision Analysis (A. Lotov)

Mathematical Modelling of Economic Structures (I. Pospelov)

Sector of Mathematical Modeling of Anthropogenic Impacts on Environment (Head: Professor G. Stenchikov)

4. The Division of Mathematical and Programming Software

Department of Software Engineering (Head: Professor V. Serebriakov)

Department of Complex Systems (Head: Professor V. Tsurkov)

Department of Computer Geometry and Graphics (Head: Dr. I. Pedanov)

Department of Scientific and Technical Information (Head: Dr. S. Gusev)

5. The Division of Computational Technique

Department of Computational Systems

(Head: Dr. G. Mikhailov) Born August 16, 1936. Deputy Director and Chief of the Department of Computational Systems, Computer Center of the Russian Academy of Sciences E-mail: gmickail@ccas.ru. 1960 M.Sc., Computer Science, Moscow Energy Technical Institute 1977 Ph.D., Physical and Mathematical Sciences, Computer Center of USSR Professional Experience 1960-65 Leading engineer, Computer Center of the USSR Academy of Sciences (CCAS) 1966-p.t. Chief of the Department of Computational Systems, CCAS 1989-p.t. Deputy Director, Computer Center of the Russian Academy of Sciences (CCRAS) Research Interests 1. Computers and information technology, 2. Data communication

systems and networks, 3. LAN and INTERNET, 4. Architecture, 5. Hard-- Software

Department of Programming Software (Head: Dr. M. Kopytov)

6. The Division of Dialogue Science, Inc. (Head: Dr. S. Antimonov)

Leading scientists at the center include or have included:

Aleksandr A. Abramov, D. PM. S., Head researcher of the Department of Computational Methods, was born in 1926 in Moscow and received his first degree in mathematics from Moscow State University in 1946, his candidate degree from that institution in 1950, and his doctorate from the Computing Center in 1975. He became a professor in 1976. From 1949 to 1955, he rose from a junior researcher to senior researcher at the Institute of Fine Mechanics and Computational Technique of the academy. He began work at the Computing Center in 1955 as Head of the Department of Computational Methods, becoming a Chief researcher in 1991. His interests have included differential geometry, linear algebra, the theory of approximations, computational mathematics, differential equations, and mathematical physics.

Oleg M. Belotserkovskii, D. PM. S. Born in 1925. Academician of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1979. Since 1963, he has been rector of the Physical Technical Institute in Moscow subordinate to the Ministry of Higher and Secondary Specialized Education. Since 1978, he has been Deputy Director of the Computing Center of the Russian Academy of Sciences in Moscow. The center was established in 1955 and is now under the control of the Information Science, Computer Technology and Automation Department of the academy. The Information Science, Computer Technology and Automation Department was created in 1984.

Iurii G. Evtushenko, D. PM. S., Born in Krasnodor in 1938. At present he is the Director of the Computer Center of the Russian Academy of Sciences in Moscow. He has been a Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1990. He graduated from the Moscow Physical-Technical Institute with a master of science in aerodynamics in 1962, received his candidate degree in Flight Dynamics in the Physical and Mathematical Sciences from the Moscow Physical-Technical Institute in 1967 and his doctoral the in the Physical and Mathematical Sciences from the Computing Center of the Academy in 1981. In 1985, he was designated a professor. From 1966 to 1976 he was a junior and senior research at the computer center and from 1976 to 1981, he was Head of the Optimization Software Department of that institute. He served as a Deputy Director of the Computer Center from 1981 to 1989 when he became its Director. In 1988, he became a member of the International Mathematical Programming Society. In 1992, he became editor-in-Chief of the international journal Optimization, Methods and Software. His research interests include linear and nonlinear programming, decision support systems, optimal control, optimization techniques, numerical methods, and software for solving global multicriterion optimization problems. He has published three books and more than 100 scientific papers. E-mail: evt@ccas.ru

Pavel S. Krasnoschekov, D PM. S. Born in Voronez District at Kalach in 1935. Applied Mathematician receiving his M. Sc. degree at Moscow State University in

Fluid and Gas Mechanics in 1958, his Ph.D. in the Physical and Mathematical Sciences (Applied) from the Staklov Mathematical Institute of the USSR Academy of Sciences in 1964, and his Doctorate of Physical and Mathematical Sciences from the Computing Center of the USSR Academy of Sciences in 1973. He became a Corresponding member of the Information Sciences, Computer Technology, and Automation Department of the Academy in 1984 and an Academician in 1992. From 1973 to 1989, he was Head of the Department of Theory and Methods of Computer Aided Design of the Computer Center of the Academy of Sciences. In 1989, he became a Deputy Director of the Center and Chief of the Department of Mathematical Modeling of Systems and Decisions. He has been a professor and holder of the chair of Operation Research of the Faculty of Computing Mathematics and Cybernetics at Moscow State University. His research interests include mathematical modeling in technical and natural theory and methods of computer aided design for complex technical systems and objects, modeling of war actions, decision making in inter and inner state relationships.

Nikita N. Moiseev, D. PM. S. Born in 1917 in Moscow. Specialist in general mechanics and applied mathematical sciences. Corresponding Member of the Academy since 1966, and Academician since 1984. At present, he is a Scientific Consultant of the Computing Center of the Russian Academy of Sciences. He graduated from Moscow State University in 1941. From 1948 to 1950 he taught at the N. E. Bauman Moscow Higher Technical School. From 1950 to 1955, he taught at the University of Roots. In 1956 he became a professor at the Moscow PhysicoTechnical Institute. From 1967 until 1987, he was Deputy Director of the computer center of the AN SSSR. In 1987 he became a consultant to the Center. In 1969, he was also made Head of an unidentified laboratory under the Symbolic Information Processing Department of the Computer Center in Moscow. Since 1971, he has been dean of the Management and Applied Mathematics Faculty of the Physical Technical Institute in Moscow, under the Ministry of Higher and Secondary Specialized Education in Moscow. Created in 1952, this institute trains scientists for academy of science institutes and design bureaus. His works are principally concerned with the dynamics of a solid containing a liquid, asymptotic and numerical methods in mathematical physics, the theory of linear and quasi-linear motions, and optimal control theory. His interests include mechanics, optimal control, imitation modeling, modeling of economic processes, applied mathematics, theory of terarchical systems, ecology, and climate modeling. (See also: GSE 16, p. 419.)

Iurii N. Pavlovskiy (Pavlovskii), Head of the Department of Imitation Systems of the Computing Center of the Russian Academy of Sciences which is part of the Division of Mathematical Modeling of Systems and Decisions. He was elected a Corresponding Member of the Academy in 1993.

Aleksandr A. Petrov, D. PM. S., Head of the Department of Mathematical Modeling of Economic Systems of the computing center was born in 1934 in the Moscow district, received his first degree in Thermodynamics from the Moscow Physical and Technical Institute in 1957, his candidate degree in the Physical and Mathematical Sciences (applied mathematics) from the Computing Center in 1964, and his doctorate from the Computing Center in 1974. He became a professor in 1978, and was elected a corresponding member of the Russian Academy of Sciences in 1991. From 1958 to the present he has risen from a junior researcher, to Head of the Department of Mathematical Modeling of Economic Systems, and he has been an assistant, docent, and professor at the Moscow Physical and Technical Institute from 1960 to the present time. His interests include numerical

methods for calculation of liquid oscillations within cavities of solid bodies, the development of mathematical models and the mathematical theory of processes in economics.

Germogen S. Pospelov, D. Tech. S. Born in 1914 in the Moscow Oblast. Automatic control scientist. Since 1966, corresponding member of the Mechanics and Control Processes Department, and academician of the Information Sciences, Computer Technology Department of the Academy since 1984. He graduated from Moscow Power Engineering Institute in 1940 and served as an engineer in an air regiment during WW II. From 1946 to 1964, he taught at the N. E. Zhukovskii Air Force Engineering Academy where he became a professor in 1957. From 1964 to 1975, he served as Deputy Chairman and Chairman of the section on applied problems of the Presidium of the AN SSSR. Since 1974, he has been Head of the Automated Control Systems Laboratory of the Computer Center in Moscow that was at that time subordinate to the academy's Mathematics Department. After 1984 it was made subordinate to the Information Sciences, Computer Technology, and Automation Department of the academy. His works are in automation of aircraft, the theory of nonlinear automatic systems, and the theory of control of large systems. Recipient of the State Prize, 1972. (GSE 20, pp. 461-462.)

Valentin V. Rumiantsev, D. PM. S., Head of the Mechanics Department of the Computing Center of the Russian Academy of Sciences, was born in 1921 in the Saratov district. Corresponding member of the Information Sciences, Computer Technology, and Automation Department of the Academy in 1970 and an academician of the Russian Academy in 1992. He received his master of science in Mechanics from Saratov State University in 1945, his candidate degree from the Institute of Mechanics of the academy in 1948, his doctorate in Physical and Mathematical Sciences from that same institute in 1953. In 1956, he was made a professor of theoretical mechanics at Moscow State University. From 1948 to 1964, he was a junior researcher, a senior researcher, and a Head of the Department of Analytical Mechanics of the Institute of Mechanics. From 1965 to the present he has served in various capacities from senior researcher, to Head of the laboratory of stability theory and mechanics control systems, to Head of the Department of Mechanics of the Computing Center of the Academy. He has served a professor of the chair of theoretical mechanics on the faculty of Mechanics and Mathematics at Moscow State University. His interests are in analytical mechanics, the theory of stability and stabilization, applied mathematics, mathematical modeling in the technical and natural sciences.

Iurii D. Shmyglevskii, D. PM. S., Head of the Department of Continuum Mechanics, was born in 1926 in Moscow, graduated from the Moscow Aviation Institute in 1949, received his candidate degree in the Physical and Mathematical Sciences from the Steklov Mathematical Institute in 1957 and his doctorate from the Institute of Mechanics of the academy in 1963. He first began work at the Computing Center in 1955. He became a professor in 1972. From 1955 to 1991 he headed the Department of Continuous Mechanics of the Computing Center and since 1991 he has served as Head of the Department of Continuum Mechanics.

Iurii I. Zhuravlev, D. PM. S. He was born in 1935 in Voronezh. Corresponding member of the Information Sciences, Computer Technology, and Automation Department of the Academy in 1984 and an academician of the Russian Academy in 1992. Deputy Director of the Computing Center of the Russian Academy of Sciences in Moscow. He graduated with a master of science in mathematics from Moscow State University in 1957. He received his candidate degree in 1960 in the

Physical and Mathematical Sciences from Moscow State University, and his doctorate in 1965. He became a professor in 1967. From 1960 to 1969, he was a junior researcher, then Head of a department, and Deputy Director of the Institute of Mathematics of the Siberian Branch of the academy. From 1969 to the present time, he has headed a Department of the Computing Center of the academy. Since 1989, he has been a Deputy Director of the Computing Center. From 1966 to 1969, he was a professor at the Novosibirsk State University in Akademgorodok, and from 1970 to 1980 he was a professor at the Moscow Physical and Technical Institute. Since 1980, he has been a professor and Head of a chair at the Moscow Institute of Electronic Engineering. His research interests have included mathematical logic, the theory of controlling systems, image recognition, operation research, and artificial intelligence. Since 1991 he has been Editor-in-Chief of the international journal, *Pattern Recognition and Image Processing*.

(Information provided in a letter dated 31 July 1992 from Iurii Evtushenko, Director of the Computing Center of the Russian Academy of Sciences. Additional corrections provided by Dr. Lev Shurshalov, 17 July 1996)



2. Institute of Information Transmission Problems (IITP) in Moscow.

Located at 19 Ermolovoi st., GSP-4, Moscow, 101447. Tel. 209-42-25; teletype: 411947 TEMPO; fax: 209-05-79; E-mail: vishn@ippi,msk.su) The institute is under the direction of Nikolai A. Kuznetsov, tel. 209-42-25.

(Kuznetsov, Nikolai A., D. Tech. S. Corresponding member of the Machine Building, Mechanics and Control Processes Department of the academy since December 1987; and academician since 1993. Since 1991, he has been director of the Problems of Information Transmission Institute in Moscow which was established in December 1961 by a decision of the Presidium of the AN SSSR "On the reorganization of the laboratory of information transmission systems into the Institute for the Problems of Information transmission." From 1962 to 1990 under Professor M. S. Pinsker, D. PM. S., and since 1991, in the Mathematical Information Theory Laboratory under Professor N. A. Kuznetsov--scientists in the laboratory have worked on the probabilistic, algebraic and combinatorial aspects of information and coding theory, carried out fundamental studies on the potential performance of various systems for information transmission and storage, on the construction of new classes of codes using concatenation approaches, on convolution codes and founding probabilistic decoding algorithms, on the application of algebraic geometry methods in coding theory, and on methods of source coding and the design of data compression algorithms. He is presently director of the Institute of Information Transmission Problems (IITP) in Moscow.)

Retrospect: The institute was established in December 1961 by a decision of the Presidium of the AN SSSR "On the reorganization of the laboratory of information transmission systems into the Institute for the Problems of Information transmission." From 1966 until 1989, Professor V. I. Siforov was the Director succeeding the original Director, A. A. Kharkevich. Since 1989, Professor N. A. Kuznetsov, D. Tech. S., corresponding member of the Machine Building, Mechanics and Control Processes Department of the academy since 1987, has been the Director. In 1991, there were 16 laboratories in the institute with a total staff of

some 400, of whom 250 were professional researchers, another 100 were engineers and some 50 held administrative posts. The institute publishes a periodical "Problemy predate informants." It also publishes monographs and other scientific papers, issues some preprints and proceedings. Its library contains over 50,000 volumes. The institute is subordinate to--or affiliated with--the Department of Information Science, Computer Technology and Automation of the Russian academy.

Important areas of research in the institute include the following areas of scientific concentration:

Information Theory Laboratory: From 1962 to 1990 Scientists under Professor M. S. Pinsker, D. PM. S. originally called the Mathematical Information Theory Laboratory, and since 1991 under Professor N. A. Kuznetsov--have worked on the probabilistic, algebraic and combinatorial aspects of information and coding theory, carried out fundamental studies on the potential performance of various systems for information transmission and storage, on the construction of new classes of codes using concatenation approaches, on convolution codes and founding probabilistic decoding algorithms, on the application of algebraic geometry methods in coding theory, and on methods of source coding and the design of data compression algorithms. Important researchers in this Laboratory include K. Sh. Zigangirov, D. Tech. S.; Iurii I. Sagalovich, D. Tech. S.; Iurii M. Shtarkov, D. Tech. S., and, V. A. Zinoviev, D. PM. S.

Pattern Identification Laboratory: Researchers under V. V. Zyablov, D. Tech. S.-- have developed a theory and method for error-correcting information coding, and are studying the realization complexity and the error-correcting capacity of various classes of codes and of coded modulation constructions matched with the properties of telecommunication channels. They are designing specific code classes matched with error and defects of memory and are providing for the reliable storage and reconstruction of data. They are working on the hardware and software for the implementation of the systems with error-correcting codes.

The Complex Information Systems Laboratory headed by Professor Roland L. Dobrushin, D. PM. S. who, in 1971 headed the Mathematical Study of Large Scale Systems Laboratory, is working on algebraic coding throughout the world furnishing better asymptotic bounds for the information transmission rate. The group is now working on algorithms for coding and decoding, suitable for computer use. Leading scientists in the laboratory include L. A. Bassalygo, D. PM. S.; G. A. Margulis, D. PM. S.; V. V. Prelov, D. PM. S.; S. B. Shlosman, D. PM. S., and I. A. Ovseevich, D. Tech. S.

The information distribution and communications networks area:

Switching Systems and Teletraffic Theory Laboratory: Scientists in the Switching Systems and Teletraffic Theory Laboratory under S. N. Stepanov, D. Tech. S., are developing teletraffic theory and its application in engineering operations and planning related to telecommunications and computer systems. The application fields studied in the laboratory include telephone switching systems and networks, computer communication systems and networks, and integrated services digital networks. Scientists and engineers study the quality of service and the operation of services of the networks and systems, network and system design--design alternatives and their performance evaluation, system and network architecture, routing, congestion and flow control techniques, and dimensioning--the

operation of systems and networks--traffic, availability and performance measurements, data analysis and operational models. Among the basic theories and models are general teletraffic models, queuing theory, reliability theory, statistical methods, simulation methods, software tools to support performance modeling of teletraffic models. Leading scientists in this laboratory include A. D. Kharkevich, D. Tech. S., and V. I. Neiman, D. Tech. S.

Laboratory Number 1: The statistical methods of information procession section was transferred into this laboratory in 1990. Scientists in the statistical methods of information processing section under Professor R. Z. Khasminskii, D. PM. S., and the control theory section under A. V. Pokrovskii, D. PM. S, make up what is called Laboratory No. 1. Scientists in this transfer included M. B. Nevelson, D. Tech. S. and M. V. Burnashev, D. PM. S. The section's researchers study the creation of nonparametric methods of information estimation, the synthesis of efficient robust algorithms for signal estimation with incomplete information, and the study of methods to construct adaptive asymptotically-optimal algorithms for the estimation of unknown functions.

Switching Systems and Teletraffic Theory Laboratory: The statistical method of information processing and control area scientists are concerned with the study of mathematical methods in control theory. the scientists under Dr. Pokrovskii include M. A. Krasnoselskii, D. PM. S. (scientific coordinator) and A. M. Krasnoselskii. The section develops mathematical methods for complex and non-standard system analysis--the estimation of "peaking" effects in control and identification systems described by differential equations, transient modes in discrete systems, and optimization of transient modes in continuous and discrete systems. The analyses also include the application of the convex and concave operators theory; the application of non-smooth Lyapunov functions and the theory of cones; the use of new methods of analysis of bifurcations at infinity; applications to control problems and boundary problems of mathematical physics; the development of new non-local principles of detection of oscillations in control systems; numerical algorithms; non-linear resonance; oscillations in systems with non-standard non-linearity; stability and absolute stability of desynchronized control systems; stochastic desynchronizations and applications; Kolmogorov complexity; vibro-correct differential equations; non-stationary plants models; equations of processes in systems with hysteresis; oscillations in systems with hysteresis, and shuttle algorithms; non-correct problems; projection methods, and, harmonic balance, and asymptotic methods.

The Stochastic System Dynamics Laboratory was established in 1990 under the guidance of Professor R. S. Liptser, D. Tech. S. and includes scientists who were originally at the Institute for Problems of Control. These scientists develop and apply stochastic calculus (martingale theory) that has been used in applied and contract research which includes: an application in queuing theory based on the methods of diffusion approximation with reflection; the development of linear asymptotically optimal filters for complex nonlinear models strongly relying on the stochastic Bogoliubov averaging principle; the development of multistate demographical models using special semi-martingale filtering general relations; the development of linear optimal filters for non-Gaussian Markov processes exploiting canonical semi-martingale decomposition; an approximate evaluation in past depending models of option pricing using the methods of semi-martingale diffusion approximation; application of the theory of random walk in random environment in statistical mechanics problems; the development of adaptive control algorithms for transport ships including nonlinear estimation algorithms, and, the case-study to

investigate the feasibility of unified software development for above mentioned applied projects--possibly in a MATLAB environment. A relatively autonomous direction of research is computer algebra. Despite the fact that this extensive theoretical research has not been accomplished yet the sub-product algebraic computations have already been successfully applied in CAD of the optical l-electronic scanning and panoramic systems control.

The Iconics Laboratory: The theory and methods of picture processing area: Since 1965, the theory and methods of picture processing have been researched by scientists in the Iconics Laboratory where probabilistic models of images for presenting specific pictures as the realizations of the random fields with specific characteristics, reflecting the structural properties of typical real pictures. The methods of coding, improving and analyzing pictures were developed here. The software for processing video information by specialized, especially personal computers, is being developed. It was in this laboratory that the images of the surfaces of planets transmitted by the automatic space stations "Venus-9, 10", "Venus 13, 14", "Venus 15-16" and "Fobos" were processed.

The Digital Optics Laboratory: In 1982, the Digital Optics Laboratory was organized for doing fundamental and applied research in the field of digital processing of optical and similar two-dimensional and multi-dimensional signals (optical l, radio and other pictures, holograms, interferograms.) The laboratory is headed by Professor L. P. Iaroslavskii, D. PM. S. It plans to develop software for a new generation of automated picture processing systems; investigate ways for implementing basic algorithmic instrumentation tools for picture processing in neural-like networks; develop technologies of picture preparation and appropriate expert systems for medical Introscopy; investigate the earth's resources and ecology; do nondestructive testing; create new methods of multi-component pictures description and processing; synthesize optical holographic filters and holograms, and develop digital simulation of the imaging and holographic systems.

The intellectual partner computing systems area:

Scientists in these laboratories are attempting to create intelligent partner systems--practical amplifiers of the researcher's intellectuality by applying previously found solutions in the development of practical systems such as the "working place of the physician", "physician's advisor type" etc. Another "Expert" artificial intelligence system is GEO 1.2 Expert System that has been used in assessing earthquake hazard in the location of atomic power stations, the elaboration of the estimates of the magnitude of expected earthquakes in the Caucasus, in Central Europe and in the Caribbean regions as well as for the prediction of ore and oil deposits and other geological pattern recognition problems.

The Learning Systems of Behavior Process Organization Laboratory, under the direction of Dr. M. N. Weinzweig, the creation of learning systems capable of developing goal-seeking behavior using parallel computers with associative processing has been achieved. Among the leading scientists in this laboratory are Professors V. I. Neiman, D. Tech. S., and V. A. Liubetskii, D. PM. S.

The Digital Information Processing Laboratory: Under Dr. Professor L. I. Titomir, D. Bio. S., scientists are concerned with developing effective methods for the acquisition, mathematical processing, meaningful interpretation, pictorial representation and formal ordering of information from complex objects and phenomena on the basis of modern computation technology. Techniques are being

developed for the estimating and controlling of the states of biological, Technical, sociological and other objects as well as for formatting the knowledge of these objects when their observation conditions are unfavorable, particularly with deficiency of information, redundancy of information, and distortions of information. The methodological foundation of the studies consists in biophysical informatics, mathematical modeling, mathematical statistics, the theory of robots and the theory of expert systems. The laboratory scientists are organized into three groups and one sector in this laboratory. The group on biophysical informatics studies the information structure of the electromagnetic field of biological objects, in particular of the human heart and brain, and develops non invasive techniques for the identification of electro-physiological states of these organs. The group on the algorithmic basis of computer vision--headed by G. G. Veinstein, C. Tech. S.-- designs high speed and low noise methods for processing visual information and the recognition of objects from incomplete data, as well as specialized computational devices. The group on artificial intelligence and applied man-machine systems headed by V. L. Stefaniuk, D. Tech. S., investigates theoretical and practical problems of building self-developing systems based upon local concepts. The sector on the biophysical basis of computer vision headed by D. G. Lebedev, D. Tech. S., investigates the functions of the human visual system using psycho-physical methods, formulates mathematical models for the visual system, and develops a system of technical vision, simulating the human visual system in its model implementation. Computational software complexes for several applied man-machine and expert systems are worked out in this laboratory. Systems for diagnostical analysis of the electromagnetic fields of heart and brain have been devised. A general purpose microprocessor video controller for various research and technological applications has been developed.

The theory of linguistic communication and linguistic processors area:

Laboratory No. 3: Scientists in Laboratory No. 3 are organized into a group of speech informatics who deal with speech modeling and processing--using time-spectral structure of continuous speech signals. They model speech production, separation, articulation, recognition, verification, perception as well as the synthesis of systems. An important part of their research deals with speech processing in noisy environments.

Computer Linguistics Laboratory (No. 15), under the guidance of Professor Iurii D. Apresian, D. Philol. S., a full-fledged multi-functional and multi-language linguistic processor for textual information on the basis of the "Meaning Text" approach has been built. It is designed for the solution of one of the main problems in the field of artificial intelligence. It can be used (1.) in multi-language systems of communication with data bases in a practically unrestricted natural language; (2.) in systems of high quality machine translation from foreign languages into Russian; (3.) in systems of high quality machine translation from Russian into foreign languages--in particular, a system of Russian-to-English machine translation of texts on informatics and programming; (4.) in Russian and foreign languages teacher aiding systems consisting of computerized learner's grammars and dictionaries. One of the outstanding researchers in this laboratory is V. Z. Sannikov, D. Philological S.

Machine Interpretation Methods Laboratory (No. 2): a computer solver based on a high level man-machine dialogue has been developed as a result of the work of Professor V. S. Fain, D. Tech. S.

The Information Transmission and Processing in Living Systems area:

The Information Processing in Sensory Systems Laboratory under Professor A. L. Byzov, D. Bio. S.--corresponding member of the Physiology Department of the academy since 1981--the study of the algorithms and mechanisms of information processing in sensory systems of animals and humans--mainly in visual systems--is conducted. The study of the color vision of many vertebrates and insects is translated into models in which the mechanisms of color and shape perception are analyzed in conjunction with computer vision.

The Visual Information Processing Laboratory (No. 8) under I. N. Pigarev, D. Bio. S., studies the processing of visual information in numerous brain areas of non-sleeping cats and monkeys. Leading scientists in this laboratory include G. I. Rozhkova, O. Iurii Orlov, V. V. Maximov, G. M. Zenkin, and K. V. Golubtsov.

The information transmission and processing in living systems area:

The Information Processing on the Molecular and Cellular Level Laboratory under Professor L. M. Chailakhian investigates the regulation and control principles in the processes of the formation and functioning of living beings--elaborating bio-informatic foundations. Leading scientists in this laboratory include A. V. Chernavskii, D. PM. S.; Iurii I. Arshavskii, D. Bio. S.; V. P. Bozhkova, D. Bio. S.; I. A. Keder-Stepanova, D. Bio. S.; Ie. A. Liberman, D. Bio. S., and A. G. Feldman, D. Bio. S.

The Theoretical and Applied Problems of Consciousness Laboratory under Dr. N. L. Muskhelishvili, researchers are concerned with determining the traits peculiar to communication in society, One of the leading researchers in this group is Dr. Iurii A. Schreider, D. Phil. S.

The motion control in living systems and robotics area:

The Motor Control laboratory under Professor V. S. Gurfinkel, D. Med. S., and corresponding member of the academy, is concerned with information processing in the system of posture and movement control. Motor control represents one of the most complex and important aspects of brain activity. The laboratory conducts research in these main directions: sensory motor mechanisms of postural regulation and spatial orientation; neuron mechanisms of locomotion control; principles of neuron organization of the motor centers of the human spinal cord and the theoretical basis of electro-myography; robotic simulation of the system of motor control. The adaptation of human sensory-motor systems to prolonged exposure in weightlessness in space has been a joint Russian-French effort since 1980 as reflected in the scientific programs "Posture", "Phisalie", and "Viminal" that were conducted during the Soviet-French space flights in 1982 and 1983. Leading scientists in this laboratory include R. S. Person, D. Bio. S. and M. I. Shik, D. Bio. S.

Laboratory No. 12: Studies are continuing on motor control in the nervous system on principles that differ radically from algorithms current in present-day robotics. The address of the institute is 19 Ulitsa Ermolovoi, Moscow GSP-4, 101447, Russia. **(Information taken from: *The Institute In Brief ; The Institute for Problems of Information Transmission. Moscow: The Academy of Sciences, 1991. 32 pp.--in Russian and English.*)**



3. Central Economics Mathematics Institute in Moscow.

Created in 1963, by a merger of the Laboratory of Economic Mathematical Methods of the academy, the Department of Economic Cybernetics of the Computer Center of the academy, and ten subdivisions of the Council for the Study of Productive Forces of GOSPLAN and the Institute for Problems of Integrated Transport Systems of GOSPLAN. The Institute deals with developing a system for the Optimal Functioning of a Social Economy. The institute maintains a graduate program. It is divided into 16 departments distributed among two divisions: (1) the automation of processes controlling the materials and technical supply of the national economy division and (2) the Estonian division. Director Makarov, Valerii L., D. PM. S., since 1985. **This Institute may be defunct now.**



4. M. V. Keldysh Applied Mathematics Institute (IAM) in Moscow.

Located at 4 Misskaia (aya) sq., Moscow, 125047. (Tel. 972-37-14; teletype: 111657 ALKOR; fax: 209-07-37. Directed by Corresponding Member Sergei P Kurdiumov, D. PM. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984.

Kurdiumov, Sergei P., D. PM. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since 1984. He is presently director of the Institute of Applied Mathematics named after M. V. Keldysh (IAM) located in Moscow.

Retrospect: This institute was established in 1966. It was separated from the V. A. Steklov Mathematics institute in 1963 and Keldysh was its first Director. This institute was the first organization in Russia to use computers. Research includes: space vehicle design, cybernetics, computer software, robotics, MHD, and laser fusion. Since 1989, Sergei P. Kurdiumov, has been the Director of the institute. Historically the organization and structure of the institute was as follows: Director Tikhonov, Andrei N., D. PM. S., from 1979 to 1989; Deputy Directors: Popov, Iurii P., D. PM. S., since 1986; Rusanov, Viktor V., D. PM. S., since 1967; and Samarskii, Aleksandr A., D. PM. S., since 1984. (GSE 20, p. 12.)



5. Systems Analysis Institute (ISA) in Moscow (Formerly: All-Union Scientific Research Institute for Systems Research in Moscow.)

Located at 9, 60-letia Oktiabria prosp., U-312, Moscow, 117312. (Tel. 135-51-64; telegrams: Moscow U-312 ANALIT; Teletype: 411237 POISK; fax: 938-22-09, 135-70-86; E-mail: Iis@isi.mian.su) Directed by Stanislav V. Emelianov.

Emelianov, Stanislav V., D. Tech. S. Born in May 1929 in Voronezh. He has been a corresponding member of the academy since 1970, and an academician of the Information Science, Computer Technology, and Automation Department of the AN

SSSR and the RAN since 1984. Member of the Presidium since October 1988. Russian scientist in the field of automated control. He graduated from the Moscow Aviation Institute in 1952. He created a new line of development in the theory of automated control, the theory of systems with variable structure. Such systems are used to control non-stationary units, as in buildings, movement control systems of aircraft, and in the automated landing systems of the supersonic passenger aircraft Tu 144. Systems with variable structure are also used in the metallurgical, chemical and food industries. He received the Lenin Prize in 1972. Since 1976, he has been a deputy director of the Systems Research SRI in Moscow. Since 1977, he has been director of the International Scientific Research Institute of Control Problems in Moscow that was established in 1977. He is presently director of the Institute of System Analysis (ISA). (GSE 9, p.121.)

Retrospect: The institute was founded in 1975 and initially was jointly subordinate to the GKNT and the USSR Academy of Sciences. The institute had some 370 researchers in 1991, which included two academicians and one corresponding member of the Russian Academy of Sciences. In 1991, 34 of the scientists in the institute held doctoral degrees and 139 held candidate degrees. Stanislav V. Emelianov is the present director of the institute.

(Older material)

Historically, the organization and structure of the institute is as follows: **Structure and Scientific Personnel:** Director Dr. Dzhermen M. Gvishiani, D. Phil. S., was Director from 1977 until replaced; Deputy Directors Bikov, Andrei N., since 1981; Lopukhin, Mikhail M., C. Econ. S., since 1977; Usov, Sergei A., C. PM. S., since 1984, and Emelianov, Stanislav V., D. Tech. S., since 1976--now the Director of the institute. The institute is organized in ten departments:

- (1.) **philosophical and sociological problems of systems research**--information problems under D. M. Gvisiani
- (2.) **mathematical methods in informatics and management**-- the informatics dialogue between man and computer under N. E. Emel'ianov
- (3.) **the theory and methods in decision-making**--the development of organization systems under V. S. Rapaport
- (4.) **methods of systems modeling**--the principles of managing fundamental science under D. M. Gvishiani
- (5.) **man-computer methods of analyzing dynamic systems**--the information-analytical system "Academinform" under V. L. Arlazarov
- (6.) **methods of management in organization systems**--the development of a computerized system for processing information for the Presidium of the academy under V. Uskov, and A. B. Petrovskii
- (7.) **methods of analyzing strategies and efficiency of systems development**--long term problems of development of the production infrastructure of the national economy under V. N. Livshits
- (8.) **mathematical economy**--the development and implementation of man-computer technologies for forecasting and management of the functional and territorial development of regions and large cities under Iurii S. Popkov
- (9.) **computing technique and software**--long-term effects of intensive forms of flexible automated production under I. M. Makarov
- (10.) **system ecology**. the development of the methodology for evaluating and forecasting the effects of health protection measures and alternatives in socioeconomic development of public health under V. N. Krut'ko (Krutko).

The institute maintains two special councils for directing and testing advanced graduate and postgraduate students. (See: A Scholars' Guide. . .)



6. Program Systems Institute, Russian Academy of Sciences

1997 update:

Program Systems Institute of the Russian Academy of Sciences, Pereslavl-Zalesskii, Russia

The Program Systems Institute is a research institution making part of the Russian Academy of Sciences. It is situated in the old Russian town of Pereslavl-Zalesskii. The director of the Institute is Prof. Alfred K. Ailamazyan. Since 1993, many researchers of the Program Systems Institute have begun teaching in the newly opened University of Pereslavl.

Organization of the Institute

Research Center for Multiprocessor Systems
Artificial Intelligence Research Center
Control Processes Research Center
System Analysis and Computers in Education Research Center
Research Center for Telecommunications
Research Center for Information Systems and Networking
Integrated Distributed Information Systems Research Laboratory INTERIN
Telecommunication Laboratory BOTIK
Distance Learning Laboratory

(1996 update)

System Analysis and Computers in Education Research Center
tel: +7 (08535) 98246
e-mail: tsirlin@sarc.botik.ru

Structure of the Center

The staff of the Center includes 7 researchers in the fields of optimal control, differential equations and computers in education, among them five people have Ph.D. Here is the list of people. The Center is subdivided into two sections:

Laboratory of system analysis
Computers in education laboratory

Main Area of Research

Optimal control methods for problems of various forms (differential, integral, finite etc.);

Average optimization problems (i.e. problems contained average values of desired variables or functions of these variables);

Extreme possibilities of thermodynamic processes if time period or average intensity is given;

optimal thermodynamic cycles;

Thermodynamic approach to economic systems;

Inventory control if flows properties are nonstationary;

Other Areas of Research

Investigation of differential equations invariants;

Maturity in a kindergarten and a preliminary school with computers;

Telecommunication competitions in programming for students;

Trainer systems software for technological processes executive staff.



7. St. Petersburg Institute of Informatics and Automation (SPIIA RAS) (Formerly: the Institute of Information Science and Automation in St. Petersburg.)

Located at 39 14th line, St. Petersburg, 199178. (Tel. 218-33-11; teletype: 121509 KVAZOR; telegraph: St. Petersburg U-178 SPIIRAN; fax: (812) 217-51-05; E-mail: dan@iias.spb.su) Under the direction of Rafael' M. Usupov. Tel. 218-44-50.

Retrospect: Established in 1978 as the Leningrad Scientific Research Computer Center and renamed in 1985. The institute is a multi-level computer and data processing center complex serving academy institutes in St. Petersburg. It also develops methods of automating scientific research and creates software program packages and systems for research design and control. Director Ponomarev, Valentin M., D. Tech. S., since 1978. Scientific Personnel: Director Ponomarev, Valentin M., D. Tech. S., since '78; Deputy Directors Aleksandrov, Viktor V., since '84; Domoratskii, Aleksandr N., since '83; and, Kornilov, Iurii B., since '79.



8. Microelectronics and Ultrafine Materials Technology Problems Institute in Chernogolovka.

Founded in 1983 from some subdivisions of the Solid State Physics Institute. It is subordinate to the Information Science, Computer Technology and Automation Department of the RAS. Its scientists conduct experiments in extensive purification of substances in electronics. Since 1989, its Director has been Vitalii V. Aristov, D. PM. S.; Deputy Director Aristov, Vitali V., D. PM. S., since '83. (Jointly subordinate to the Physical Chemistry and Technology of Inorganic Materials Department.) (LDA 89-11378.) Listed under the Physical Chemistry and Technology of Inorganic Materials Department.



9. Cybernetics Problems Institute in Moscow.

Founded in 1983. The institute is involved in research on information technology. It has a branch in Pereslavl-Zaleskii. Director Melnikov, Vladimir A., D. Tech. S., since 1983.



10. Microelectronics Institute in Yaroslavl.

Established in 1984. **Jointly subordinate to the Information, Computer Technology, and Automation Department and to the General Physics and Astronomy Department** of the academy. A scientific center for computer technology problems. Since 1989, its Director has been Vladimir N. Repin, C. PM. S.



11. The Institute of Mathematical Problems of Biology in Pushchino.

Jointly subordinate to the Information Science, Computer Technology and Automation Department of the Academy. Founded in 1992 from the Science Research Computing Center that from 1973 was subordinate to the Department of Biochemistry, Biophysics and the Physiologically Active Chemical Substances Department. It provides computer support for the Pushchino Biological Science Research Complex. Director Molchanov, Albert M., D. PM. S., since 1973. (Letter from Dr. Molchanov dated 21 July 1992.) Also listed under the General Biology Department.



12. Institute of Informatics Problems (IPI RAN) in Moscow.

Located at 30/6 Vavilova st., V-334, Moscow, GSP-1, 117900. Tel. 135-98-14; fax: 310-70-50; E-mail: root@ipian.ipian.msk.su) Under the direction of Corresponding Member Igor A. Mizin. (Tel. 135-98-14.)

[**Mizin Igor A.**, D. Tech S. Born in Moscow in 1935. Telecommunications Scientist. He is charge of large-scale data transmission networks, the development of new information technologies, and is project manager for regional and national network information systems in Russia. He has had long experience in education in Russia. From 1952 until 1959 he attended the Moscow Air Force Engineering Academy and graduated in 1959 as a radio-technical engineer; he received a PhD (Candidate of Technical Sciences in Control and Technical Sysetems in 1966 and his Doctorate of Sciences degree in 1972. He became a professor in Control of Technical Systems in 1975. He was elected a Corresponding Member of the Russian Academy of Sciences in 1984. Since 1989, he has headed the Institute of Informatics Problems of the Russian Academy of Sciences (IPIAN), and as its director is responsible for the problems of computerization in Russia, the development of information technologies, the building of new PC architectures and PC-based systems, LANs, large scale data transmission networks, and PC software. He is a member of the Board of the Department of the Informatics Department of the Russian Academy., and heads the Scientific Council of the Academy on Networks. He is the Chief Designer of projects of information-telecommunication regional systems in Russia, and heads major projects in the creation of special systems for both Government and State leadership. From 1959 to 1988, he worked in the Research and

Manufacturing Group "Kibernetika", and was awarded the Lenin and State Prizes in 1981 and 1987. During this period he was engineer/designer/developer of regional computerized information networks and large scale data transmission networks. He was chief of a laboratory, of a department, and deputy director and head of a Scientific Center which dealt with these problems. Since 1973, he has been a professor at the Moscow Institute for Radiotechnics, Electronics and Automation where he heads a Chair of Telecommunication Systems. Since 1992 he has headed the Chair of telecommunication Systems in the Moscow Technical University of Communications and Informatics. He has written and published numerous articles in Russia and abroad, eight monographs, and has registered 15 inventions.]

(Older material)

The Institute for Informatics Problems of the Russian Academy of Sciences (IPIAN) was set up in 1983 by the Soviet government with a mandate to undertake fundamental and applied research in computer hardware and software products of general application. IPIAN belongs to the Department of Informatics, Computer Science and Automation of the Russian Academy of Sciences.

The founder and first director of IPIAN was the prominent scientist and Member of the USSR Academy of Sciences, Boris N. Naumov (1928-1988), famous as designer of the Soviet mini-computer (SM EVM) product line.

Professor Igor A. Mizin currently heads IPIAN.

With the main premises placed in Moscow, IPIAN has branches in Kazan and Orel, as well as a joint department with the Taganrog Institute of Radiotechnology. Currently IPIAN employs approximately 600 people, including 1 Member of the Russian Academy of Sciences, 1 Corresponding Member, 14 Professors and 65 Doctors of Science.

The members of the staff have been awarded 2 Lenin Prizes, 12 National Awards of the USSR, 8 Prizes of the Council of Ministers of the USSR and 3 National Awards of the Ukraine. The Institute takes part in nationwide and international computer shows, and its employees were awarded 45 medals by the National Exhibition of Economic Achievements.

There are four main development areas at IPIAN:

- 1) information technologies for general applications;
- 2) system software and software tools;
- 3) design tools for distributed information and telecommunications systems;
- 4) computer hardware.

IPIAN also has a strong foundation in the fundamental research on informatics problems, e.g.:

representation of data and knowledge;

comprehension of natural language;

integration of diverse representations of information;

expert systems;

software engineering;

modeling and simulating dynamic systems and experimental data model building;

transmission, encoding, compression and protection of information;

theory and practice of data transmission system development.

IPIAN has broad international contacts. It cooperates in science and technology with R&D institutions and business organizations of USA, Germany, Spain, Greece, Great Britain, Hong Kong and some others.

IPIAN itself has the authority to grant post-graduate degrees on "Theory of Informatics", "Computers, Computer Systems and Networks", "Software for Computers, Computer Systems, and Computer Networks". There are post-graduate education facilities at the Institute.

IPIAN is also involved in publishing of technical materials, proceedings, monographs, surveys, etc. Annual issues of IPIAN's proceedings are printed by the Nauka Publishing House in Moscow.



13. Program Systems Institute (IPS) in Pereslav-Zalesskii.

Located at "Botik" Place, Yaroslavl' region, Pereaslavl'-Zalesskii, 152140. (Tel. 2-05-93; teletype: 217746 BOTIK; 412531 BOAT SU; E-mail: ipsl@ias.mak.su) Directed by Alfred K. Ailamazian, tel. 2-05-93.

Retrospect: Formed in 1986. Subordinate to the Information Science, Computer Technology, and Automation Department. The purpose of the institute is to use high speed computers in the economy and in the programming and development of control systems for new technology. Director Ailamazian, Alfred K., D. Tech. S. since 1986.

(1996 Revision)

Program Systems Institute of the Russian Academy of Sciences, Pereslavl-Zalessky (skii) , Russia

The Program Systems Institute is a research institution making part of the Russian Academy of Sciences. It is situated in the old Russian town of Pereslavl-Zalessky (skii) . The director of the Institute is Professor Alfred K. Ailamazian. Since 1993, many researchers of the Program Systems Institute have begun teaching in the newly opened University of Pereslavl.

Organization of the Institute

Research Center for Multiprocessor Systems
Artificial Intelligence Research Center
Control Processes Research Center
System Analysis and Computers in Education Research Center
Research Center for Telecommunications

Research Center for Information Systems and Networking
Integrated Distributed Information Systems Research Laboratory INTERIN
Telecommunication Laboratory BOTIK
Distance Learning Laboratory



14. Projecting Automation Institute (IPA) in Moscow

Located at 19/18, 2nd Brestskaia (aya) st., D-56, Moscow, 123056. Tel. 250-02-62; teletype: 411700 808 ICAD; fax: (095) 258-89-28; (7-095) 292-65-11 (808ICAD); E-mail: icad@inapr.mak.su)

Directed by Oleg M. Belotserkovskii, D. PM. S. Born in 1925. Academician of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1979--and now academician of the Informatics, Computer Equipment and Automation Department of the Academy. Since 1963, he has been rector of the Physical Technical Institute in Moscow subordinate to the Ministry of Higher and Secondary Specialized Education. Since 1978, he has been Deputy Director of the Computer Center in Moscow. The center was established in 1955 and is now under the control of the Information Science, Computer Technology and Automation Department of the academy. This Department was created in 1984. He is currently a Deputy to the Academician Secretary of the Informatics, Computer Equipment and Automation Department of the Academy as well as Director of the Institute of Projecting Automation.



15. Highly Productive Computer Systems Institute (IHPCS) in Moscow

Located at 32a Leninskii ave., Moscow, 117993. Tel. 938-55-38fax938-58-84; E-mail: user@compcp.msk.su)

Directed by Academician Vsevolod S. Burtsev, D. Tech. S. Born in 1927 in Moscow. Russian scientist in control processes and computer technology. Corresponding member since 1976 of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy; academician of the Informatics, Computer Equipment and Automation Department since 1993. He graduated from the Moscow Power Engineering Institute in 1951 and joined the staff of the Institute of Precision Mechanics and Computer Technology. He became a professor at the institute in 1965 and its Director in 1973. From 1973 to July 1987, he was the Director of the S. A. Lebedev Precision Mechanics and Computation Techniques Institute in Moscow that was established in 1948 subordinate to the Academy's General Physics and Astronomy Department for the purpose of developing computer hardware and software, concentrating on high speed computers. His works have included the principles and methods of building digital computers, theoretical and practical problems of automatic control, and the principles of implementing multi-processing systems. He received the State Prize in 1972; the Lenin Prize in 1966. He is currently a member of the Bureau Governing Body of the Informatics, Computer Equipment and Automation Department of the

Academy. He is currently the Director of the Highly Productive Computer Systems Institute in Moscow. (GSE 30, p. 29.)



16. System Investigation Scientific Research Institute (SRISI) in Moscow

Located at 23 Avtozavadskaia (aya) st., Z-280, Moscow, 109280. (Tel. 277-87-31; fax: (+7-095) 274-00-77 IITRAN; E-mail: betelin@systud.msk.su) Directed by Professor Vladimir B. Betelin (Tel. 274-63-33).



17. Technologic Laser Scientific Research Center in Shatura in the Moscow Region

Mail to NICIL, sorting, central post office, Shatura, Moscow region, 140700. (Teletype: 346364 CENTR; fax: 334-02-01; 2-25-32 (Shatura). Directed by Professor Vladimir S. Golubev. (Tel. 334-01-65, 2-59-95).



18. Mathematical Modeling Institute (IMM) in Moscow

Located at 4a, Miusaskaia (aya) sq., Moscow, 125047. (Tel. 250-79-86; fax: 972-07-23).

Directed by Aleksandr A. Samarskii, D. PM. S. Born in February 1919 in Amvrosievka in what is now Donetsk Oblast. Russian mathematician. He has been a corresponding member of the Mathematics Department of the Academy since 1966 and an academician since 1976. He graduated from Moscow State University in 1945 and became a professor there in 1959. His main work has been in mathematical physics and computer mathematics. He has made use of computational algorithms that are successfully applied to the computer solutions of important problems in various fields of science and engineering. In 1967, he was Head of the Laser Fusion Laboratory of the M. V. Keldysh Applied Mathematics Institute in Moscow. Since 1984, he has served as Deputy Director of the M. V. Keldysh Applied Mathematics Institute in Moscow, that is subordinate to the Information Science, Computer Technology and Automation Department of the national academy. State Prize, 1954, and the Lenin Prize, 1962.



19. Analytic Instrument Making Institute (IAIM) in St. Petersburg

Located at 26 Rizskii pr.,m St. Petersburg, 198103; for telegrams: 198103 St. Petersburg SPEKTR; teletype: 122409; fax: 251-70-38.

Directed by Corresponding Member Maksim L. Aleksandrov, D. PM. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since December 1987. Since 1984 he has

been Chief of the Scientific Instrument Building Department, an administrative office under the Presidium of the Academy.



20. The Program Investigation Center (CPI) in Moscow

Located at 18/32 Profsouznaia (aya) st., U-485, Moscow, GSP-7, 117810. (Tel. 333-15-12; for telegrams: Moscow Parsek; teletype: 417400 Parsek; fax: (095) 420-22-75; E-mail: solom@fepes.mak.su) Directed by Corresponding Member Grigorii M. Chernyavskii.

Chernyavskiy, Gregorii M. Corresponding member of the Academy in 1993. He is presently head of the Center of Program Investigation (CPI) in Moscow.



21. Constructor Technological Informatics Institute (ICTI RAS) in Moscow

Mail to User box "IKTI RAS", L-55, Moscow, 103055. (Fax: 258-48-55). Directed by Corresponding Member Iurii M. Solomentsev of the Information Science, Computer Technology, and Automation Department of the Academy since December 1987.

Solomentsev, Iurii M., D. Tech. S. Born in 1939. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since December 1987. He is presently the director of the Institute of Constructor Technological Informatics in Moscow. (ICTI RAS)(LDA 89-11378.)



22. Optic-Neuron Technologies Institute (IONT) in Moscow

Located at 40 Vavilova st., U-333, Moscow, 117333.

Directed by Andrei L. Mikaelian, Born in 1925. Corresponding member of the Information Science, Computer Technology, and Automation Department since 1984; academician in 1993. Together with V. I. Bobrinev he proposed high capacity holographic memory devices in 1966, based on the recording of a large number of holograms on the same surface (or volume) of photographic material.(Tel. 943-41-79).



(1997 listing of institutes) This is the latest listing of institutes under this department.

Institutions and Organizations of the Department

1. Institute of Informatics Problems (IIP RAS)

30/6, Vavilova st., V-334, Moscow, GSP-1, 117900
tel.135-98-14, teletype: 411853 INFO SU, fax: 310-70-50
E-mail: postmaster@ipian15.ipian.msk.su
Directed by Corresponding Member Igor Al. Mizin, tel.135-98-14

2. Institute of Information Transmission Problems (IITP)

19, Ermolovoi st., GSP-4, Moscow, 101447
tel.209-42-25, teletype: 411947 TEMPO, fax: 209-05-79
E-mail: vishn@ippi.msk.su
Directed by Nikolai Al. Kuznetsov, tel.209-42-25

3. Institute of Applied Mathematics named after M. V. Keldysh (IAM)

4, Miusskaia sq., Moscow, 125047
tel.972-37-14, teletype: 111657 ALKOR fax: 972-07-37
Directed by Corresponding Member Sergei P. Kurdumov, tel.258-13-14

4. Computing Center (CC)

40, Vavilova st., V-333, GSP-1, Moscow, 117967
tel.135-24-89, fax: 135-61-59
E-mail: postmaster@sms.ccfs.msk.su
Directed by Corresponding Member Iurii G. Evtushenko, tel.135-24-89

5. Saint-Petersburg Institute of Informatics and Automatization (SPIIA RAS)

39, 14-th line, Saint-Petersburg, 199178
tel.218-33-11, teletype: 121509 KVAZOR telegraph: Saint-Petersburg
V-178 SPIIRAN, fax: (812) 217-51-05
E-mail: dan@ias.spb.su
Directed by Prof. Rafael' M. Usupov, tel.218-44-50

6. Institute of Program Systems (IPS)

"Botik" place, Iaroslavl' region, Pereiaslavl-Zalesskii, 152140
tel.2-05-93, teletype: 217746 BOTIK; 412531 BOAT SU
E-mail: ipsl@node.ias.msk.su
Directed by Alfred K. Ailiamazian, tel.2-05-93

7. Institute of System Analysis (ISA)

9, 60-letia Oktiabria prosp., V-312, Moscow, 117312
tel.135-51-64, for telegrams: Moscow V-312 ANALIT
teletype: 411237 POISK, fax: 938-22-09, 135-70-86
E-mail: lis@isi.mian.su
Directed by Stenislav V. Emelianov, tel.135-54-96

8. Institute of Projecting Automatization (IPA)

19/18, 2-nd Brestskaia st., D-56, Moscow, 123056
tel.250-02-62, teletype: 411700 808 ICAD

fax: (095) 250-89-28; (7-095) 292-65-11(808ICAD)
E-mail: icad@inapr.msk.su
Directed by Oleg M. Belotserkovskii, tel.250-02-62

9. Institute of High-Performance Computer Systems (IHPCS)

32a, Leninskii ave., Moscow, 117334
tel.938-55-38, fax: 938-58-84
E-mail: user@compcp.msk.su
Directed by Academician Vsevolod S. Burtsev, tel.938-17-53

10. Scientific Research Institute of System Investigation (SRISI)

23, Avtozavodskaja st., Z-280, Moscow, 109280
tel.277-87-31, fax: +(7-095) 274-00-77 IITRAN
E-mail: betelin@systud.msk.su
Directed by Prof. Vladimir B. Betelin, tel.274-63-33

11. Scientific Research Centre on Technologic Laser (SRCTL)

NICTL, sorting, central post office, Shatura, Moscow region, 140700
teletype: 346364 CENTR, fax: 334-02-01, 2-25-32(Shatura)
Directed by Prof. Vladimir S. Golubev, tel.334-01-65, 2-59-95

12. Institute of Mathematical Modeling (IMM)

4a, Miusskaia sq., Moscow, 125047
tel.250-79-86, fax: 972-07-23
Directed by Aleksandr An. Samarskii, tel.972-11-59

13. Institute of Analytic Instrument Making (IAIM)

26, Rizskii pr., Saint-Petersburg, 198103
for telegrams: 198103 Saint-Petersburg SPEKTR, teletype: 122409, fax:
251-70-38
Directed by Corresponding Member Maksim L. Aieksandrov, tel.251-28-50

14. Center of Program Investigation (CPI)

84/32, Profsouznaia st., V-485, Moscow, GSP-7, 117810
tel.333-15-12, for telegrams: Moscow Parsek
teletype: 417400 Parsek, fax: (095) 420-22-75
E-mail: solom@fepes.msk.su
Directed by Corresponding Member Grigorii M. Cherniavskii,
tel.333-51-89

15. Institute of Constructor Technological Informatics (ICTI RAS)

user box "IKTI RAN", L-55, Moscow, 103055 , fax: 258-48-55
Directed by Corresponding Member Iurii M. Solomentsev, tel.973-30-66

16. Institute of Optic-Neuron Technologies (IONT)

40, Vavilova st., V-333, Moscow, 117333



National Research in the Information Sciences, Computer Technology, and Automation Sciences: Locations of institutes where computer sciences are studied and used may be seen this the map reproduced here. As it shows, there are 37 computer technology, information sciences, and automated systems research institutes located in 19 cities in the former Soviet Union. Some cities have more than one institute. Moscow has a total of 13. Chernogolovka, Yaroslavl, St. Petersburg, Tbilisi, and Novosibirsk have two. These three areas of science are strongest in those cities with the largest number of physics, mathematics, and astronomy research centers in them.



1960s

1. Computer Center, Tbilisi. 2. Control Systems Institute in Tbilisi. 3. Computer Center in Erevan. 4. V. M. Glushkov Cybernetics Institute in Kiev. 5. Cybernetics Institute in

Tbilisi. 6. Electronics and Computer Technical Institute in Riga. 7. Cybernetics Institute in Tallinn. 8. Mathematics Institute and Computer Center in Kishinev. 9. Technical Cybernetics Institute in Minsk. Founded in 1965. The institute develops theoretical and practical methods for automating the engineering design processes using computer technology. 10. Cybernetics Institute in Baku. 11. Cybernetics Institute and Computer Center in Tashkent. 12. Computer Center in Novosibirsk. 13. Mathematics and Cybernetics Institute in Vilnius.

1970s

14. Management Systems Institute in Tbilisi.



The Chemo-technical and Biological Sciences Section

The Chemo-technical and Biological Sciences section of the Russian Academy of Sciences deals with general and technological chemistry, physical chemistry and the technology of inorganic materials, biochemistry, biophysics, and the chemistry of physiologically active compounds, general biology, and physiology. The five subject-matter departments within the Chemo-technical and Biological Sciences Section of the academy are: the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department), the General Biology Department, the General and Technical Chemistry Department, the Physical Chemistry and Technology of Inorganic Materials Department, and the Physiology Department.

Chemo-technical and Biological Sciences Research Institutes: In 1989, the Chemo-technical and Biological Sciences section of the academy included 38 Scientific Research Institutes within the five subject-matter departments included in the section--mostly located within Moscow. In Russia as a whole, there were a total of 197 research institutes involved in researching in these areas of interest. Chemical and biological research together with astronomy and mathematics were pioneer sciences in Russia.



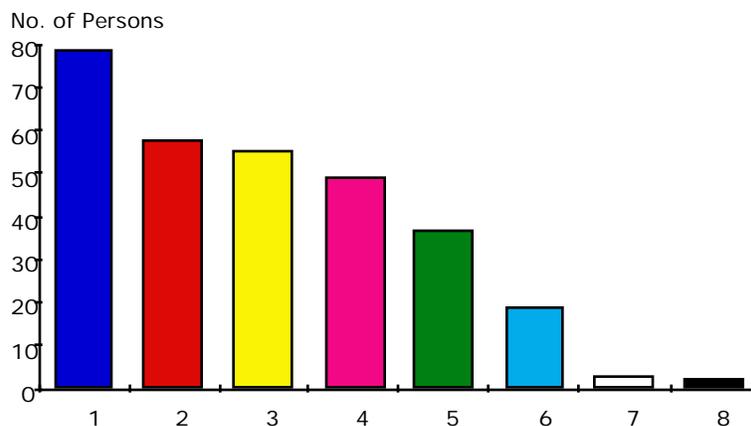
The General and Technical Chemistry Department

**Located at 32a Leninskii ave., Moscow, 117993. Telephone 938-17-39.
Scientist Secretary of the Department is Viktor A. Kabanov**

Retrospect: The General and Technical Chemistry Department of the academy is the third most complex of the academy's subject-matter departments, listing in 1980, some 309 science administrators and researchers in its eight Scientific Research Institutes. These nine SRIs maintained, at that time, some 97 laboratories.

Figure 22

Personnel of the General and Technical
Chemistry Department SRIs in 1980



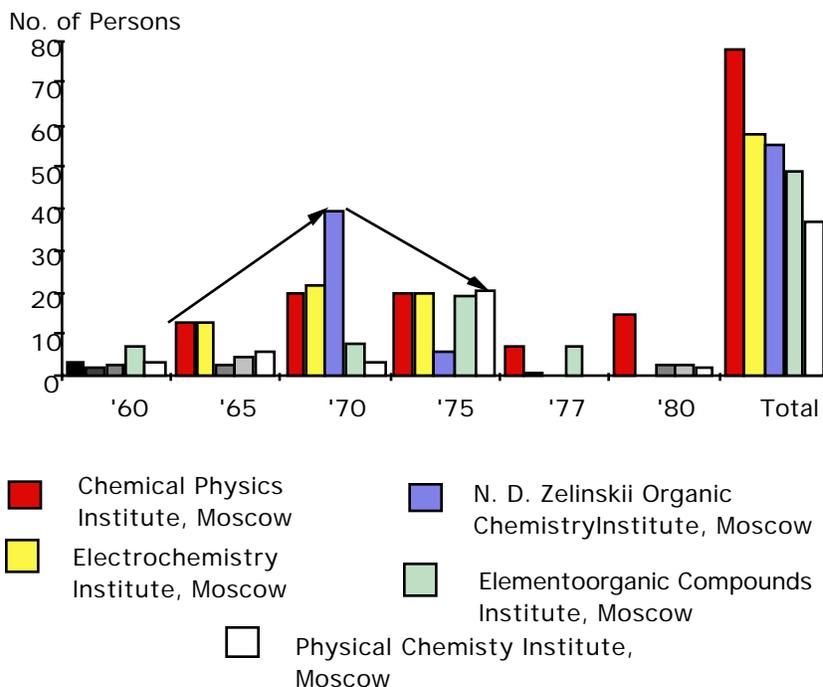
1. Chemical Physics Institute in Moscow. 2. Electrochemistry Institute in Moscow. 3. N. D. Zelinskii Organic Chemistry Institute in Moscow. 4. Elementoorganic Compounds Institute in Moscow. 5. Physical Chemistry Institute in Moscow. 6. High Molecular Compounds Institute in Leningrad. 7. A. V. Topcheev Petrochemical Chemistry Institute in Moscow.

Compiled from: CR 80-13202, pp. 208-211; 236-238; 258-262; 306-308; and 313-318.

Members of the General and Technical Chemistry Department: In 1987, there were 25 academicians and 43 corresponding members of the General and Technical Chemistry Department--a total of 68 scientists. In 1989, academicians numbered 32 and corresponding members, 40. As the brief background sketches below show, members of this department exercised influence beyond the walls of the national academy. Twenty-eight of the members of the department in 1989 were Directors or associate Directors, and another twenty were heads of major research divisions subordinate to the department. Scientific research administrators constituted some two-thirds of the membership of the department. The Presidents of the Kazakh and Lithuanian SSR Academies of Sciences were members of this department; the rector of the M. A. Suslov Rostov State University and the dean of the Chemistry Physics faculty at the Physical Technical Institute in Moscow were members. The chairmen of the Kazan' and the Bashkir Affiliates belonged to the department--as did the Deputy Director of the Noginsk Science Center. One academician was Vice President of the national academy, one was a corresponding member of the Academy of Medical Sciences, one was a board member of the General Assembly of the GKNT, and one was Chairman of the Council for the Use of Polymers in the National Economy--a council subordinate to the GKNT. Three also belonged to the Siberian Department and one to the Urals Department.

Figure 23

Personnel of the Top Five SRIs of the General and Technical Chemistry Department, 1960-1980



Compiled from: CR 80-13202, pp. 208-318.

Academicians--age and schools: Thirteen of the 31 academicians of the General and Technical Chemistry Department of the Russian Academy of Sciences were 80 years or older in 1991--the oldest being 96. Sixteen were born before the Russian Revolution. The average age of the academicians of this department in 1991 was 73.2 years. When those born during or after the revolution is averaged, however, that number drops to 61 years. The educational background of these 31 academicians is interesting. Several of them attended modest institutions because those were all that existed at the time. Several of the rest graduated from schools with high reputations. Seven graduated from Moscow State University; two from Leningrad State University; at least four graduated from the D. I. Mendeleev Moscow Institute of Chemical Engineering; two from the Moscow Physico-Technical Institute; two from the Moscow Higher Technical School; one from the Kazan' Institute of Agriculture and Forestry; one from the Erevan Polytechnic Institute; one from the Military Academy for Protection against Chemical Attack; one from the 2nd Moscow Chemical Engineering Institute; one from the M. V. Lomonosov Institute of Fine Chemical Technology, and one from the Lensovet Leningrad Institute of Technology.

Corresponding Members--age and schools: The birth dates of only three corresponding members of this department are not known. Like the academicians of the department, however, there is a rather sizable number of the corresponding members who are advanced in age--17 of the 18 corresponding members over 70 were born before the Russian Revolution. The average age of all 39 whose birth dates are known was 71.3 in 1991. When those born (18) before 1919 is averaged,

however, their average age is 82.7 years. The average age of those born after 1919 is 60 years. In the case of both the academicians and corresponding members of the General and Technical Chemistry Department, their ranks are made up of highly respected older scientists and younger mature scientists and research administrators and coordinators. Thirty of the 42 corresponding members of the department hold doctors degrees and one holds a candidates degree, although the institution from which these degrees was granted is not known in every case. Some 12 institutions have been identified as universities or institutes that have given degrees to 20 of these 42 corresponding members. Those institutions include: the Moscow State University with eight graduates; Leningrad State University with two, and one each from the D. I. Mendeleev Chemical Technology Institute in Moscow, the Leningrad Mining Institute, the Middle Asian University in Tashkent, the Urals Polytechnic Institute, the S. M. Kazan' Chemical Technology Institute, the University of Kaunas, the University of Voronezh, the University of Kazan', the Leningrad Pedagogical Institute, and the University of Sverdlovsk. As in the case of the educational backgrounds of the academicians of this department, the corresponding members come from a number and variety of institutions in Russia, with a slight preference toward the Moscow and Leningrad universities, though Chemical engineering institutes and specialized research institutes play a larger role in the backgrounds of both categories of members in this Department than in others surveyed thus far.

(1997 update)

Membership of the Department

Bureau of the Department

Scientist-secretary

Academician Viktor Al. Kabanov, tel. 938-17-39

Kabanov, Viktor A. Born in 1934 in Moscow. Russian chemist. Corresponding member of the General and Technical Chemistry Department of the Academy in 1968, and academician since 1987. He graduated from Moscow State University in 1956, a student of V. A. Kargin. Since 1970, he has headed the subdepartment of high molecular-weight compounds at Moscow State University. Since 1972, he has been Head of the Electrochemical Properties of Metals and Semiconductors Laboratory of the Electrochemistry Institute in Moscow that was established in 1958 to study electron and proton transfer in batteries. He discovered and explained the phenomenon of rapid low-temperature polymerization of solid monomers during phase transformations. In 1984, he was the recipient of the S. V. Lebedev Prize in organic chemistry. He is presently Scientist Secretary of the Department of General and Technical Chemistry (DGTC) of the Russian Academy. (GSE 11, p. 318.)

Deputies of the Academician-secretary:

Academician Iakov M. Kolotyirkin, tel. 917-11-57

Kolotyirkin, Iakov M., D. Chem. S. Born in 1910. Academician of the General and Technical Chemistry Department of the Academy since 1970. Since 1957, he has been Director of the L. Ia. Karpov Physical Chemistry Scientific Research Institute of the Ministry of the Chemical Industry located in Moscow. Established in 1918, the institute specializes in electrochemistry, chemical kinetics, corrosion of metals

and alloys, polymerization processes, aerosols research, and radiation chemistry. He is presently a deputy to the Academician Secretary of the Department of General and Technical Chemistry of the Academy.

Academician Nikolai K. Kochetkov, tel. 137-61-48

Kochetkov, Nikolai K., D. Chem. S. Born in 1915 in Moscow. Russian organic chemist. Corresponding member of the General and Technical Chemistry Department of the Academy since 1960, and academician, since 1979. He graduated from the M. V. Lomonosov Institute of Fine Chemical Technology in Moscow in 1939. Since 1966, he has been Director of the N. D. Zelinskii Organic Chemical Institute in Moscow that was established in 1934 to do both theoretical and experimental chemical research. It produces chemical catalysts. Since 1970, he has also been Head of the Carbohydrates Laboratory of the institute. He is a corresponding member of the Medical and Biological Sciences Department of the Academy of Medical Sciences. He is a specialist in organic synthesis, the chemistry of medicinal substances, and the chemistry of natural products. He has developed several new methods of organic synthesis. (GSE 13, p. 355.)

Academician Nikolai A. Plate, tel. 952-59-27

Plate, Nikolai A., D. Chem. S. Born in 1934 in Moscow. Russian chemist. Corresponding member of the General and and Technical Chemistry Department of the Academy since 1974, and academician since 1987. He graduated in 1956 from Moscow State University--a V. A. Kargin student. Since 1956, he has been working at Moscow State University where in 1966, he was appointed head of the Polymer Modification Laboratory. Since 1963, he has been working at the Institute of Petrochemical Synthesis of the AN SSSR. Since 1985, Director of the A. V. Topchiev Petroleum Refining and Petrochemical Synthesis Institute in Moscow. The institute researches the physics of reservoirs, reservoir modeling, enhanced recovery techniques, and petrochemical refining processes It was established in 1959 and is subordinate to the academy's General and Technical Chemistry Department. He formulated the principles of polymer modification through reactions in macromolecular chains. He developed the statistical theory on the reactivity of links in a polymer chain. He is presently director of the Institute of Petro-Chemical Synthesis named after A. V. Topchiev (IPCS) located in Moscow. (GSE 20, p. 206.)

Prof. Sergei A. Arzakov, tel. 938-13-71

Members of the Bureau:

Academician Aleksei N. Baraboshkin, tel. 44-26-21(Ek.)

Baraboshkin, Aleksei N., D. Chem. S. Born in 1925. Corresponding member since 1981, and academician of the General and Technical Chemistry Department of the RAN and of the Urals Department since December of 1987. Since 1978, he has been Director of the Electrochemistry Institute at Ekaterinsburg (Sverdlovsk) that is subordinate to the academy's Urals Department and that conducts research on the corrosion of alloys.

Academician Anatolii L. Buchachenko, tel. 37-32-32

Buchachenko, Anatolii L., D. Chem. S. Born in 1935. Corresponding member of the General and Technical Chemistry Department of the Academy since December 1987; academician since 1993. Since 1966, senior researcher in the Chemistry Physics Institute in Moscow.

Academician Mark Ef. Volpin, tel. 135-61-66

Vol'pin, Mark E., D. Chem. S. Born in 1923. Academician of the General and Technical Chemistry Department of the Academy since December 1987. Since 1967, he has been Deputy Director of the A. N. Nesmeianov Elementoorganic Compounds Institute in Moscow. Corresponding member since 1979. In 1982, he was the recipient of the A. N. Nesmeianov Gold Medal for his work in chemistry. The award was named after the renowned organic chemist.

Academician Vitalii Ios. Goldanskii, tel. 137-35-45

Gol'danskii, Vitalii I., D. PM. S. Born in 1923 in Vitebsk. Russian physical chemist. Corresponding member of the General and Technical Chemistry Department of the Academy since 1962, and academician since 1981. He graduated from Moscow State University in 1944. From 1942 to 1952, he worked at the Institute of Chemical Physics (returning there in 1961) and from 1952 to 1961, he worked at the Institute of Physics of the AN SSSR. Since 1978, he has been Head of the Structure of Matter Division of the Chemical Physics Institute in Moscow. He is also Head of the Nuclear and Radiation Chemistry Laboratory of that institute. Since October of 1988, he has been Director of the Chemical Physics Institute in Moscow. Winner--with others--of the 1980 Lenin Prize for works on "Discovery and Research of Abnormally Rapid Polymerization in the Solid Phase." (1959-1978). He was awarded the D. E. Mendeleev Prize for chemistry in 1966, and in 1977, he received the V. G. Khlopin Prize for inorganic chemistry. He was recognized by the award of the Lenin Prize in 1980. (GSE 7, p. 243.)

Academician Georgii B. Eliakov, tel. 2-25-28(Vladivostok), 938-18-31(M.)

Eliakov, Georgii B., D. Chem S. Born in 1929 in Kostroma. Russian chemist and biochemist. Corresponding member of; t;he; Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy since 1970, and academician since December 1987. He is also a member of the Far Eastern Department and since 1980, he has been deputy chairman of that Department. He graduated from the Department of chemistry at Moscow State University in 1952. From 1955 to 1959, he worked in Moscow. Since 1959, he has been in Vladivostok where in 1962, he organized and headed the Chemical Laboratory of Natural Physiologically Active Compounds of the Far Eastern Department of the Siberian Department of the AN SSSR and the RAN (Russian Academy of Sciences). Since 1964, he has been Director of the Bio-organic Chemistry Institute (Pacific) in Vladivostok that is subordinate to the Far Eastern Department and that studies the exploitation of marine and terrestrial plant and animal sources of natural drugs. He has also been Head of the Steroid and Terpenoid Chemistry Laboratory of that institute. His works are in the synthesis of triterpenoid glycosides, triterpenoids, sterols, and glycosides from the roots of ginseng and other plants of the Araliaceae family. (GSE 9, p. 115.)

Academician Boris P. Zukov, tel. 551-02-72, 551-73-09

Zhukov, Boris P. Born in 1912 in Samarkand. Russian industrial chemist. Corresponding member of the General and Technical Chemistry Department of the Academy in 1968, and academician since 1974. He graduated from the D. I. Mendeleev Moscow Chemical Engineering Institute in 1937. Recipient of the State Prize, 1951, 1967. (GSE 9, p. 647.)

Academician Martin Iz. Kabachnik, tel. 135-63-73

Kabachnik, Martin I., D. Chem S. Born in 1908 in Ekaterinsburg (Sverdlovsk). Russian organic chemist. Academician of the General and Technical Chemistry Department of the Academy since 1958. He graduated from the Second Moscow Chemical Engineering Institute in 1931. Since 1954, he has been the Head of the Phosphor-organic Chemistry Laboratory of the Element-organic Compounds Institute. Since 1977, he has been Deputy Director of the A. N. Nesmeianov Element-organic Compounds Institute in Moscow. His works are in the chemistry of organophosphorous compounds and theoretical problems of organic chemistry. Recipient of the State Prize, 1946. (GSE 11, p. 316.)

Academician Aleksandr Iv. Konovalov, tel. 76-82-54(Kazan)

Academician Oleg M. Nefedov, tel. 938-13-72

Nefedov, Oleg M., D. Chem. S. Born in 1931. Since 1970, Chief of the Carbene Chemistry laboratory of the N. D. Zelenskii Organic Chemistry Institute in Moscow. Corresponding member of the General and Technical Chemistry Department of the Academy since 1979; and, academician since December 1987. Academician secretary to the Department since June 1988 and since that date he has been a member of the Presidium of the Academy and Vice President for the Chemotechnical Sciences Sector. In 1987, he shared the N. D. Zelinskii Prize in organic chemistry with Kh. M. Minachev, and V. V. Kharlamov.

Academician Anatolii Iv. Rusanov, tel. 213-41-20(SPb)

Rusanov, Anatolii I., D. Chem. S. Currently a member of the Bureau Governing Body of the General and Technical Chemistry Department of the Academy in Moscow. Academician of the Department.

Academician Gennadii V. Sakovich, tel. 422-24-90(Biisk)

Sakovich, Gennadii V., D. Chem. S. Born in 1931. Chemist. Specialist in general and technical chemistry. Corresponding member of the General and Technical Chemistry Department of the Academy since 1981, and academician since 1992. He has authored 12 scientific works and co-authored 500 others of which five are monographs. He is also credited with 200 inventions. He graduated from the Tomsk State University in 1963 and from that date until 1966, he was an aspirant, and special assistant for the chair of inorganic chemistry of that university. Thereafter he worked at institutes and branches of the chemical profile that have the highest scientific ranking. He has been a professor since 1971. He has directed the work of three doctoral students and of 25 aspirants for the candidate degree. He is a leading member of the Academic and Natural Sciences Council. He is an honored Scientist of the Soviet Union. He received the State Prize in 1970 and the Lenin prize in 1984. He also holds medals recognizing his work.

Academician Genrih Al. Tolstikov, tel. 35-16-46(N.)

Tolstikov, Genrikh A., D. Chem S. Born in 1933. Academician of the General and Technical Chemistry Department of the Russian Academy of Sciences since 1987, and first deputy chairman of the Urals Department since 1988. Since 1977, he has been Director of the Chemistry Institute in Ufa. Established in 1960, it studies the methods of processing sulfur crudes into fuels. Chairman of the Bashkir Affiliate since 1984.

Academician Aleksandr V. Fokin, tel. 135-61-66, 135-64-89

Fokin, Aleksandr V., Mai. Gen., D. Chem S. Born in 1912 in Kizyl-Arvat in the Turkmen SSR. Russian organic chemist. Corresponding member of the General and Technical Chemistry Department of the Russian Academy of Sciences since 1968, and academician since 1974. Deputy-principal secretary of the Presidium of the academy since 1971. He graduated from the Military Academy for Protection Against Chemical Attack in 1935. Worked as an engineer in the chemical industry until WWII. From 1941 to 1947 he served in the Red Army. In 1947, he worked at the military academy from which he had graduated with an advanced degree in 1939, and he headed a subdepartment there from 1959 to 1970. In 1974, he became Director of a major laboratory at the Institute of Physical Chemistry of the AN SSSR in Moscow. Since 1981, he has served as Director of the A. N. Neimeianov Elementoorganic Compounds Institute in Moscow that is subordinate to the General and Technical Chemistry Department of the academy. It was established in 1955 and does research on hetero-organic compounds, polymers, and the organic chemistry of isotopes. His work has involved synthesizing ethylene oxide and propylene oxide through the direct oxidation of olefins by atmospheric oxygen. He has investigated esters of cyanofomic acid and the production of transformer oils by the chlorination of biphenyl. He is one of the developers of the current method for concentrating and preserving fragments of radioactive isotopes. He has been Academician Secretary since 1985. In 1988, he was appointed an advisor to the national academy's Presidium. (GSE 27, p. 285.)

Academician Aleksandr Ev. Shilov, tel. 524-50-35(Ch.)

Shilov, Aleksandr E., D. Chem. S. Born in 1930. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1981; academician in 1993. Since 1973, he has been Deputy Director of the Chemical Physics Institute in Moscow that was established in 1931 in St. Petersburg and moved to Moscow in 1943. It studies the application of chemical kinetics in various fields. It also maintains a center for combustion research. Since 1978, he has also been Head of the Chemical Kinetics and Catalysis Division of the Chemical Physics Institute in Moscow.

Corresponding Member Kirill M. Dumaev, tel. 229-36-05

Dumaev, Kirill M., D. Chem. S. Born in 1931. Corresponding member of the General and Technical Chemistry Department of the AN SSSR since December 1987. From December 1980 until it ceased existence, he was one of the deputy chairmen of the State Committee for Science and Technology (GKNT). This important committee developed and monitored a unified state policy for science and technology during the Soviet regime. (LDA 89-11378.)

Corresponding Member Salambek N. Khadzhiev, tel. 954-42-75

Khadzhiev, Salambek N. Corresponding member of the Academy in 1993. He is a member of the bureau of the General and Technical Chemistry Department of the Academy.

Corresponding Member Aleksei R. Khokhlov, tel. 939-43-76

Khokhlov, Aleksei R. Corresponding member of the Academy in 1993. He is head of the Sophisticated Instrument Facilities Center of the A. N. Nesmeianov Elementoorganic Compounds Institute which has some 13 divisions. Established in 1994 by the Nesmeianov Institute, it is developing state-of-the-art facilities that meet international standards of quality control. Research at the center includes: Computer Methods, Electron Microscopy, Infrared Spectroscopy, Laser Light, Scattering Spectroscopy, Mass Spectrometry, Molecular Thermophysics, Hydrodynamics, and Electrooptics, NMR Spectroscopy, Optical Spectroscopy, Scanning Tunnelling Microscopy, Small Angle X-ray Scattering and Electronography, Spectropolarimetry, X-ray Microanalysis, and X-ray Structural Studies.

Prof. Sergei M. Baturin, tel. 524-50-87(Ch.)

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Dr. Andrei Iak. Nazarenko, tel. 938-54-18

Dr. Tamara Al. Severina, tel. 938-53-11

Academicians

Bagdasar'ian, (Bagdasarian) Khristofor. S., D. Chem. S. Born in 1908 in Paris. Russian physical chemist. Corresponding member, 1968, and academician since 1981. He graduated from the Moscow Chemical Engineering Institute in 1931. He began work in the Karpov Institute of Physics and Chemistry as a senior scientist and laboratory Head in 1936. His work deals with the kinetics and mechanics of the reaction of free radicals and elementary photochemical and radiation Chemical reactions. He is the author of the monograph "Theory of Radical Polymerization" that has been translated into several languages. (GSE 2, p. 539.)

Bakeev, Nikolai F., D. Chem. S. Born in 1932. Corresponding member of the General and Technical Chemistry Department of the Academy since December 1987; academician in 1993. In 1987, he shared the V. A. Kargin Prize in physical chemistry with A. L. Volinskii and E. A. Sinevich.

Baraboshkin, Aleksei N., D. Chem. S. Born in 1925. Corresponding member since 1981, and academician of the General and Technical Chemistry Department of the Academy and of the Urals Department since December of 1987. He graduated from the Urals Polytechnical Institute in 1952 where he also did all of his graduate work. He joined the institute in 1958. Since 1977, he has been Director of the Electrochemistry Institute in Ekaterinburg (Sverdlovsk). Established in 1958, the main research thrusts of the institute include high-temperature electrochemistry of molten salts and solid electrolytes--investigations of their properties and the

processes in these electrolytes--and the development of new ecologically pure technologies and devices. He has also headed the Electro-crystallization Laboratory of the institute since 1972. He is responsible for new scientific directions involving the electrocrystallization of metals out of salt melts, the theoretical foundation of galvano-plastics and galvanostegy of refractory metals and their alloys, chemistry and kinetics of electrode processes, and methods of obtaining single crystals and epitaxial layers of metals. Currently a member of the Bureau Governing Body of the General and Technical Chemistry Department of the Academy.

Beletskaja (aya), Irina P. Born in 1933 in Leningrad. Russian organic chemist. Corresponding member since 1974. She graduated from Moscow State University in 1955 and joined the staff of the university becoming a professor in 1971. Her works are in the mechanisms of organic reactions. Elevated to academician status in 1993. (GSE 30, pp. 23-4.)

Buchachenko, Anatolii L., D. Chem. S. Born in 1935. Corresponding member of the General and Technical Chemistry Department of the Academy since December 1987; academician since 1993. In 1966, he was a senior researcher in the Chemistry Physics Institute in Moscow. Currently he is a member of the Bureau Governing Body of the General and Technical Chemistry Department of the Academy in Moscow.

Chupakhin, Oleg N., Corresponding member of the General Technical Chemistry Department of the Russian Academy of Sciences and of the Urals department since 1987; academician in 1993.

Deriagin, Boris V., D. Chem. S. Born in 1902. Russian scientist in the field of physical chemistry and molecular physics. Corresponding member of the General and Technical Chemistry Department of the Academy since 1946; academician in 1993. Originally elected to the Chemical Sciences Department. Also a member of the Physical Chemistry and Technology of Inorganic Materials Department. He graduated from Moscow State University in 1922. Since 1935, he has been Director of the Laboratory of Thin Layers (now the division of surface phenomenon) of the Institute of Physical Chemistry of the Russian Academy of Sciences. He developed the teaching on surface forces and their effect on the property of diverse systems. M. V. Lomonosov Prize, 1958. (GSE 8, p. 143.)

Dolgoplosk, Boris A. Born in 1905 in Lukoml, Vitebsk Oblast. Russian chemist--specialist in the chemistry of macromolecular compounds. Corresponding member since 1958, and academician since 1964. He graduated from the Department of Chemistry of Moscow State University in 1931. From 1932 to 1946, he was scientific Director of the Central Scientific Research Laboratory at the SK-1 Plan in Yaroslavl and from 1946 to 1961, he was Director of the All-Union Institute of Synthetic Rubber. From 1961 to 1963, he was Director of a laboratory at the Institute of Chemical Physics. In 1963, he became Director of a laboratory at the Institute of Petrochemical Synthesis. His works are in polymerization processes, and in the synthesis of rubbers. From 1953 to 1962, he studied the stereo specific polymerization of dienes and the synthesis of stereo regular rubbers. Recipient of the State Prize, 1941, 1949; S. V. Lebedev Prize of the Presidium of the AN SSSR, 1947 and 1963. In 1984, he received the Lenin Prize for his work of more than 20 years on the catalytic action of metal organic compounds during polymerization. (GSE 8, p. 345.)

Dubin, Nikolai P., D. Bio. S. Born in 1907 in Kronstadt. Russian geneticist. Corresponding member of the General Biology Department of the Academy since 1946, and academician since 1966. He graduated from Moscow State University in 1928. From 1932, he worked in a number of SRIs of the AN SSSR. He was a member of the Presidium of the Siberian Department from 1958 to 1960. Since 1966, he has been Director of the General Genetics Institute in Moscow, that was founded in 1966 and that studies plant, animal and microorganisms selection and

radiation, space and evolutionary species. His works are in problems of general and evolutionary genetics and the connection between genetics and agriculture. With Serebovskii he discovered the divisibility of the gene and the phenomenon of complementation and with Sidorov, he demonstrated the effect of gene position, elaborated the idea of the integrity and structure and function of the chromosome, and found the presence of lethal and sub lethal mutations in populations. His work includes studies of radiation and evolutionary genetics. Lenin Prize, 1966. He is a member of several foreign academies of sciences and of the British Society of Geneticists. (GSE 8, p. 428.)

Fokin, Aleksandr V., Mai. Gen., D. Chem. S. Born in 1912 in Kizyl-Arvat in the Turkmen SSR. Russian organic chemist. Corresponding member of the General and Technical Chemistry Department of the AN SSSR from 1968, and academician since 1974. Deputy-principal secretary of the Presidium of the academy since 1971. He graduated from the Military Academy for Protection Against Chemical Attack in 1935. Worked as an engineer in the Chemical industry until WWII. From 1941 to 1947 he served in the Red Army. In 1947, he worked at the military academy from which he had graduated with an advanced degree in 1939, and he headed a subdepartment there from 1959 to 1970. In 1974, he became Director of a major laboratory at the Institute of Physical Chemistry of the AN SSSR in Moscow. Since 1981, he has served as Director of the A. N. Neimeianov Elementoorganic Compounds Institute in Moscow that is subordinate to the General and Technical Chemistry Department of the academy. It was established in 1955 and does research on hetero-organic compounds, polymers, and the organic chemistry of isotopes. His work has involved synthesizing ethylene oxide and propylene oxide through the direct oxidation of olefins by atmospheric oxygen. He has investigated esters of cyanofomic acid and the production of transformer oils by the chlorination of biphenyl. He is one of the developers of the current method for concentrating and preserving fragments of radioactive isotopes. He has been Academician Secretary since 1985. In 1988, he was appointed an advisor to the national academy's Presidium. Currently he is a member of the Bureau Governing Body of the General and Technical Chemistry Department of the Academy in Moscow. (GSE 27, p. 285.)

Gol'danskii, (Goldanskii) Vitalii I., D. PM. S. Born in 1923 in Vitebsk. Russian physical chemist. Corresponding member since 1962, and academician since 1981. He graduated from Moscow State University in 1944. From 1942 to 1952, he worked at the Institute of Chemical Physics (returning there in 1961) and from 1952 to 1961, he worked at the Institute of Physics of the AN SSSR. Since 1978, he has been Head of the Structure of Matter Division of the Chemical Physics Institute in Moscow. He is also Head of the Nuclear and Radiation Chemistry Laboratory of that institute. Since October of 1988, he has been Director of the Chemical Physics Institute in Moscow. Winner--with others--of the 1980 Lenin Prize for works on "Discovery and Research of Abnormally Rapid Polymerization in the Solid Phase." (1959-1978). He was awarded the D. E. Mendeleev Prize for chemistry in 1966, and in 1977, he received the V. G. Khlopin Prize for inorganic chemistry. He was recognized by the award of the Lenin Prize in 1980. Currently he is a member of the Bureau Governing Body of the General and Technical Chemistry Department of the Academy in Moscow. (GSE 7, p. 243.)

Gryaznov, Vladimir M., D. Chem. S. Born in 1922. Corresponding member of the General and Technical Chemistry Department of the Academy since 1981; academician in 1993. He is heading up research in the A. V. Topchiev Petrochemical Synthesis Institute in Moscow in highly active and selective membrane catalysts based on palladium alloys in the form of foil or tubes with wall-thicknesses of 50-100 mkm that have been developed for hydrogenation processes or organic compounds. These catalysts are resistant to temperatures up to 800

degrees centigrade and pressure drops up to 120 atm and are effective for membrane purification of hydrogen, too.

Kabachnik, Martin I., D. Chem. S. Born in 1908 in Ekaterinburg (Sverdlovsk). Russian organic chemist. Academician of the General and Technical Chemistry Department of the Academy since 1958. He graduated from the Second Moscow Chemical Engineering Institute in 1931. Since 1954, he has been the Head of the Phosphor-organic Chemistry Laboratory of the Element-organic Compounds Institute. Since 1977, he has been Deputy Director of the A. N. Nesmeianov Element-organic Compounds Institute in Moscow. His works are in the chemistry of organophosphorous compounds and theoretical problems of organic chemistry. He received the State Prize in 1946. He is currently a member of the Bureau Governing Body of the General and Technical Chemistry Department of the Academy in Moscow. (GSE 11, p. 316.)

Kabanov, Viktor A. Born in 1934 in Moscow. Russian chemist. Corresponding member of the General and Technical Chemistry Department of the Academy in 1968, and academician since 1987. He graduated from Moscow State University in 1956, a student of V. A. Kargin. Since 1970, he has headed the subdepartment of high molecular-weight compounds at Moscow State University. Since 1972, he has been Head of the electrochemical Properties of Metals and Semiconductors Laboratory of the Electrochemistry Institute in Moscow that was established in 1958 to study electron and proton transfer in batteries. He discovered and explained the phenomenon of rapid low-temperature polymerization of solid monomers during phase transformations. He is Chairman of the Commission on Radiation of the International Geophysical Committee of the Presidium of the Academy. In 1984, he was the recipient of the S. V. Lebedev Prize in organic chemistry. He is a recipient of the Order of the Red Banner Badge of Honor Medal. He is presently the Academician-Secretary of the General and Technical Chemistry Department in Moscow. (GSE 11, p. 318.)

Kazanskii, Vladimir B., D. Chem. S. Born in 1931 in Moscow. Russian physical chemist. Corresponding member since 1974; academician in 1993. He graduated from Moscow State University in 1954, and from 1957 to 1967, he was on the staff of the Institute of Chemical Physics of the AN SSSR. Since 1967, he became Deputy Director of the N. D. Zelinskii Organic Chemistry Institute in Moscow that was founded in 1934 to conduct theoretical and Chemical research and to produce catalysts. Since 1969, he has also been Head of the Catalyst Synthesis Laboratory of the institute. His works deal with the reactive centers on the surfaces of oxide catalysts, with the role of adsorbed free radicals in catalytic oxidation, and with radiation-catalyzed processes. (GSE 30, p. 533.)

Kochetkov, Nikolai K., D. Chem. S. Born in 1915 in Moscow. Russian organic chemist. Corresponding member, 1960, and academician, since 1979. He graduated from the M. V. Lomonosov Institute of Fine Chemical Technology in Moscow in 1939. Since 1966, he has been Director of the N. D. Zelinskii Organic Chemical Institute in Moscow that was established in 1934 to do both theoretical and experimental Chemical research. It produces Chemical catalysts. Since 1970, he has also been Head of the Carbohydrates Laboratory of the institute. He is a corresponding member of the Medical and Biological Sciences Department of the Academy of Medical Sciences. He is a specialist in organic synthesis, the chemistry of medicinal substances, and the chemistry of natural products. He has developed several new methods of organic synthesis. He is currently a Deputy to the Academician Secretary of the General and Technical Chemistry Department of the Academy. (GSE 13, p. 355.)

Kolotyркин, Iakov M., D. Chem. S. Born in 1910. Academician since 1970. Since 1957, he has been Director of the L. Ia. Karpov Physical Chemistry Scientific Research Institute of the Ministry of the Chemical Industry located in Moscow.

Established in 1918, the institute specializes in electrochemistry, Chemical kinetics, corrosion of metals and alloys, polymerization processes, aerosols research, and radiation chemistry. He is currently a Deputy of the Academician Secretary of the General and Technical Chemistry Department in Moscow.

Kuntsevich, Anatolii D., D. Chem. S., Lt. Gen. Born in 1934. Corresponding member of the General and Technical Chemistry Department of the Academy since 1981. Academician since December 1987.

Minachev, Khabib M., D. Chem. S. Born in 1908 in Novye Bikshiki, now Ial'shiki Raion, Chubash ASSR. Russian organic chemist. Corresponding member of the General and Technical Chemistry Department of the Academy since 1972, and academician since 1979. He graduated from Moscow State University in 1939 and began work at the Organic Chemistry Institute of the Academy. In 1963, he became Head of one of its laboratories. His work is in the catalytic transformations of hydrocarbons. He headed the Rare Earth Oxides Catalysis Laboratory from 1970 and in 1992 is heading a special research group dealing with this area of research. In 1987, he shared the N. D. Zelenskii Prize for organic chemistry with Oleg M. Nefedov, and V. V. Kharlamov. (GSE 16, p. 325.)

Molin, Iurii N., D. Chem. S. Born in 1934. Specialist in Chemical physics. Corresponding member since 1974, and academician of the General and Technical Chemistry Department of the Russian Academy of Sciences and of the Siberian Department since 1981. He graduated from the Moscow Physico-Technical Institute in 1957. He worked at the Chemical Physics Institute of the AN SSSR from 1957 to 1959. In 1959, he joined the staff of the Chemical Kinetics and Combustion Institute of the Siberian Department. In 1967, he headed a laboratory of that institute, and in 1971, he became its Director. The institute was organized in the 1960s to study Chemical physics and electron and nuclear magnetic resonance. Since 1978, he has also acted as Head of the Fast Liquid Phase Reactions Laboratory of the Chemical Kinetics and Combustion Institute. He was named to the Presidium of the Siberian Branch in 1986. He has been a professor, holding the chair in Chemical physics at the Novosibirsk University, since 1977. He was Head editor of The Journal of Structural Chemistry from 1977 to 1988. He is an Honored Scientist of the former Soviet Union. He received the Lenin; Prize in 1986 and holds a number of other awards and medals. (GSE 30, p. 563.)

Nefedov, Oleg M., D. Chem. S. Born in 1931. Vice President of the Academy for the Chemical Sciences. Corresponding member of the General and Technical Chemistry Department of the Academy since 1979; and, academician since 1987. Academician Secretary to the department since June 1988. Since 1970, he has been Head of the Carbene Chemistry and Small-sized Cyclic Compounds Laboratory of the N. D. Zelenskii Organic Chemistry Institute in Moscow. In 1987, he shared the N. D. Zelenskii Prize in organic chemistry with Kh. M. Minachev, and V. V. Kharlamov.

Petrianov-Sokolov, Igor V., D. Chem. S. Born in 1907 in Gorkiy Oblast. Russian physical chemist. Corresponding member of the General and Technical Chemistry Department of the Academy since 1953, and academician since 1966. In 1930, he graduated from Moscow State University and began working at the L. Ia. Karpov Physical Chemistry Institute, becoming a division Head there in 1938. Since 1947, he has been a professor at the D. I. Mendeleev Moscow Institute of Chemical Engineering. He has concentrated his work in studying the laws of filtration of aerosols. He invented new types of filtering materials. He has been editor-in-Chief of *Khimiia i zhizn* (Chemistry and Life) since 1964. Recipient of the State Prize, 1941; Lenin Prize, 1966. (GSE 19, pp. 494-5.)

Plate, Nikolai A., D. Chem. S. Born in 1934 in Moscow. Russian chemist. Corresponding member of the General and Technical Chemistry Department of the Academy since 1974, and academician since 1987. He graduated in 1956 from

Moscow State University--a V. A. Kargin student. Since 1956, he has been working at Moscow State University where in 1966, he was appointed Head of the Polymer Modification Laboratory. Since 1963, he has been working at the Institute of Petrochemical Synthesis of the Academy. Since 1985, he has been Director of the A. V. Topchiev Petroleum Refining and Petrochemical Synthesis Institute in Moscow. The institute is comprised of 27 scientific laboratories with a total staff of 640 of whom 370 are scientific Personnel, which includes four members of the Russian Academy of Sciences, 40 professors, doctors of sciences and 190 research scientists with Ph.D. degrees. The institute maintains a design bureau and workshop which has 170 persons. The institute also maintains a branch in the city of Saratov with 50 workers. The institute researches the physics of reservoirs, reservoir modeling, enhanced recovery techniques, and petrochemical refining processes. It was established in 1959 and is subordinate to the Academy's General and Technical Chemistry Department. He formulated the principles of polymer modification through reactions in macromolecular chains. He developed the statistical theory on the reactivity of links in a polymer chain. He is currently a Deputy of the Academician Secretary of the General and Technical Chemistry Department of the Academy. (GSE 20, p. 206.)

Reutov, Oleg A., D. Chem. S. Born in 1920 in Makeeva, Donetsk Oblast. Russian chemist. Corresponding member of the General and Technical Chemistry Department of the Academy since 1958, and academician since 1964. He graduated from Moscow State University in 1941. In 1945, he was a researcher in the university's Chemistry Department. In 1957, he was Head of a university laboratory dealing with theoretical problems in organic chemistry, and he was also Head of a laboratory of isotope application in organic chemistry at the Institute of Heteroorganic Compounds of AN SSSR. In 1969, he became the United Nations USSR expert on Chemical and biological warfare. In 1984, he was awarded the Lenin Prize for his work in the discovery of new methods for the synthesis and creation of numerous compounds. (GSE 22, pp. 145-6.)

Rusanov, Anatolii I., D. Chem. S. Currently a member of the Bureau Governing Body of the General and Technical Chemistry Department of the Academy in Moscow. Academician of the Department.

Sakovich, Gennadii V., D. Chem. S. Born in 1931. Chemist. Specialist in General and Technical chemistry. Corresponding member of the General and Technical Chemistry Department of the Academy since 1981, and academician since 1992. He has authored 12 scientific works and co-authored 500 others of which five are monographs. He is also credited with 200 inventions. He graduated from the Tomsk State University in 1963 and from that date until 1966, he was an aspirant, and special assistant for the chair of inorganic chemistry of that university. Thereafter he worked at institutes and branches of the chemical profile that have the highest scientific ranking. He has been a professor since 1971. He has directed the work of three doctoral students and of 25 aspirants for the candidate degree. He is a leading member of the Academic and Natural Sciences Council. He is an Honored Scientist of the Soviet Union. He received the State Prize in 1970 and the Lenin prize in 1984. He also holds medals recognizing his work. Currently a member of the Bureau Governing Body of the General and Technical Chemistry Department of the Academy in Moscow.

Shilov, Aleksandr E., D. Chem. S. Born in 1930. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1981; academician in 1993. Since 1973, he has been Deputy Director of the Chemical Physics Institute in Moscow that was established in 1931 in St. Petersburg and moved to Moscow in 1943. It studies the application of chemical kinetics in various fields. It also maintains a center for combustion research. Since 1978, he has also been Head of the Chemical Kinetics and Catalysis

Division of the Chemical Physics Institute in Moscow. Currently he is a member of the Bureau Governing Body of the General and Technical Chemistry Department of the Academy in Moscow.

Shpak, Vladimir S., D. Tech. S. Born in 1909 in Pskov. Russian chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy in 1968, and academician since 1981. He graduated from the Lensovet Leningrad Institute of Technology in 1931 where he worked from 1932 to 1975, becoming a professor in 1955. From 1948, he also worked at the Institute of Applied Chemistry of which he was the Director from 1952 to 1977. His work deals largely with commercial chemistry developments. (GSE 29, p. 627.)

Tartakovskii, Vladimir A., D. Chem. S. Born in 1936. Corresponding member of the General and Technical Chemistry Department of the Academy since 1987; academician in 1993. In 1958, he was listed as a senior researcher in the N. D. Zelinskii Organic Chemistry Institute in Moscow. In 1988, he became its Director. Established in 1934, the institute is one of the largest centers of fundamental research in the field of organic chemistry, catalysis and the chemistry of natural and biologically active compounds in Russia. In 1992, it was organized into 36 laboratories and seven research groups. general lines of research by institute scientists includes physical and synthetic organic chemistry, organic chemistry of natural compounds, catalytic organic synthesis and physico-chemical grounds of catalysis. He also heads research in the Nitro-compounds Laboratory of the institute. (LDA 11378.)

Tolstikov, Genrikh A., D. Chem. S. Born in 1933. Academician of the General and Technical Chemistry Department of the AN SSSR from 1987, and first Deputy Chairman of the Urals Department since 1988. Since 1977, he has been Director of the Chemistry Institute in Ufa. Established in 1960, it studies the methods of processing sulfur crudes into fuels. Chairman of the Bashkir Affiliate since 1984. Currently he is a member of the Bureau Governing Body of the General and Technical Chemistry Department of the Academy in Moscow.

Vol'pin, (Volpin) Mark E., D. Chem. S. Born in 1923. Corresponding member of the General and Technical Chemistry Department of the Academy since 1979; academician since 1987. Since 1967, he has been Deputy Director of the A. N. Nesmeianov Elementoorganic Compounds Institute in Moscow, which was established in 1955 to research hetero-organic compounds, elemento-organic, metalo-organic and polymer chemistry and the chemistry of viscose-molecular formation. In 1988, he was named Director of the Institute. In 1982, he was the recipient of the A. N. Nesmeianov Gold Medal for his work in chemistry. The award was named after the renowned organic chemist. Currently a member of the Bureau Governing Body of the General and Technical Chemistry Department of the Academy in Moscow.

Voronkov, Mikhail G., D. Chem. S. Born in 1921 in Orel. Organic chemist. Corresponding member of the General and Technical Chemistry Department of the Russian Academy of Sciences and of the Siberian Department since 1970, and academician since 1989. He graduated from the University of Sverdlovsk in 1941. From 1944 to 1945 he worked at the Leningrad State University; from 1954 to 1961, at the Institute of Silicate Chemistry of the AN SSSR, and from 1961 to 1970, at the Institute of Organic Synthesis of the Latvian Academy of Sciences. Since 1970, he has been Director of the Organic Chemistry Institute at Irkutsk that was established in the 1950s to study polymer chemistry, synthetic fibers and silicon organic compounds. It is subordinate to the academy's Siberian Department. His work is in the areas of organo-silicate compounds and organic sulfur compounds. From 1973 to 1983, he headed the Eastern Affiliate of the Siberian Department. He is General Director of "Chemistry." He is a professor at the Irkutsk

Polytechnical Institute. He has guided the work of 16 doctorate students and 90 aspirants for the candidate degree. He heads the Scientific Council on the problems of "Chemistry and Technology of Organic Compounds." He has written 50 scientific works that included two significant monographs, and has co-authored another 1000 among which there are 20 major monographs. He is credited with some 400 inventions and holds 300 patents. He received an honorary doctorate from the Gdansk Polytechnical Institute in 1975. He received the State Prize in 1981. He was named an Honored Scientist in 1983, and holds several medals honoring his scientific accomplishments. (GSE 5, p. 600.)

Zhukov, Boris P. Born in 1912 in Samarkand. Russian industrial chemist. Corresponding member in 1968, and academician since 1974. He graduated from the D. I. Mendeleev Moscow Chemical Engineering Institute in 1937. Recipient of the State Prize, 1951, 1967. He is also holder of several orders and medals recognizing his work. He is currently a member of the Bureau Governing Body of the General and Technical Chemistry Department of the Academy in Moscow. (GSE 9, p. 647.)

Zolotov, Iurii A., D. Chem. S. Born in 1932 in Vysokovsk, Klinskii Raion, Moscow Oblast. Russian analytical chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1970; academician in 1993. He graduated from Moscow State University in 1955 and began work at the Institute of Geochemistry and Analytical Chemistry of the AN SSSR. Since 1975, he has been Head of the Analytical Chemistry Division, and Head of the Solvent Extraction Laboratory--both of the V. I. Vernadskii Geochemistry and Analytical Chemistry Institute in Moscow. Since 1975, Zolotov has been Deputy Director of this institute. His works have dealt with the extraction of inorganic compounds. (GSE 9, p. 672.)

Corresponding Members

Abakumov, Gleb A., D. Chem. S. Corresponding member of the General and Technical Chemistry Department of the Academy since 1987. Since 1988, he has been Director of the new Institute of Metallo-organic Chemistry which was taken from a department of the General and Technical Chemistry Department of the Academy.

Alfimov, Mikhail V., D. PM. S. Born in 1937. Corresponding member since 1981. Since 1965, a senior researcher of unknown affiliation at the Chemistry Physics Institute in Moscow that was established in 1931 to do combustion research and to study chemical kinetics.

Bokiy, Georgii B. Born in 1909 in St. Petersburg. Russian crystallographer and crystal chemist. Corresponding member since 1958. From 1959 to 1965, he was a member of the Presidium of the Siberian Department of the AN SSSR. Principal membership in the Physical Chemistry and Technology of Inorganic Materials Department. Son of B. I. Bokii. He is also a member of the Siberian Department. He graduated from the Leningrad Mining Institute in 1930. From 1930 to 1958, he worked in the Institute of General and Inorganic Chemistry of the AN SSSR. He taught at Moscow State University from 1939 to 1963, becoming a professor there in 1944. Since 1963, he has worked at the Institute of Radio Electronics of the Russian Academy of Sciences. His works are in the crystal chemistry of complex compounds. (GSE 3, p. 408.)

Bubnov, Iurii N. Corresponding member of the General and Technical Chemistry Department of the Academy in 1993. He heads the Organoboron Compounds Laboratory of the N. D. Zelinskii Organic Chemistry Institute in Moscow.

Diumaev, Kirill M., D. Chem. S. Born in 1931. Corresponding member of the General and Technical Chemistry Department of the AN SSSR from December 1987. Since December 1980, he has been one of the Deputy chairmen of the State

Committee for Science and Technology (GKNT). This important committee develops and monitors a unified state policy for science and technology. Currently he is a member of the Bureau Governing Body of the General and Technical Chemistry Department of the Academy in Moscow. (LDA 89-11378.)

Dubovitskii, Fedor I., D. Chem. S. Born in 1907. Since 1975, he has served as a Deputy Chairman of the Noginsk Scientific Center that is subordinate to the Chemical Technical and Biological Sciences Section of the Russian Academy of Sciences. Corresponding member of the General and Technical Chemistry Department of the AN SSSR since 1979. Since 1962, he has been Deputy Director of the Chemical Physics Institute in Moscow that is subordinate to the General and Technical Chemistry Department of the academy. The institute does combustion research and studies chemical kinetics in various fields. In 1975, he was named Deputy Chairman of the Noginsk Scientific Center. Since 1978, he has been Head of the Combustion Division of the Chemical Physics Institute in Moscow that was established in 1931 to do combustion research and study the chemical kinetics in various fields.

Gidasov, Boris V., D. Chem. S. Born in 1933. Corresponding member of the General and Technical Chemistry Department of the Academy since 1981.

Kazarinov, Vladimir E., D. Chem. S. Born in 1933. Corresponding member of the General and Technical Chemistry Department of the Academy in 1993. Since 1977, he has been Director of the Electrochemistry Institute in Moscow which was established in 1958. He also heads the Double Layer and Electro-catalysis Department of the institute where studies are conducted on ion metal/gas and metal/solution interfaces with the combined use of electrochemical I, radio tracer and optical methods and surface spectroscopy; methods for investigating surface micro inhomogeneities in electrochemical systems are devised. Photoelectron emissions at the metal/solution interface are observed. Work is conducted on the direct conversion of the ionizing radiation energy in the semiconductor/solution system into chemical and electrical energies. The institute is organized into 15 laboratories, a scientific library, a mechanical shop and a glass-blowing shop. The staff of the institute numbered some 368 persons in 1991 of whom 248 were scientific workers which included two corresponding members of the RAS and of whom 33 held doctoral degrees and 119 held candidate degrees. The institute holds diplomas for four discoveries, and from 1976 to 1987 received some 285 certificates for inventions that were introduced into industrial practice by some 100 Russian institutions.

Khadzhiev, Salambek N. Corresponding member of the General and Technical Chemistry Department of the Russian Academy in 1993. He is currently a member of the Bureau Governing Body of the Department of General and Technical Chemistry in Moscow.

Khokhlov, Aleksei R. Corresponding member of the General and Technical Chemistry Department of the Academy in 1993. Currently he is a member of the Bureau Governing Body of the Department in Moscow.

Kirpichnikov, Petr A. Born in 1913 in Sanchursk Raion, Kirov Oblast. Russian organic chemist. Corresponding member since 1976. He graduated from the S. M. Kirov Kazan' Chemical Technology Institute in 1936 and joined its staff at once. In 1960, he became Head of its subdepartment of synthetic rubber technology, and in 1964, he became rector of the institute itself. Since 1982, Chairman of the Kazan' Affiliate of the Siberian Department of the National Academy of Sciences. His works are in the stabilization of polymers and the synthesis and modification of oligomers and elastomers. (GSE 30, p. 534.)

Koton, Mikhail M., D. Chem. S. Born in 1908 in Petrodvorets, Leningrad Oblast. Russian organic chemist. Corresponding member of the General and Technical Chemistry Department of the Academy since 1960. Originally elected to the

Chemical Sciences department. He graduated from Leningrad State University in 1935. In 1952, he became Head of a laboratory at the Leningrad Institute of Macromolecular Compounds of the Academy, and in 1960, he was made Director of the High Molecular Compounds Institute in St. Petersburg which was established in 1948 to conduct research on synthetic fibers and macromolecular biology. Since 1972, he has also been Chief of the Polymer Synthesis Laboratory of that Institute. His works are in organic and organo-metallic chemistry and in macromolecular compounds. He presently heads the area of the synthesis and investigation of thermally stable polymers consisting of three laboratories working on films and fibers of high tensile strength, high temperature glues, and gas separating membranes. The Synthesis and Investigations of Thermally Stable Polymers Area of research in the institute is under Koton's charge. There are three laboratories conducting work in the broad area. (GSE 13, p. 450.)

Krivosheev, Nikolai A. Born in 1930. Corresponding member of the General and Technical Chemistry Department of the Academy since 1979.

Mastriukova, Tatiana A., D. Chem. S. Born in 1925. Corresponding member of the General and Technical Chemistry Department of the Academy since 1987. (LDA 89-11378.)

Matulis, Iuozavich Iurii, D. Chem. S. Born in 1899 in Tatkony, Lithuania. Soviet physical chemist. Corresponding member of the General and Technical Chemistry Department of the AN SSSR from 1946, and academician of the Chemical, Technical, and Biological Sciences Department of the Lithuanian academy since 1941. He graduated from the University of Kaunas in 1929. From 1946 to 1984, he served as President of the Lithuanian SSR Academy of Sciences. Since 1956, he has been Director of the Chemistry and Chemical Technology Institute in Vilnius. Originally elected to the Chemical Sciences Department. His works are in photo chemistry, electrochemistry, the theory of electroplating, and the formulation of scientific principles involved in the manufacture of coating with predetermined properties. (GSE 15, p. 599.)

Ovchinnikov, Aleksandr A., D. PM. S. Born in 1938. Corresponding member of the General and Technical Chemistry Department of the Academy since 1981.

Parmon, Valentin N., D. Chem. S. Born in 1948. Chemist. Specialist in general chemistry kinetics and catalysis photo-and radiation chemistry and chemistry radio spectroscopy. He has been a corresponding member since 1990. He is the author of seven scientific works, co-author of 175 publications of which nine are inventions or discoveries and three are monographs. He is Deputy Director of the Catalysis Institute of the Siberian Department in Akademgorodok-Novosibirsk. As a professor he has guided the work of ten aspirants for the candidate degree.

Pudovik, Arkadii N., D. Chem. S. Born in 1916 in Tsivilsk, Chuvash ASSR. Russian chemist. Corresponding member since 1964. He graduated from the University of Kazan' in 1938 and finished his graduate study there in 1941. He worked at a plant in Kazan' from 1941 to 1945, when he began work on the university staff. In 1946, he also began working at the A. E. Arbuzov Institute of Organic and Physical Chemistry of the Kazan' branch of the AN SSSR, and in 1971, he became Director of the institute in Kazan' that was established in 1965, and whose research concentrates on the composition and reaction potential of organic compounds, electrochemistry, and petroleum and gas chemistry. His works are mainly in the chemistry of organo-phosphates. (GSE 21, p. 336.)

Sagdeev, Renad Z., D. Chem. S. Born in 1941. Physical Chemist. One of the developers of new ideas in physical kinetics. Corresponding member of the General and Technical Chemistry Department since December 1987--reconfirmed in 1992. He has authored and co-authored 250 scientific works of which two were discoveries and two were extensive monographs: "The Magnetic and Spin Effect of Chemical Reactions" (1978) and "Spin Polarization and Magnetic Effect in Radical

Reactions" (1984.) He graduated from the Novosibirsk State University in 1965, and began working at the Chemical Kinetics and Combustion Institute of the Siberian Department as a scientific researcher, both junior and senior, and Scientific Secretary, and Head of the Laboratory of Magnetic Phenomena, and in 1983, he was named Deputy Director of that institute. In 1979 he was elected a member of the Natural Sciences Photochemical Society. He received the Lenin Prize in 1986. In 1989, the Presidium of the Siberian Department established the Siberian Topography Center that is under the direction of Dr. Sagdeev who is also Director of the Institute of Chemical Kinetics and Combustion.

Shorygin, Petr P., D. Chem. S. Born in 1911. Corresponding member since 1981. Since 1970, he has been the Director of the Optics Laboratory of the N. D. Zelinskii Organic Chemistry Institute in Moscow that was established in 1934 to do theoretical and experimental research in chemistry and to produce catalysts for the chemical industry. Winner--with others--of the 1979 State Prize in Science and Technology for works on the spectroscopic resonance combined diffusion of light and its application in chemistry.

Tal'roze, Viktor L., D. Chem. S. Born in 1922 in Tula. Russian physical chemist. Corresponding member since 1968. He graduated from Moscow State University in 1947 and began work at the Institute of Chemical Physics of the AN SSSSR immediately. Since 1954, he also worked at the Moscow Physico-Technical Institute where, since 1961, he has headed the subdepartment of chemical physics. Since 1969, he has been Deputy Director of the Chemical Physics Institute in Moscow, and since 1978, Head of the Physical Methods Division of the Chemical Physics Institute in Moscow. Since 1977, he has occupied the post of dean of the Molecular and Chemical Physics Faculty at the Physical Technical Institute in Moscow. In 1984, he was awarded--with others-- the Lenin Prize for his work on using lasers in chemical chain reactions. His works deal with the kinetics of chemical reactions occurring under irradiation and with the application of physical methods to chemistry, especially in the spectroscopic study of the reactions of many free radicals and ions. (GSE 25, p. 344.)

Trofimov, Boris A., D. Chem. S. Born in 1938. Chemist. Specialist in General chemistry and in hetero-atomic substances--such as acetylene. Corresponding member since 1990. Deputy Director of the Organic Chemistry Institute in Irkutsk. He has authored and co-authored some 397 scientific works. Four of his six monographs are considered to be important contributions. He has directed the postgraduate work of four doctoral students and of 45 aspirants for the candidate degree. He was on the Scientific Council on chemistry and technology of organic substances for the GKNT; on the coordinating committee of the Radio Industry Ministry of the SSSR; on the Scientific Council on the chemical sciences for the Siberian Department; an inspector on the Committee for Dissertations for the candidate of science degree for the Irkutsk Institute of Organic Chemistry, and on the editorial boards of several major journals: "Sulfur Reports," "Sulfur Letters," and the Organic Chemistry Journal of the Russian Academy of Sciences.

Tsvetkov, Iurii D., D. Chem. S. Born in 1933. Chemical physicist. Corresponding member since 1984--and reconfirmed in 1992. He graduated from the Moscow Physico-Technical Institute in 1957 and worked at the Institute of Chemical Physics from 1957 to 1959. In 1959, he joined the Institute of Chemical Kinetics and Combustion Institute of the Siberian Department, as a junior researcher, a Scientific Secretary, a senior researcher, and Head of a laboratory studying the chemistry and physics of free radicals (1968), and Deputy Director of that institute from 1968 to 1971. In 1983 he was Head Scientific Secretary of the Siberian Department of the AN SSSR, and in 1992, he was reconfirmed as the Head Scientific Secretary of the Siberian Department of the Russian Academy of Sciences. He has been on the Presidium of the Siberian Department since 1985. Since 1973, he has been a

professor at the Novosibirsk State University holding a chair in physical chemistry, and as a professor has guided the research of three doctoral and of 15 aspirants for the candidate degree. He received the State Prize in 1988.

Tsvetkov, Iurii V., D. Chem. S. Corresponding member of the General and Technical Chemistry Department of the Academy in 1993. At the Macromolecular Compounds Institute in St. Petersburg the Physics of Macromolecules and Intermolecular Interactions area is under Professor Tsvetkov and includes four laboratories whose research interests are: the molecular dynamics and optics of polymers, polymer spectroscopy, luminescent polymers, and the theory and computer simulation of polymer systems. This research area has developed analytical procedures involving IR, NMR, X-ray, and luminescent spectroscopy, thermo-gravimetry, sedimentation, diffusion, and birefringence. Methods of synthesis of polymers with different chemical and topological structures have been developed in these laboratories.

Yunusov, Sabir Iurii, D. Chem. S. Born in 1909 in Tashkent. Russian organic chemist. Corresponding member since 1958. He graduated from the Middle Asian University in Tashkent in 1935, and from 1935 to 1941, he was on the staff of the All-Union SRI of Pharmaceutical Chemistry of the Uzbek Academy of Sciences, and in 1956 he became that institute's Director. From 1952 to 1962, he was Vice President of the Uzbek academy. Since 1976, he has been Director of the Botanical Chemistry Institute in Tashkent under the Uzbek Academy of Sciences. Originally elected to the Chemical Sciences Department. His works are in the chemistry of alkaloids. (GSE 30, p. 449.)

Zakharov, Iurii A., D. Chem. S. Born in 1938. Chemist. Specialist in the chemistry of solid bodies, and research into the physical and physico-chemical structure of inorganic crystals. For 30 years he has worked with a large group (about 200 workers of whom five hold the doctorate and 40 the candidate degree) studying bipolymers and the fundamentals of the chemistry of solid bodies. Corresponding member since 1992. He has been rector of the Kemerovsk State University since 1978. He has directed the work of some 26 aspirants for the candidate degree and supervised the writing of three doctoral dissertations. He is on three major scientific councils of the Russian Academy of Sciences and of the Siberian Department. He supervises the scientific work of the Solid Bodies Spectroscopy Laboratory of the Kemerovsk State University.

Zhdanov, Iurii A., D. Chem. S. Born in 1919 in Tver (Kalinin). Russian chemist. Corresponding member of the General and Technical Chemistry Department of the AN SSSR from 1970. He graduated from Moscow State University in 1941. In 1957, he became rector of the M. A. Suslov Rostov State University that was established in 1917. In 1970, he was named Chairman of the North Caucasus Scientific Center of the Ukrainian Academy of Sciences. His works deal with naturally occurring compounds, theoretical organic chemistry, and the philosophical problems of the natural sciences. (GSE 9, p. 630.)



General and Technical Chemistry Scientific Research Institutes:

Organic and Inorganic Chemistry Research: In all of the former Soviet Union there were a total of 67 scientific research institutes in which scientists conducted research in both organic and inorganic chemistry. Twenty-two of the 67 institutes were engaged in what the Russians classified as General and Technical Chemistry. chemical research institutes were located in some 29 cities, a geographic spread that indicates the importance of chemical research in the Russian scientific lexicon.

Valentin A. Koptiug (Koptiug), Valentin A., an academician of the General and Technical Chemistry Department was Chairman of the Siberian Department from 1980 to his untimely death in 1996. That department is second in having the greatest concentration of scientific institutes and scientists in Russia. Oleg M Nefedov, Academician Secretary to the General and Technical Chemistry is a Vice President of the Russian Academy of Sciences for the Chemical Technical Sciences.

Leading Institutes of the General and Technical Chemistry Department: By far the most significant institutes in this department are the Chemical Physics Institute, the Electrochemistry Institute, the N. D Zelinskii Organic Chemistry Institute, the Elemento-organic Compounds Institute and the Physical Chemistry Institute--allocated in Moscow. The Macromolecular Compounds Institute is located in St. Petersburg and the Chemistry Institute in Gorkiy. The very small Petrochemical Institute listing only two scientists in 1980 is also located in Moscow.

Organization of the Major Institutes: The Chemical Physics Institute moved to its present location in 1943. It is organized into seven divisions that have 16 laboratories and three departments. The Elemento-organic Compounds Institute is divided into three division that have some 15 laboratories. The Physical Chemistry Institute, founded in 1945, is complex in its structure with eight divisions and 20 laboratories. The other three institutes of the General and Technical Chemistry Department are of postwar vintage and include: the Macromolecular Compounds Institute in St. Petersburg, the Chemistry Institute in Gorkiy, and the Petrochemical Chemistry Institute in Moscow. The ten-year period from 1965 to 1975 was the time of greatest growth for the institutes under this department.



Subordinate Research Institutes:

A brief description of each of the 13 institutes subordinate to the department in 1996 is given in the order of the date of founding in the listing reproduced below:

1. Physical Chemistry Institute in Moscow.

Located at 31 Leninskii ave., U-312, Moscow, GSP-1, 117915. (Tel. 955-46-81; Teletype: 207335 KLEONA; Telex: 411029 PESUM SU; fax: 952-75-14. Directed by Corresponding Member Iurii M. Polukarov.

Polukarov, Iurii M., D. Chem. S. Corresponding member of the General and Technical Chemistry Department of the Academy in 1993. Since 1988, he has been Director of the Physical Chemistry Institute in Moscow which was founded in 1945 to study corrosion, radiochemistry, electrochemistry, and ion exchange. He is presently director of the Institute of Physical Chemistry (IPC) located in Moscow.

Retrospect: While tracing its origin back to the Electrochemical laboratory established by V. A. Kistiakovskii in 1929 in St. Petersburg, it was moved to Moscow in 1934 and became the Colloid Electrochemistry Institute. It was established under its present name--the Physical Chemistry Institute in 1945. Research in the institute includes corrosion, radiochemistry, electrochemistry, and ion exchange. Iurii M. Polukarov, D. Chem. S. has been the Director of the institute since 1988. Deputy Directors for Scientific Research are: Professor A. K. Pukaev, Corresponding member of the AN SSSR; Professor V. A. Ogarev, D. Chem. S.; and, Professor A. E. Chalik, D. Chem. S.; the Scientific Secretary is G. V. Fedotov. The institute is comprised of 52 laboratories and a large number of scientific workers and

researchers that includes 62 doctors of science and 230 candidates of science degree holders. The institute does fundamental research in a number of fields. It is divided into four major departments: The physical Chemistry Surface Phenomena Department, The Physical Chemical Characteristics of Polymer Systems Department, The Physical Chemistry Problems of Corrosion, Electrochemistry, Protective Cover and Crystallization Department, and The Radiochemistry and Radiation Chemistry Department.

(Older material)

I. The Physical Chemistry Surface Phenomena Department:

- (1.) the Laboratory of Surface Strength under Vladimir M. Miller, D. Chem. S.;
- (2.) the Thin Liquid Layer Laboratory under Vladimir D. Sovolev, C. PM. S.;
- (3.) the Physical Chemistry of Modified Surfaces Laboratory under Iakob I. Rabinovich, D. Chem. S.;
- (4.) the Kinetic and Dynamic Adsorption Laboratory under Albert M. Boloshchuk, D. Chem. S.;
- (5.) the Adsorption Equilibrium Laboratory under Teimuras S. Iakuvov, C. Chem. S.;
- (6.) the Laboratory of Sythesis and Research into Brittleness under Nikolai S. Poliakov, D. Chem. S.;
- (7.) the Physical Chemistry Basis of Chromatography Laboratory under Oleg G. Larionov, D. Chem. S.;
- (8.) the Chromatography Preparation Laboratory under Anatolii I. Kalinichev, D. Chem. S.;
- (9.) the Applied Physical Chemistry Mechanics Laboratory under Evgenii D. Shukmi, D. PM. S.;
- (10.) the Structural Process of Dispersion Systems Laboratory under Galina M. Sinischina, C. Chem. S.;
- (11.) the Highly Concentrated Dispersion Systems Laboratory under Professor Naum V. Ureev, D. Chem. S.;
- (12.) the Physical Chemistry of Geological Strata Oil Migration Laboratory under Leonid V. Kolpakov, C. Chem. S.;

II. The Physical Chemical Characteristics of Polymer Systems Department:

- (13.) the Chemical Mechanics of Solid Matter Laboratory under Iurii P. Goronov, D. Chem. S.;
- (14.) the Polymer Stabilizing Cover Laboratory under Professor Vadim A. Ogarev, D. Chem. S.; (in 1980, Head of the oleo-colloids and monolayers laboratory);
- (15.) the Colloid Polymer Chemistry Laboratory under Viacheslav I. Roldugin, D. PM. S.;
- (16.) the Laboratory for the Synthesis of Protective Polymers under Aleksandr V. Zuikov, C. Chem. S.;
- (17.) Adgezii polymer laboratory under Vladimir V. Arslanov, D. Chem. S.;

III. The Physical Chemistry Problems of Corrosion, Electrochemistry, Protective Cover and Crystallization Department:

- (18.) the Corrosion Inhibition Laboratory under Professor Mikail Fokin, D. Chem. S.;
- (19.) the Research in Metals Corrosion in Special Media Laboratory;
- (20.) the Physical Chemical Basis for Protective Cooling Systems of Radio Technical Apparatuses for Corrosion Laboratory under Professor Iurii I. Kushechov, D. Chem. S.;
- (21.) Laboratory # 10 under Vladimir I. Kagarin, C. Chem. S.;

- (22.) the Metals and Alloys Corrosion Laboratory under Professor Aleksandr I. Shchervakov, D. Chem. S.;
- (23.) the Metal Corrosion in Natural Conditions Laboratory under Andrei I. Marshakov, C. Chem. S.;
- (Sector) under physical chemistry corrosion testing station under Petr V. Strekalov, C. Chem. S.;
- (Sector) Testing station for accelerated corrosion under Andrei I. Marshakov, C. Chem. S.;
- (Sector): Materials requirements section under Aleksandr A. Michailov, C. Chem. S.;
- (Sector): Underground corrosion and electrochemical station under Andrei P. Nazarov,
- (Sector) Yakutsk complex "NORD". The main economic administrative group for the corrosion station under Head leader of the Technical-engineering group Vladimir P. Dolin;
- (24.) group for the study of damage to mechanical construction materials under Viktor A. Marichev, D. Chem. S.;
- (25.) the Corrosion Systems in a Water Medium Laboratory under Sergei V. Oleinik, C. Chem. S.;
- (26.) the Heterogeneous Systems Laboratory under Radii K. Chushko, D. Tech. S.;
- (27.) the Physical Chemistry Basis for Crystallization of Metals and Alloys in Gas Vapors Laboratory under Konstantin I. Gedgovd, C. Tech. S.;
- (28.) the Aluminum Alloys for High Temperature Water Laboratory under Mark S. Chirlin, D. Chem. S.;
- (29.) the Surface Phenomenon of Non-metallic Substances in a Gaseous Phase Laboratory under Professor Dmitrii V. Fedoseev, D. Chem. S.;
- (30.) the Diamond Growing Laboratory under Boris V. Spichin, C. Chem. S.;
- (31.) the Structure of Surface Layers Laboratory under Professor Iurii M. Polukarov, D. Chem. S.;
- (32.) the Electro-oxidation of Metals Laboratory under Professor Vladimir I. Kudriavtsev, D. Chem. S.

IV. The Radiochemistry and Radiation Chemistry Department:

- (33.) the Surface Processes of Radiation Effects Laboratory under Professor Andrei P. Sakharov, D. PM. S.;
- (34.) the Topochemical Change in Surface Layers Laboratory under Aleksei G. Akimov, D. Chem. S.; (Oxidation Laboratory Head in 1980);
- (35.) the Laboratory of Radiochemistry Research under Professor Vladimir F. Peretrushin, D. Chem. S.;
- (36.) the Chemical Transport of Elements Laboratory under Professor Nikolai N. Krot, D. Chem. S. (Transuranium Elements Laboratory Head in 1980);
- (37.) the Radiation Chemistry Laboratory under Professor Aleksei K. Pikaev, D. Chem. S., since 1968;
- (38.) the Laboratory of Technological Processes under Viacheslav I. Kareta, C. Chem. S.;
- (39.) the Physical Chemistry Basis for Industrial Waste Removal Laboratory under Aleksei M. Pukov, D. Chem. S.;
- (40.) the Transcurium Chemistry Laboratory under Nikolai B. Misheev, D. Chem. S.;
- (41.) the Physical Chemistry of Radioactivity in Solid Bodies Laboratory under Professor Vladimir V. Gromov, D. Chem. S. (In 1980, Deputy Director of the Physical Chemistry Institute);
- (42.) the Radioactive Catalysis Laboratory under Galina N. Pirogova, D. Chem. S.;
- (43.) the Extraction Laboratory under Genrich V. Korpusov, D. Chem. S.;
- (44.) the Radiation Chemistry for Converting Cellulose from Different Materials Laboratory under Professor Boris G. Ershov, D. Chem. S. (he was a senior researcher in the Radiation Chemistry Laboratory in 1980);

- (45.) the Radioactive Analysis of Materials Laboratory under Mikhail A. Gashov, C. Chem. S.;
- (46.) the Quantitative Chemistry Laboratory under Professor Galina V. Ionova, D. Chem. S.;
- (47.) the Chromatography of Radioactive Elements Laboratory under Vladimir M. Gelis, C. Chem. S.;
- (48.) the group for radiation modification of polymers under leader Vitalii Ia. Kabanov, D. Chem. S.;
- (49.) the Radiation Technique Laboratory under Iurii S. Pavlov, C. Chem. S.;
- (50.) the Spectroscopy Laboratory under Mikhail P. Glasunov, D. Chem. S.;
- (51.) the Electron Microscopy and Electrohorography Laboratory under Anatolii E. Chalik, D. Chem. S.;
- (52.) the Mathematical Modeling of Physical Chemistry Processes Laboratory under Georgii G. Malenkov, C. Chem. S.

Patent office under Galina N. Kormanovskaia (aya), C. Chem. S.

Scientific committee on adsorption of the AN SSSR under Chairman, Nikolai S. Poliakov, D. Chem. S.

Scientific committee on chromatography of the AN SSSR under Chairman Oleg G. Larionov, D. Chem. S.

Interdepartmental scientific committee on radio chemistry for the Presidium of the AN SSSR and the State Committee on Atomic Energy of the SSSR under Chairman Aleksandr S. Nikiforov, and secretary of the committee Galina A. Nekrasova, C. Chem. S.

(Information from letter dated October 11, 1991 from Professor Ogarev, Deputy Director of the Physical Chemistry Institute.)



2. N. N. Semenov Chemical Physics Institute in Moscow.

Located at 4 Kosyigina st., U-334, Moscow, GSP-1, 117977. (Tel. 137-29-51; Teletype: 112790 RDKL; fax: 938-21-56. Acting Director is academician Anatolii L. Buchachenko.

Buchachenko, Anatolii L., D. Chem. S. Born in 1935. Corresponding member of the General and Technical Chemistry Department of the Academy since December 1987; academician since 1993. Since 1966, senior researcher in the Chemistry Physics Institute in Moscow. He is presently director of the Institute of Chemical Physics named after N. N. Semenov (ICP)

Retrospect: The institute was established in 1931. The institute does combustion research and studies chemical kinetics in various fields. **Structure and Scientific Personnel:** Vitalii I. Goldanskii, D. PM. S., was Director of the institute from 1988 until replaced by acting Director Buchachenko. . Deputy Directors: Dubovitskii, Fedor I., D. Chem. S., since '62; Samchuk, Ivan A., since '85; Shilov, Aleksandr E., D. Chem. S., since '73; Tal'roze, Viktor L. D., Chem. S., since '69; and, Enikolopov, Nikolai S., D. Chem. S., since '68--winner of the V. A. Kargin Prize in Physical Chemistry in 1984; Scientific Secretary: Kashireninov, Oleg E., C. Chem. S., since '76;

(Older Material)

Chemical and Biological Research Division: Head Emanuel, Nikolai M., C. Chem. S., since '60;

Medical Biophysics Laboratory: Head (Unknown);

Chemical Kinetics Division: Head Shilov, Aleksandr E., D. Chem. S., since '78;

Heterogeneous Catalysis Laboratory: Head Krilov, Oleg V., D. Chem. S., since '77;

Homogeneous Catalysis Laboratory: Head Shilov, Aleksandr E., D. Chem. S., since '76;

Macrokinetics Laboratory: Head Merzhanov, Aleksandr G., D. PM. S., since '70;

Combustion Division: Head Dubovitskii, Fedor I., D. Chem. S., since '78;

Detonation of High Dynamic Pressures Laboratory: Head Dremin, Anatoli N., C. PM. S., since '79; Senior researcher Adadurov, G. A., D. PM. S., since '65;

Complex Catalysts Synthesis Department: Head Khidekel, Mikhail L, D. Chem. S., since '74;

Detonation Department: Senior researcher Pershin, S. V., since '79;

Pulse Impact Department: Head Breisov, Oleg N., since '79;

Physical Methods Division: Head Tal'roze, Viktor L., D. Chem. S., since '78;

Polymers Division: Head Enikolopov, Nikolai S., D. Chem. S., since '78;

Photo decomposition of Polymers Laboratory;

Polymer Structure and Polymeric Matrices Laboratory: Head Oleinik, Eduard F., since '78;

Reinforced Plastics Laboratory: Head Andreevskaia (aya), Galia D., D. Chem. S., since '65;

Structure of Matter Division: Head Goldanskii, Vitali I., D. PM. S., since '78;

Nuclear and Radiation Chemistry Laboratory: Head Goldanskii, Vitali, I., D. PM. S., since '63;

Hot Atom Chemistry Department: Head Dzantiyev, Boris G., since '66;

Chemical Radio Frequency Spectroscopy Laboratory;

Chemi-luminescence Laboratory;

Elementary Processes Laboratory: Senior researcher Vasiliev, R. F., since '67;

Low Temperature Physics Laboratory: Head Shchegolev, Igor F., D. PM. S., since '74;

Penetration Mechanics Laboratory: Head: Fortov, Vladimir E., since '79;

Ultrasound Research Laboratory: Head Braginskaia (aya), F. I., since '72.



3. A. V. Topchiev Petrochemical Synthesis Institute in Moscow.

Located at 29 Leninskii ave., Moscow, U-71, GSP-1, 117912. (Tel. 954-22-92; fax: 230-22-24. Directed by Academician Nikolai A. Plate.

(Plate, Nikolai A., D. Chem. S. Born in 1934 in Moscow. Russian chemist. Corresponding member of the General and Technical Chemistry Department of the Academy since 1974, and academician since 1987. He graduated in 1956 from Moscow State University--a V. A. Kargin student. Since 1956, he has been working at Moscow State University where in 1966, he was appointed head of the Polymer Modification Laboratory. Since 1963, he has been working at the Institute of Petrochemical Synthesis of the AN SSSR. Since 1985, Director of the A. V. Topchiev Petroleum Refining and Petrochemical Synthesis Institute in Moscow. The institute researches the physics of reservoirs, reservoir modeling, enhanced recovery techniques, and petrochemical refining processes. It was established in 1959 and is subordinate to the academy's General and Technical Chemistry Department. He formulated the principles of polymer modification through reactions in macromolecular chains. He developed the statistical theory on the reactivity of links in a polymer chain. He is presently director of the Institute of Petro-Chemical Synthesis named after A. V. Topchiev (IPCS) located in Moscow. (GSE 20, p. 206.))

Retrospect: Founded in 1934 as the Institute of Combustible Resources. In 1948 the Institute of Petroleum was founded on the petroleum laboratories of the Institute of Combustible Resources. In 1958, the Petrochemical Synthesis Institute was established on the basis of the chemistry and technology of petroleum/gas Department of the Institute of Petroleum. The institute is comprised of 27 scientific laboratories with a total staff of 640 of whom 370 are scientific Personnel, which includes four members of the Russian Academy of Sciences, 40 professors, doctors of sciences and 190 research scientists with Ph.D. degrees. The institute maintains a design bureau and workshop which has 170 persons. The institute also maintains a branch in the city of Saratov with 50 workers.

Scientific Structure and Personnel: Nikolai A. Plate, D. Chem. S., has been the Director of the institute since 1985; Deputy Directors: Professor Evgenii I. Bagrii, D. Chem. S., since 1991; Professor Vadim M. Frolov, D. Chem. S., since 1991; Dr. Vladimir V. Volkov, C. Chem. S., since 1991; Scientific Secretary: Dr. Andrei N. Karavanov, C. Chem. S., since 1991; Deputy Director for General Management: Dr. Viktor A. Linskii, C. PM. S., since 1991; Director of the Special Design Bureau: Dr. Albert A. Grigorian, C. Tech. S., since 1991. Outstanding researchers in the fields of petrochemistry, polymerization processes, plasma chemistry, and physical chemistry of liquid crystal polymers include: Professors N. D. Zelinskii, S. S. Nametkin, A. V. Topchiev, V. A. Kargin, B. A. Krentzel, B. A. Davidov, V. A. Kabanov, B. A. Dolgoplosk, E. I. Tiniakova, N. S. Nametkin, M. M. Kusakov, N. A. Plate, V. G. Kulichikhin, L. S. Polak, D. I. Slovetskii, D. A. Topchiev, A. I. Martynenko, L. A. Gudkova--all of whom hold the highest national prizes in science and technology. Research thrusts in the institute are many and varied. Oil composition studies being carried on under the guidance of Dr. O. P. Parenago, D. Chem. S., and Dr. E. B. Frolov have described new classes of hydrocarbons and nitrogen-containing oil compounds (carbazole derivatives) and oil acids, gopanic acids in particular, are investigated. A

Thermo-deasphalting-Demetallization Process for treating heavy petroleum residues has been developed at the institute under Dr. Iurii B. Americ, D. Chem. S., and a combination of that process with hydro-visbreaking and regenerative hydro-cracking processes has increased refining production from these heavy crudes of up to 90-92%. This has also made possible the production of motor fuels, a low-sulfur ecologically pure fuel oil, low-ash electrode coke as well as caking additives for the production of metallurgical coke from non-coking coals on the basis of sulfur containing heavy petroleum residues. Under Professor S. M. Loktev, Professor A Ia. Rozovskii, and Dr. E. V. Slivinskii, D. Chem. S., new catalytic processes for synthesizing carbon oxides are developed. New processes for the synthesis of alkyl aromatic alcohols, dimethyl-alkylamines, alkyl-piperidines, 2-methyl-butanal, heptanal, glycolaldehyde, 2-oxytetra-hydrofuran, isobutanal-para-phenol, methyl-isovalerate, isovaleric acid, alkyl-cinnamates, methyl-methacrylate, and dimethylbutirolactone are developed. A new technology for methanol synthesis that doubles the productivity of the unit volume of the catalyst has also been developed. Academician Professor (academician of the General and Technical Chemistry Department of the Russian Academy of Sciences) V. M. Gryaznov, and Dr. A. N. Karavanov, Scientific Secretary of the institute Head up research in highly active and selective membrane catalysts based on palladium alloys in the form of foil or tubes with wall-thickness of 50-100 mkm that have been developed for hydrogenation processes or organic compounds. These catalysts are resistant to temperatures up to 800 degrees centigrade and pressure drops up to 120 atm and are effective for membrane purification of hydrogen, too. New composite membrane catalysts with Pd-content of less than 1% are being developed in their laboratory. Under Academician Professor V. A. Kabanov--of the General and Technical Chemistry Department of the Russian Academy--and Dr. V. I. Smetaniuk, D. Chem. S., new catalytic systems have been developed on the basis of metacomplexes immobilized in polymeric gels. These systems have successfully undergone pilot-plant tests in di- and oligomerization of lower olefins and they have displayed high productivity, selectivity, stability, and simplicity of regeneration under these trials. Professor L. E. Gusel'nikov leads the research in the field of sila alkenes--work that is recognized world-wide. This research has led to the discovery of the previously unknown phenomenon of a tetravalent silicon low-coordinating state in bonding of coordination-saturated atoms of silicon with their nearest surrounding. New methods of synthesis of hard-to-reach monomers have been developed. The formation of thin-layer coatings for high technologies has been one of the results. The study of the homogeneous and heterogeneous metathesis reactions of olefins, cyclo-olefins, and their functional derivatives has produced new and original methods for synthesizing isoprenoids, terpenoids, and functional olefin derivatives. These derivatives can be used for the synthesis of components of vegetable oils, insect pheromones, fragrant and growth-controlling agents. This work is conducted under the leadership of Dr. E. Sh. Finkel'shtein, D. Chem. S. Professor E. I. Bagrii has discovered several methods for the functionalization of adamantane and alkyladamantanes whose products may be used to obtain diamond-like films, thermostable lubricating oils, greases, and medicinal preparations. Professors Iurii A. Kolbanovskii and A. A. Ovsyannikov, using the impulsive compression method, have developed a novel technology for high-temperature synthesis of aggressive agents such as fluoro-olefins. The technique is promising for producing unsaturated fluorine-containing monomers for various fluoro-plastics and fluorine-containing elastomers. The impulsive reactor functions with a high productivity and stability at reaction-media temperatures of up to 3000K and gas pressures of up to 300atm. A new highly productive chemical reactor has been designed that may be effectively used for the destruction of toxic and supertoxic organic compounds--including chemical wastes and chemical weapons. In the

1960s plasma chemistry--a new field of chemical science--originated in the institute. New ideas of non equilibrium chemical kinetics were developed, new approaches, experimental, and theoretical methods were introduced and the mechanisms of the physical and chemical processes in non equilibrium and quasi-equilibrium plasmas were systematically studied. Under the action of low-temperature plasma on the surface of various polymers, protective, optical and hydrophilic coatings for materials of medical, biomedical, and membrane technology applications are created and valuable materials for microelectronics and micro-engineering industries have been developed. Professors L. S. Polak and D. I. Slovetskii have provided the leadership in this new field of study and research. Academician Professor (academician of the General and Technical Chemistry Department of the Russian Academy of Sciences) B. A. Dolgoplosk, V. A. Iakovlev, D. Chem. S., Professor V. M. Frolov, and Professor K. K. Makovetskii have headed the widely known work in the institute in the fields of organo-metallic catalysis, stereo specific polymerization of dienes and cyclo-olefins, and the chemistry of polyolefins--all used in application in industrial synthesis of a number of rubbers and polyolefins. New thermoresistant polyolefins are being synthesized and investigated. Academician Professor N. A. Plate (academician of the General and Technical Chemistry Department of the Russian Academy of Sciences) and L. I. Valuev, D. Chem. S., Head up the search for scientific approaches for producing polymeric materials for medicine and, in particular, materials for artificial limbs--polymers with oriented physiological activity are being investigated. In oxygenotherapy, original membranes and corresponding installations for air enrichment with oxygen are developed and successfully used. On the basis of chemistry of macromonomers of physiologically active compounds, the principles for the creation of hydrogel polymeric sorbents for organism detoxification, for manufacturing hemocompatible coatings for implantation are being developed. An original "Ovosorb" sorbent for curing pancreatitis, asthma, sepsis, and other diseases has been developed. Hydrogeanti-glaucoma drains have been developed and are produced in the Institute for surgery. Modified copolymers of maleic anhydride with antiviral, immunostimulating, and anti-tumoral activity are synthesized and are successfully tested. Professor D. A. Topchiev and F. A. Gembitskii, D. Chem. S. have lead the fundamental research in the synthesis of water-soluble polymers and have developed a number of original cationic polyelectrolytes whose production has been commercialized in industry. These polyelectrolytes are used for flocculation of industrial drain waters, in the production of effective detergents, for structuring soils, and for antiseptation of animals, meals, hospital environments, etc. Professor A. D. Litmanovich and Academician Plate Head up the institute's work in the field of macromolecular reactions theory: intra-and intermolecular reactions in polymer melts, glasses, and polymer mixtures. Work is underway in the creation of macromolecular catalysts and reagents for organic synthesis. The polymerization processes of various unsaturated organo-element monomers has been intensively pursued in the institute for the last 30 years under the direction of Dr. V. S. Khotimskii, Dr. V. V. Volkov, Dr. V. V. Tepliakov, and Academician Plate. At the end of the 1960s, a process for the production of a poly (vinyltrimethylsilane) membrane with high gas permeability and selectivity parameters was developed. Research and development projects are completed developing membranes from poly (trimethylsilylpropyne) that have proved to be not only superior for gas separation, but can be used for pervaporation. Institute laboratories are equipped with automated plants for membrane manufacture, plasma chemical modification and measurement of permeability parameters. Investigations in the institute in the field of liquid crystal (LC) polymers are aimed at the development of unique rigid chemical structures. Reinforced blends of thermoplastics with LD-polymers increases the strength of polymeric materials by two or three times producing a new

generation of engineering plastics for up-to-date technologies. The institute leads the world in the field of rheology of polymers. Under Professor V. G. Kulichikhin, original mechanical and optical experimental precision equipment for rheological study of lyotropic and thermotropic LO-polymers is developed at the A. V. Topchiev Petrochemical Synthesis Institute in Moscow.

(Information provided by letters of 16 October 1991 and February 20, 1992 from Andrei N. Karavanov, Scientific Secretary of the A. V. Topchiev Institute of Petrochemical Synthesis, Moscow.)



4. N. D. Zelinskii Organic Chemistry Institute in Moscow.

Located at 47 Leninskii ave., Moscow, U-334, GSP-1, 117913. (Tel. 137-38-32; fax: 135-53-28. Directed by Academician Vladimir A. Tartakovskii.

Tartakovskii, Vladimir A., D. Chem. S. Born in 1936. Corresponding member of the General and Technical Chemistry Department of the Academy since 1987; academician in 1993. In 1958, he was listed as a senior researcher in the N. D. Zelinskii Organic Chemistry Institute in Moscow. He is presently director of the Institute of Organic Chemistry named after N. D. Zelinskii (IOC) located in Moscow. (LDA 11378.)

Retrospect: Established in 1934, the institute is one of the largest centers of fundamental research in the field of organic chemistry, catalysis and the chemistry of natural and biologically active compounds in Russia. Vladimir A. Tartakovskii, has been Director of the institute since 1988. In 1992, it was organized into 36 laboratories and seven research groups. general lines of research by institute scientists includes physical and synthetic organic chemistry, organic chemistry of natural compounds, catalytic organic synthesis and physico-chemical grounds of catalysis.

Structure and Personnel: The laboratories are divided among three research divisions and one new information technology section as follows:

(Older Material)

The Division of Physical and Synthetic Organic Chemistry has 20 laboratories and one research group. Its laboratories are: **(1.) Heterocyclic Compounds Laboratory** under Professor M. M. Krayushkin; **(2.) The Chemical reactions under Big Pressures Laboratory** under Professor V. M. Zhulin; **(3.) The Carbene Chemistry and Small-sized Cyclic Compounds Laboratory** under Professor Oleg M. Nefedov, academician of the RAS, formerly the Carbene Chemistry Laboratory; Nefedov has headed it since 1970; **(4.) The Polyunsaturated Compounds Laboratory** under Professor A. M. Moiseenkov, corresponding member of RAS; **(5.) The Electrochemical Research Laboratory** under Professor V. P. Gulyai; **(6.) The Organoboron Compounds Laboratory** under Professor Iurii N. Bubnov; **(7.) The Nazarov Memorial Laboratory of Fine Organic Synthesis** under Professor E. P. Serebriakov; **(8.) The Organic Synthesis Laboratory** under Professor O. A. Luk'yanov; **(9.) The Studies of Homolytic Reactions Laboratory** under Professor G. I. Nikishin, corresponding member of RAS and Head of the former Free Radicals Laboratory since 1967; **(10.) The Polymer Chemistry Laboratory** under Dr. S. P. Krukovskii; **(11.) The**

Aliphatic Compounds Laboratory under Professor S. A. Shevelev; **(12.) The Nitrogen-Containing Substances Laboratory** under Professor L. I. Khmel'nitski; **(13.) The Chemistry of Hetero-functional Compounds** under Professor Viktor P. Litvinov, who had headed the Organic Metallic Laboratory since '70; **(14.) The Electro-organic Synthesis Laboratory** under Professor V. A. Petrosyan; **(15.) The Nitro-compounds Laboratory** under Professor V. A. Tartakovski, Academician of the RAS and Director of the institute; **(16.) The Organic Ligands Laboratory** under Professor V. A. Dorokhov; **(17.) The Optical Laboratory** under Professor P. P. Shorygin, corresponding member of RAS; **(18.) The Physical Methods of Study of Organic Compounds Laboratory** under Professor S. P. Kolesnikov; **(19.) The Gas Phase Organic Ions Chemistry Laboratory** under Professor Oleg S. Chizhov, who had headed the Physical Chemistry Methods Laboratory from 1970; **(20.) The Technical Chemistry and Technology Laboratory** under Dr. V. V. Semenov. The division has a research group for Chemistry of the Carbon γ Function headed by Professor S. I. Zavyalov.

The Division of Chemistry of Natural Compounds incorporates some four laboratories and one research group: **(1.) The Nucleoproteins and Proteins Laboratory** under Professor E. I. Budowski; **(2.) The Carbohydrate Chemistry Laboratory** under Professor V. N. Shibaev; **(3.) The Steroid and Terpenoid Chemistry Laboratory** under Professor A. V. Kamernitski; **(4.) The Plant Polysaccharides Laboratory** under Professor A. I. Usov, and the research group for the Modification of Natural and Synthetic Polymers under Dr. A. M. Sakharov.

The Division of Organic Catalysis includes ten laboratories and six research groups as follows: **(1.) The Asymmetric Catalysis Laboratory** under Professor N. G. Vinogradov; **(2.) The N. D. Zelinski Memorial Laboratory of Organic Catalysis** under Professor G. V. Antoshin; **(3.) The Catalytic Synthesis Laboratory** under Professor G. V. Isaguliant; **(4.) The Development and Study of Polyfunctional Catalysts Laboratory** under Professor A. A. Slinkin, D. Chem. S., who had been Deputy Head of the Catalyst Research Laboratory in 1970; **(5.) The Catalysis on Rare and Trace Elements Laboratory** under Dr. N. Ya. Usachev; **(6.) The Application of IR, UV-Vis and EPR Spectroscopes in Heterogeneous Catalysis Laboratory** under Professor V. B. Kazanskii, Academician of the RAS; **(7.) The Catalytic Reactions of Carbon Oxides Laboratory** under Professor A. L. Lapidus; **(8.) The Catalysis of Low Molecular Weight Compounds Laboratory** under Dr. T. V. Vasina; **(9.) The Catalytic Synthesis of Functionally Substituted Organo-Compounds Laboratory** under Professor E. S. Mortikov; **(10.) The Catalysts' Surface and Structure Studies Laboratory** under Professor E. S. Shipiro,

and the following five research groups:

the research group of Professor Khabib M. Minachev, academician of the RAS, who headed the Rare Earth Oxides Catalysis Laboratory from 1970;

the catalytic hydrogenation research group of Professor V. Z. Sharf;

the electro-catalysis research group of Professor A. A. Vedeniapin;

the kinetics of catalytic processes research group of Professor S. L. Kiperman, and **the heterogeneous catalysts and catalytic reactions research group** of Professor V. I. Yakerson.

The institute has added a new thrust in research that involves Mathematical Chemistry and Computer Synthesis in which late information about chemical technologies are being applied. This work is being done in two laboratories and one department:

- (1.) **The Mathematical Chemistry and Computer Design Laboratory** of Professor N. S. Zefirov;
- (2.) **the Computer Assistance to Chemical Research Laboratory** of Dr. A. S. Mendkovich Academician of the RAS, and

The Department of Scientific and Technical Information under the direction of Dr. V. M. Khutoretski.

Address: Leninski Prospect 47, Moscow B-334.

(Information provided in a letter from Professor Tartakovskii dated 18 August 1992.)(Also see: LDA 89-11378.)

(1996 update)

N. D. Zelinsky (skii) Institute of Organic Chemistry [IOC] Russian Academy of Sciences

Tartakovskii, Vladimir A., D. Chem. S. Born in 1936. Corresponding member of the General and Technical Chemistry Department of the Academy since 1987; academician in 1993. In 1958, he was listed as a senior researcher in the N. D. Zelinskii Organic Chemistry Institute in Moscow. He is presently director of the Institute of Organic Chemistry named after N. D. Zelinskii (IOC) located in Moscow. (LDA 11378.)

Brief history

The Institute of Organic Chemistry (IOC) was established by the Act of the Presidium of the USSR Academy of Sciences on February 23, 1934. The list of IOC Directors opens with the name of Academician A. E. Favorsky (skii) (1934-39) succeeded by Academicians A. N. Nesmeyanov (Nesmeianov)(1939-54), B. A. Kazansky (skii) (1954-66) and N. K. Kochetkov (1966-88). Presently the Institute is headed by Academician V. A. Tartakovsky (skii) .

In 1953 the Institute was named after Academician N. D. Zelinsky (skii) who had headed one of the departments in 1936-53 and greatly contributed to the development of the Institute.

Today

Today the N. D. Zelinsky (skii) Institute of Organic Chemistry of the Russian Academy of Sciences is a multi-type establishment, one of the largest centers of fundamental research in the field of organic chemistry, catalysis and chemistry of natural and biologically active compounds both in our country and abroad.

The following major trends have taken shape and are successfully developing in the Institute:

the study of the reactivity of organic compounds and mechanisms of organic reactions;
the creation of new methods and ways of organic synthesis;
structural and synthetic investigations of biologically active and

**natural compounds;
the search for and formulation of general regularities in organic
catalysis and mechanisms of catalytic reactions;
the development of new methods of catalytic synthesis.**

Since the end of the 80s the IOC has initiated a new line of research on mathematical chemistry and computer-assisted synthesis, up-to-date information technologies being widely applied.

The main objectives of the current fundamental research at the IOC are to obtain new data on the conversions and structure of organic compounds and mechanism of chemical reactions, to create new classes of organic compounds, to invent new reactions, to develop new catalysts and to study the relationship between their structure and catalytic activity, to elaborate new, technologically promising and industry-oriented methods of synthesis of useful organic compounds, as well as new catalysts with valuable technical properties.

Theoretical and methodological investigations on a number of general problems of chemistry made by the scientists of the IOC have a principal significance for organic chemistry in general. Among them are:

**tautomerism and dual reactivity;
chemistry of unstable particles;
stereochemistry and conformational analysis;
strategy and tactics for goal-directed synthesis;
scientific basis for the prediction of the catalytic action;
physico-chemical study of structure and reactivity.**

In the field of organic synthesis the following predominating areas of research in which the achievements of the Institute are recognized can be singled out:

chemistry of unsaturated compounds;
chemistry of carbenes and small cycles;
study of homolytic reactions;
chemistry of nitro compounds;
chemistry of heterocyclic systems, of nitrogen- and sulfur-containing heterocycles particularly;
chemistry of organoboranes and other organoelement compounds,
synthesis at super high pressures;
electrochemical organic synthesis;
chemistry of heterochain polymers.

Numerous are the cases when fundamental studies made at the IOC have formed a basis for creating industrial processes of manufacturing pesticides, vitamins, drugs, thermostable polymers, etc. , as well as a lot of key semiproducts for chemical industry.

In the field of chemistry of natural compounds the scientists of the IOC have made a great contribution to the development of chemistry, biochemistry and immunochemistry of carbohydrates and carbohydrate-containing biopolymers, as well as chemistry of

physiologically active steroids. The fundamental research made at the IOC on the structure of microbial and viral carbohydrate-containing biopolymers permitted for the first time in the world to carry out the synthesis of artificial antigens on the basis of complex oligo- and polysaccharides which opened a principally new way of obtaining highly effective vaccines and sera. Studies on the steroid synthesis have led to the creation of the previously unknown hormonal drugs with separate biological functions.

In the field of organic catalysis the following original fundamental studies were carried out:

- elementary stages of catalytic reactions, including, inter alia, quantum-chemical methods;
- structure and physical properties of the catalyst surface by means of up-to-date physico-chemical methods;
- catalytic asymmetric synthesis;
- scientific principles for the preparation of new catalysts on the basis of home-produced zeolites; kinetic, physical and mathematical models for the calculation of industrial processes and reactors.

New highly effective, ecologically safe catalytic processes of manufacturing isopentane, high-octane gasolines, alkyl-aromatic hydrocarbons, as well as new catalysts for obtaining isoprene, styrene, p-dialkylbenzenes, allyl acetate and converting C₂--C₄ hydrocarbons into motor fuel components, etc., were developed at the Institute.

Catalysts for the hydrogenation of fats, for the synthesis gas purification in the ammonium manufacture, for the purification of technological, inert and waste gases, for the synthesis of liquid hydrocarbons and ceresin from carbon monoxide and hydrogen, for obtaining acetic acid by the carbonylation of methanol, etc. , were created by the IOC in co-operation with branch industrial establishments and are being successfully utilized in manufacture.

Structure:

Presently the Institute incorporates 43 laboratories with the staff comprising 700 research workers and some 300 technical and attending employees.

Affiliated to the Institute are the Special Designing Bureau (SDB IOC, founded in 1959) and the Volgograd branch , founded in 1989.

Special Design Bureau

The SDB IOC in collaboration with the Institute carries out the development and manufacture of small lots of new devices, mainly chromatographs, installations for catalytic studies and some non-commercial equipment for the needs of the Institute.

The Volgograd branch

The Volgograd branch of the IOC works over ways and technologies for the synthesis of functional organic compounds promising for the practical utilization (plastificators, polymerization peroxide initiators, etc.) and manufactures a number of small-scale chemical products.

The CACR

In 1991 the Computer Assistance to chemical Research (CACR) Center of the General and Technical Division of the Russian Acad. Sci. was created in the IOC. When our country joined the European Academic and Research Network (EARN) the EARN International Node and EARN National Coordination Center has been operating in the IOC on the base of the CACR Center. At the same time the FREEnet (For Research, Education and Engineering Network) was started by CACR members with the main nodal system at the IOC.

The STN training and information Center

The same year Moscow demonstration, training and information Center of RAS-STN International for providing scientists of RAS with modern information from Scientific and Technical information Network (STN) data bases and for teaching users was established in the IOC.

Chemical Lyceum

In order to attract the most talented among the young "chemistry fans" from schools and to train them into highly qualified chemists eager to work in the Academy, the Institute put forward the initiative of organizing a new type of an educational establishment for high school pupils -- Chemical Lyceum that was founded in 1990. In 1991 within the IOC the Scientific Educational Center was organized for the special training of the Lyceum students in the field of organic chemistry. Some of the IOC scientists take part in the training of future chemists, teaching and supervising practical classes in the Higher Chemical College of the Acad. Sci. The College was founded by the Academy of Sciences on the basis of the D. I. Mendeleev Moscow Chemical Technological Institute.

webmaster@ioc. ac. ru



5. High Molecular Compounds Institute in St. Petersburg.

(Formerly: Macromolecular Compounds Institute in St. Petersburg.)

Located at 31 Bolshoi Prosp., U-4, St. Petersburg, 199004. (Tel. 21304-61; fax: 218-68-69; for telegrams: 199004 St. Petersburg Polimer.

Directed by Corresponding Member Evgenii F. Panarin. See immediately below:

[Institute of High-molecular Compounds (IHC)

31, Bolshoi prosp., V-4, Saint-Petersburg, 199004

tel.213-04-61, fax: 218-68-69, for telegrams: 199004 Saint-Petersburg

Polimer Directed by Corresponding Member Evgenii F. Panarin, tel.213-74-07]

Panarin, Evgenii F., D. Chem S. Corresponding member of the General Technical Chemistry Department of the Academy since 1989. He has been Director of the Macromolecular Compounds Institute in St. Petersburg which was established in 1948 to study the formation, structure and properties of polymers. He is presently director of the Institute of High-Molecular Compounds (IHC) located in St. Petersburg.

Retrospect: Established in 1948, the institute does theoretical and experimental investigations in chemistry, physical chemistry and the physics of macromolecular compounds dealing particularly with the formation, structure and properties of polymers. Professors S. N. Ushakov, M. V. Volkenshtein, S. E. Bresler, B. A. Dolgoplosk, V. N. Tsvetkov, M. M. Koton, and S. Ia. Frenkel--all eminent Russian scientists were among those who established this institute. Since 1970, the liquid chromatography of polymers and copolymers has been done at the institute leading to appreciable results in micro-column chromatography, micro-thin-layer chromatography and chromatographic porosimetry. Spectroscopic analyses of the structure and properties of polymers of various classes is done. The institute maintains relations with researchers in the United States, Germany, Italy, Great Britain, India, China, France, Bulgaria, Hungary, Poland, and Czechoslovakia

Structure and Scientific Personnel: Director Professor E. F. Panarin, D. Chem. S., and corresponding member of the Russian Academy of Sciences, since 1989; Deputy Directors: Nikolai A. Glukhov, C. Chem. S., since 1973, and Iuri N. Sazanov, since 1981. The laboratories of the institute concentrate in four major areas:

(older material)

(1.) The Synthesis and Investigations of Thermally Stable Polymers area-- mainly polyimides under the direction of Professor M. M. Koton. The three laboratories under this research area are:

the laboratory of synthesis of thermally stable polymers,

**the laboratory of thermally stable structured and multi-component systems,
and**

the laboratory of high-tenacity and thermal lly stable fibers and organic plastics.

Films and fibers of high tensile strength, elastic foam polyimides in temperatures of -200 degrees centigrade to +400 degrees centigrade have been produced in these laboratories. High temperature glues, thermoplastic polyimide binders have been developed, and a gas separating membrane for separating oxygen, nitrogen, hydrogen, methane, and helium has been produced.

(2.) The Anisotropic States in Polymers area under Professor S. Ia Frenkel. The six laboratories in this research area are:

the laboratory of physical chemistry of polymers,

the laboratory of chemistry and physical chemistry of cellulose and its derivatives,

the laboratory of anisotropic polymer systems formation,

the laboratory of synthesis and methods of formation of polymer systems,

the laboratory of polymer chromatography, and

the laboratory "plant" for fiber spinning under the guidance of professor G. K. Eliashevich.

Damping polymer optically transparent glues have been produced. The technologies of micro-crystalline cellulose preparation from coniferous and deciduous wood species have been proposed. Composites containing aqueous solutions of cellulose derivatives and latexes have been developed for many uses in paper, pre-sowing treatment of various seeds, the protection of graft cuts and stock for green grafting of vines and fruit culture. Chromatographic methods determining the molecular weight characteristics of organo-phyilic and hydrophilic polymers, branched polymers and block copolymers have been used to analyze lignins and lignin-carbon complexes, native cellulose and cellulose derivatives, and hemicelluloses, lipids, amino acid derivatives, drugs of abuse, such inorganic compounds as nitrates, nitrites, radio-nuclides as well as antibiotics, pesticides, proto-glandines, amino acids, and oligo- and polysaccharides in biological fluids. Biomedical analyses have included: the determination of myoglobin, isoenzymes, lactodehydrogenase in blood serum, glycosylated hemoglobin in blood, and amino acids in protein hydrolyzates of blood serum. With these analyses myocardial infarction, diabetes, phenylketonuria, and other diseases may be diagnosed and the course of their development predicted. Chromatographic analysis also Permits the determination of the quality of foodstuffs, and to identify the adulteration of food products.

(3.) The Synthesis and Investigation of Properties of Physiologically Active Polymers area under the guidance of Professor G. V. Samsonov. The three laboratories in this research area include:

the laboratory of hydrophilic polymers,

the laboratory of physiologically active polymers, and

the laboratory of the physical chemistry of polyelectrolytes and physiologically active polymers.

Work in these laboratories has produced the following biologically active compounds: glucocorticosteroids--prednisolon, hydrocortisone, and triampycinolon, cardiac glycosides--dioxin, strophanthin, and cymarin, and amino-glycoside antibiotics--urkinase, ribonuclease, super-oxydismutase, etc. Polymer carriers have been synthesized. Using membrane technology and methods of column chromatography, biologically active compounds of naturaorigin and products of microbial synthesis have been isolated and developed. The resulting products are of high purity and high yield. An effective polymer antiseptic (CATAPOL) was developed for use in medicine, veterinary medicine, and the food and fish processing industries. Work is proceeding on the development of anti-tumor polymer drugs.

(4.) The Physics of Macromolecules and Intermolecular Interactions area under Professor V. N. Tsvetkov. The four laboratories under this research area include:

the laboratory of molecular dynamics and optics of polymers,

the laboratory of polymer spectroscopy,

the laboratory of luminescent polymers, and

the laboratory of theory and computer simulation of polymer systems.

This research area has developed analytical procedures involving IR, NMR, X-ray, and luminescent spectroscopy, thermo-gravimetry, sedimentation, diffusion, and

birefringence. Methods of synthesis of polymers with different chemical and topological structures have been developed in these laboratories.

(Information provided by letter dated 28 October 1991 from Professor S. S. Skorokhodov, Deputy Director of the Institute. Also see: *Institute of Macromolecular Research*. Moscow: Scientific Publishing House, 1985. 40 pp.)



6. A. N. Nesmeianov Hetero-Organic Compounds Institute in Moscow. (INEOS) (Formerly: A. N. Nesmeianov Elementoorganic Compounds Institute in Moscow.)

Located at 28 Vavilova st., U-334, Moscow, GSP-1, 117813. (Tel. 135-92-02; teletype: 2073662 EOS; fax: 135-50-85. Acting Director is Academician Mark E. Volpin.

Vol'pin (Volpin), Mark E., D. Chem. S. Born in 1923. Academician of the General and Technical Chemistry Department of the Academy since December 1987. Since 1967, he has been Deputy Director of the A. N. Nesmeianov Elementoorganic Compounds Institute in Moscow. Corresponding member since 1979. In 1982, he was the recipient of the A. N. Nesmeianov Gold Medal for his work in chemistry. The award was named after the renowned organic chemist. He is presently director of the A. N. Nesmeyanov (Nesmeianov) Institute of Organo-element Compounds (INEOS) located in Moscow.

Retrospect: Established in 1955. Research on hetero-organic compounds, elemento-organic, metalo-organic and polymer chemistry and the chemistry of visco-molecular formation. Subordinate to the academy's General and Technical Chemistry Department. Major General Aleksandr V. Fokin, D. Chem. S., was been Director of the institute from 1981 to 1988; since 1988, the Director has been Mark E. Vol'pin, D. Chem. S. In 1989, its Deputy Directors were: Godovikov, Nikolai N., C. Chem. S., since '81; Kabachnik, Martin I., D. Chem. S., since '77; Rogozhin, Sergei V., D. Chem. S., since '60. (See below:)

(1996 update)

A. N. Nesmeianov (Nesmeyanov) Institute of Organo-element Compounds (INEOS)

**28, Vavilova st., V-334, Moscow, GSP-1, 117813
tel.135-92-02, teletype: 2073662 EOS, fax: 135-50-85**

Acting Director academician Mark E. Volpin, tel.135-61-66

Structure of the INEOS

Administration of INEOS (A. N. Nesmeianov Elementoorganic Compounds Institute in Moscow)

Director

Prof. Mark E. Vol'pin, Memb. Russ. Acad. Sci.

135-6166

(Vol'pin (Volpin), Mark E., D. Chem. S. Born in 1923. Academician of the General and Technical Chemistry Department of the Academy since December 1987. Since 1967, he has been Deputy Director of the A. N. Nesmeianov Elementoorganic Compounds Institute in Moscow. Corresponding member since 1979. In 1982, he

was the recipient of the A. N. Nesmeianov Gold Medal for his work in chemistry. The award was named after the renowned organic chemist. He is presently director of the A. N. Nesmeyanov Institute of Organoelement Compounds (INEOS) located in Moscow.)

Honorable Director
Prof. Alexander V. Fokin, Memb. Russ. Acad. Sci.

135-9267

(Fokin, Aleksandr V., Mai. Gen., D. Chem S. Born in 1912 in Kizyl-Arvat in the Turkmen SSR. Russian organic chemist. Corresponding member of the General and Technical Chemistry Department of the Russian Academy of Sciences since 1968, and academician since 1974. Deputy-principal secretary of the Presidium of the academy since 1971. He graduated from the Military Academy for Protection Against Chemical Attack in 1935. Worked as an engineer in the chemical industry until WWII. From 1941 to 1947 he served in the Red Army. In 1947, he worked at the military academy from which he had graduated with an advanced degree in 1939, and he headed a subdepartment there from 1959 to 1970. In 1974, he became Director of a major laboratory at the Institute of Physical Chemistry of the AN SSSR in Moscow. Since 1981, he has served as Director of the A. N. Neimeianov Elementoorganic Compounds Institute in Moscow that is subordinate to the General and Technical Chemistry Department of the academy. It was established in 1955 and does research on hetero-organic compounds, polymers, and the organic chemistry of isotopes. His work has involved synthesizing ethylene oxide and propylene oxide through the direct oxidation of olefins by atmospheric oxygen. He has investigated esters of cyanofomic acid and the production of transformer oils by the chlorination of biphenyl. He is one of the developers of the current method for concentrating and preserving fragments of radioactive isotopes. He has been Academician Secretary since 1985. In 1988, he was appointed an advisor to the national academy's Presidium. (GSE 27, p. 285.))

Deputy Director
(research planning, staff, post-graduate course)
Prof. Yuri N. Bubnov, Corr. Memb. Russ. Acad. Sci.

135-
8198

(Bubnov, Iurii N. Corresponding member of the General and Technical Chemistry Department of the Academy in 1993. He heads the The Organoboron Compounds Laboratory of the N. D. Zelinskii Organic Chemistry Institute in Moscow.)

Deputy Director
(scientific council, programs, information, social affairs)
Prof. Alexander S. Peregudov

135-8198

Deputy Director
(finances, research equipment, foreign scientific and economic relations,
patent laws and intellectual property's questions)
Dr. Pyotr M. Valetskii

135-6561

Administrative Director
Yuri A. Davidovich 135-6164

Secretary of Scientific Affairs
Dr. Tatiana V. Baukova

135-6165

Secretary of Foreign Scientific Relations
Dr. Inna K. Kuznetsova

135-9278

Director Assistant of Foreign Economic Relations
Dr. Nina M. Chistovalova
6550

135-

Director Assistant of Patent Laws
Dr. Alla N. Chumaevskaya

135-9202

Organoelement Division

Laboratory for Organometallic Compounds

Head of laboratory-- Professor Dmitrii N. Kravtsov

The laboratory was set up in 1935 at the Institute of Organic Chemistry of the USSR Academy of Sciences. In 1954 it became a division of INEOS. Professor A. N. Nesmeyanov (Nesmeianov) headed the laboratory from its organization until his death in 1980.

Investigations in the field of physical organometallic chemistry. Studies on the properties of univalent organometallic groups containing central atoms of transition or heavy main group metals involving π -bond polarity, comparative electronegativity and chemical hardness as well as structure of potentially metallotropic systems. Spectral investigations of novel types of hydrogen bonding and their role in protonation of transition metal π -complexes and hydrides.

Laboratory for Transition Metal p-Complexes

Head of laboratory-- Professor Margarita I. Rybinskaia (aya)

The laboratory was founded in 1978. Synthesis of neutral and cationic mono- and polynuclear complexes including clusters with organic p-ligands. Investigation of their structure and reactivity with the aim of obtaining polydecker and sandwich cluster compounds. Elucidation of the mechanism responsible for stabilization of p-carbocationic center by metallocomplex fragment and synthesis of the first stable metallonium mono- and di-cations on the base of permethylated metallocenes.

Laboratory for Stereochemistry of Organometallic Compounds

Head of laboratory-- Professor Viacheslav I. Sokolov

The laboratory was set up in 1989. Development of new methods for preparing optically active organometallic compounds, investigation of their chiroptical properties. Application of enantiomeric organometallic derivatives of transition metals for asymmetric synthesis of organic compounds. Synthesis of organometallic derivatives of fullerenes, including optically active ones. Synthesis of optically active porphyrins with pendant chiral organometallic substituents.

Laboratory for Organoaluminium and Organoboron Compounds

Head of laboratory-- Professor Vladimir I. Bregadze

The laboratory was founded in 1989. Synthesis of organic and hydride derivatives of boron, aluminium, gallium, indium, thallium and lanthanides, study of their reactivity and application. Metallacarboranes of transition metals, especially platinum group metals, their reactivity, structural study and application in homogeneous catalysts. Carboranyl derivatives of main group metals. Investigation of anti tumor activity of polyhedral boranes and carboranes.

Team for Organometallic Catalysis

Team leader-- Professor Mark E. Vol'pin (Volpin), Member Russian Academy of Sciences

The team was set up in 1994, based on the laboratory, founded in 1964. Synthesis and study of the properties of metal complexes as catalysts for conversion of saturated hydrocarbons and C1 molecules. Functionalization of fullerenes.

Laboratory for Metal Complex Activation of Small Molecules

Head of laboratory-- Professor Vladimir B. Shur

The laboratory was founded in 1989. Activation of small molecules (molecular nitrogen, carbon dioxide, methane, etc.) on metal complexes and development of new catalytic processes on this basis. The use of supported metal clusters in catalysis. Development of catalysts for low-temperature ammonia synthesis. Chemistry of organotitanium, zirconium and hafnium compounds. Development of crown compounds for binding of anions.

Laboratory for Solid State Organometallic Chemistry

Head of laboratory-- Professor Yury (Iurii) N. Novikov

The laboratory was set up in 1989. Structures, chemistry and catalytical properties of the layered solids and cluster compounds (carbon clusters, graphite, metal chalcogenides). Powder X-ray and EXAFS structural studies. Theoretical problems of solid state chemistry.

Team for Chemistry of Coordinated Ligands

Team leader-- Professor Oleg A. Reutov, Member Russian Academy of Sciences

The team was set up in 1982, based on the laboratory, founded in 1964.

The study of the effect of various coordination modes on the structure, reactivity, dynamic behavior and properties of new, non-conventional or little studied classes of organic and heteroorganic compounds as ligands for transition and non-transition metals. [2.2]Paracyclophane derivatives as a new ligand for asymmetric synthesis.

Laboratory for Fine Organic Synthesis

Head of laboratory-- Professor Valerii N. Kalinin

The laboratory was set up in 1987. Catalytic and stoichiometric application of transition metal complexes and organometallics in fine organic synthesis. Chemistry of alkaloids, mesoionic compounds and heterocycles.

Laboratory for Mechanisms of Chemical Reactions

Head of laboratory-- Professor Iurii S. Nekrasov

The laboratory was set up in 1954. In 1954-1983 it was headed by Professor D. N. Kursanov, Corr. Memb. Acad. Sci. USSR

Synthesis of mono- and polynuclear transition metal p-complexes, the study of their structure, properties (including biological activity) and reactivity, chemistry of organometallic ions in a gaseous phase, mass-spectrometry of organoelement compounds and fullerene derivatives, computer mass-spectrometry.

Laboratory for Organophosphorus Compounds

Head of laboratory-- Professor Tatyana A. Mastryukova, Corr. Memb. Russ. Acad. Sci.

The Institute's Senior Consultant in the field of organophosphorus chemistry-- Professor M. I. Kabachnik, Member Russian Academy of Sciences

The laboratory was set up in 1953 at the Institute of Organic Chemistry of the USSR Academy of Sciences, in 1954 it became a division of INEOS. In 1954-1989 the laboratory was headed by Professor M. I. Kabachnik. In 1989 it was combined with the laboratory for organothiophosphorus compounds which has been led by Professor T. A. Mastryukova since 1969.

Chemistry and physical organic chemistry of organophosphorus compounds: development of methods for synthesis, the study of properties, correlation analysis, the problems of tautomerism and dual reactivity, stereochemistry, investigation of biochemical properties and, taking this as a basis, creation of new approaches for finding physiologically active substances of agricultural and medicinal interest.

Laboratory for Organophosphorus Complexating Reagents

Head of laboratory-- Professor Iurii M. Polikarpov

The laboratory was founded in 1989. Chemistry of organophosphorus complexating reagents. Creation of a concept for dependence of the efficiency and selectivity of complexation on the ligand structure. Synthesis of new multidentate phosphoryl-containing agents and the study of their complexing properties. Preparation of complexones, selective extractants and drugs on this basis.

Team for Biologically Active Organophosphorus Compounds

Team leader-- Professor Nikolay N. Godovikov

The team was set up in 1992, based on the laboratory founded in 1971. Development of synthesis of organophosphorus compounds, the study of the mechanism of their action upon different enzyme systems with the aim of designing new biologically active substances.

Laboratory for Organofluorine Compounds

Head of laboratory-- Dr. Gennadii G. Belen'kii (Belenkii)

The laboratory was set up in 1954. Up to 1987 it was directed by Professor I. L. Knunyants, Memb. Acad. Sci. USSR, in 1987-1994-- by Professor L. S. German.

Development of new methods for synthesis of aliphatic fluorine compounds, the study of their reactivity and search for new practical applications.

Laboratory for Physiologically Active Organofluorine Compounds

Head of laboratory-- Professor Nikolay D. Chkanikov

The laboratory was set up in 1982. In 1982-1994 it was led by Professor A. V. Fokin, Memb. Acad. Sci. USSR and Dr. A. F. Kolomiets. The investigation of strong electrophilic organofluorine compounds as precursors of new biologically active substances of medical and agricultural interest.

Laboratory for Homolytical Reactions of Organoelement Compounds

Head of laboratory-- Professor Yury (Iurii) N. Belokon' (Belokon)

The laboratory was set up in 1954. In 1954-1986 it was led by Professor R. Kh. Freidlina, Corresponding Memb. Acad. Sci. USSR

Development of novel methods for the asymmetric formation of C-C bonds using chiral transition metal complexes.

Laboratory for Electrochemistry of Organoelement Compounds

Head of laboratory-- Professor L. I. Denisovich

The laboratory was set up in 1989. In 1989-1993 it was led by Professor I. N. Rozhkov. The study of redox properties of organoelement compounds by electrochemical methods, electrochemical synthesis and methods for preparation of these compounds on the basis of electron transfer-induced reactions. New methods for synthesis of organofluorine compounds and multi-component ceramics for different purposes.

Laboratory for Microanalysis

Head of laboratory-- Dr. Anastasiya G. Buyanovskaia (aya)

The laboratory was founded in 1935 at the Institute of Organic Chemistry of the USSR Academy of Sciences under the guidance of Dr. M. I. Korshun, in 1954 it was incorporated into INEOS. In 1959-1980 it was led by Professor N. E. Gel'man (Gelman).

Development of methods for elemental analysis of organic and organoelement compounds, analytical service.

Laboratory for Organometallic Radicals

Head of laboratory-- Professor Nikolay A. Ustynyuk

The laboratory was founded in 1992. Development of methods for the synthesis of organometallic radicals and ion-radicals of transition metals, compounds, electronic structure and reactivity studies, applications in organometallic synthesis.

Laboratory for Chemistry of Organometallic Clusters

Head of laboratory-- Professor Avtandil A. Koridze

The laboratory was founded in 1993, based on the team, founded in 1989. Development of methods for preparation of homo- and heteronuclear clusters of transition metals, the study of transformations of hydrocarbons and carbon oxide on metal clusters, the study of intramolecular rearrangements in organometallic complexes.

Team for Organometallic Synthesis

Team leader-- Professor Leonid I. Zakharkin

The team was set up in 1989 based on the laboratory founded at 1960. Chemistry of polyhedral organoelement compounds: carboranes, metallocarboranes and heteroboranes, catalytic conversions of diene hydrocarbons to the products used in industrial organic synthesis.

Team for Technical Chemistry

Team leader-- Dr. Sergei M. Igumnov

The team was organized in 1995 on the basis of team of methods for synthesis of organofluorine compounds. The team is engaged in the search of new technic means of chemical aims solution.

At present time the main direction of activity is elaboration of new technology of organofluorine compounds and their production on pilot plants.

Team for Applied Organometallic Chemistry

Team leader-- Dr. Valeriy A. Nikanorov

The team was founded in 1992. The use of organometallic (both of transition and non-transition elements) molecular objects, methods and concepts in promising areas of chemistry, design and architecture of molecular electronic and photoelectronic devices on the basis of novel metal-containing advanced materials.

Team for Biocoordination Chemistry

Team leader-- Professor Il'ya Ya. Levitin

The team was set up in 1993. Development of new approaches for the creation of biologically active transition metal complexes.

Team for Fluorocarbons

Team leader-- Dr. K. N. Makarov

The team was set up in 1994. Synthesis and investigation of physicochemical properties of fluorocarbons. Studies of structure-- properties relations in fluoroorganic chemistry (biomedical aspects).

Team for Ecological Chemistry

Team leader-- Dr. Alexei F. Kolomiets

The team was founded in 1995. Synthesis and the study of bioactive organoelement compounds as potential agents for ecological rehabilitation.

Laboratory for Carbocyclic Compounds (located in N. D. Zelinsky (skii) Institute of Organic Chemistry, Russ. Acad. Sci.)

Head of laboratory-- Professor Yury (Iurii) N. Bubnov, Corr. Member Russian Academy of Sciences

The laboratory was founded in 1936. Chemistry and physical organic chemistry of organoboron compounds, their application in multipurpose organic synthesis. Creation of novel boron structures: unsaturated, cyclic and cage compounds. Elaboration of "boron" methods of organic synthesis. Preparation of natural products and their analogues via organoboranes. Study of borotropy and permanent allylic rearrangement.

Laboratory for Biosynthetic and Stereoselective Reactions

Head of laboratory-- Professor Vasiliy M. Belikov

The laboratory was founded in 1991 at the Institute of Food Substances. In 1995 it became a division of INEOS.

Labile complexes as promoters of diastereoselective catalytic reactions. Pyridoxal-phosphonate-dependent enzymes as catalysts in the synthesis of various chiral substances including amino acids and their organoelement analogues. Chromato-mass-spectroscopic analysis.

Team for Liquid Chromatography

Team leader-- Dr. Vladimir A. Tsyryapkin

The team was set up in 1975. The group performs serial amino acid analysis, gel-chromatographic analysis of polymeric materials and HPLC of organometallic substances.

Polymer Division

Laboratory for Macromolecular Compounds

Head of laboratory-- Professor Aleksandr L. Rusanov

The laboratory was founded in 1938 at the Institute of Organic Chemistry of the USSR Academy of Sciences, in 1954 it became a division of INEOS. During 50 years the

laboratory has been headed by Professor V. V. Korshak, Member Acad. Sci. USSR

Development of new polycondensation processes and polymers. Preparation, modification and study of organoelement and cyclo-chain polymers and systems with conjugated bonds. The search of new ways of application of UV- and IR-laser radiation for modification and synthesis of polymers.

Laboratory for Heterochain Polymers

Head of laboratory-- Professor Valeriy A. Vasnev

The laboratory was set up in 1962. Up to 1991 it was led by Professor S.V. Vinogradova. Elaboration of basic principles of the organic and organoelement heterochain polymer formation, primarily, by polycondensation and polymer-analogous substitution. The search for new promising polymers with specific properties (thermal, electrophysical, liquid-crystalline, catalytic, luminescent, etc.).

Laboratory for Polymerization Processes

Head of laboratory-- Professor Victor A. Kotelnikov (Kotel'nikov)

The laboratory was founded in 1964. In 1964-1989 it was led by Professor T. M. Frunze, in 1989-1992 by Professor V. V. Kurashov.

Study of the method of lactams anionic activated polymerization, of hydrogen transfer polymerization of nitrogen-containing vinyl monomers, synthesis of block-copolyamides of different structure.

Laboratory for Organosilicon Compounds

Head of laboratory-- Dr. Boris G. Zavin

The laboratory was found in 1954. In 1954-1978 it was led by Professor K. A. Andrianov, Memb. Acad. Sci. USSR, in 1979-1989 by Professor A. A. Zhdanov.

Chemistry of oligo- and polysilanes, polycarbosilanes and polysiloxanes. Organoelement chemistry of silicon: investigation of formation processes and conversion reactions of functional organosilicon monomers and oligomers. The study of different polymerization processes of organosilicon monomers and development of new methods for preparation of linear, cycloliner, ladder-type homo- and co-polymers (random, block and graft structure). Relations between structure and properties in silicon-containing polymers.

Laboratory for Polyarylenes

Head of laboratory-- Professor Vladimir A. Sergeiev

The laboratory was set up in 1978. Development of scientific basis for the synthesis of new aromatic polymers. Preparation of thermoplastic and thermoreactive polyarylenes. The study of aromatic polymers as macromolecular ligands for the synthesis of organometallic polymers using the methods of organic and organoelement chemistry and the study of their properties.

Laboratory for Filled Polymer Systems

Head of laboratory-- Professor Aleksandr P. Krasnov

The laboratory was found in 1979. In 1979-1989 it was led by Professor I. A. Gribova. Study of tribochemical processes on the friction surfaces and mechanochemical processes upon reprocessing with the aim of creating scientific foundations for the synthesis of filled polymer wear-resistant antifriction materials, coatings and new technologies for their preparation.

Laboratory for Organoelement Functional Polymers

Head of laboratory-- Professor Yury (Iurii) G. Gololobov, Corresponding Memb. Acad. Sci. Ukraina

The laboratory was set up in 1978. New approaches to the synthesis of organoelement (P,S) functional monomers and polymers aimed at preparing physiologically active substances of medicinal interest, adhesives and other special purpose macromolecular compounds.

Laboratory for Thermoreactive Polymers

Head of laboratory-- Professor V. A. Pankratov

The laboratory was founded in 1980. Synthesis of thermoreactive oligomers and polymers. Development of new polymer network systems for creating various composite materials. The study of interaction between consolidants-polyfunctional monomers and oligomers with linear heterochain polymers (polyesters, polyamides, polyurethanes et al.).

Laboratory for Polymer Synthesis

Head of laboratory-- Dr. Pyotr M. Valetsky (skii)

The laboratory was found in 1961. Laboratory carries out the research on synthesis of organometallic and organoelement polymers and polymer-analogous reactions. In the field of organometallic polymers the immobilization of organometallic compounds on polymeric matrices with active groups as ligands is a main approach. The transformations of organometallic polymers and polymeric blends with organometallic compounds by thermolysis, photolysis, and reduction are studied as a way for preparation of polymeric materials with metal atoms, clusters and colloids. Catalytic, magnetic and conductive properties of metalcontaining polymers are investigated.

Laboratory for Polymer Physics

Head of laboratory-- Professor Vladimir S. Papkov

The laboratory was founded in 1958. In 1958-1990 it was led by G. L. Slonimsky (skii) . Experimental and theoretical studies on the correlation between the chemical structure of macromolecules, morphology of polymer bodies and their mechanical and physical properties. Investigation of thermal chemical and physical processes in polymers and compositions on their basis.

Laboratory for Physical Chemistry of Polymers

Head of laboratory-- Professor A. R. Khokhlov, Corr. Member Russian Academy of Sciences

The laboratory was founded in 1954. Up to 1991 it was led by Professor S. A. Pavlova. Laboratory has the possibility of experimental characterization of polymer properties in dilute solutions (determination of different averages of molecular weights, molecular weight distributions, Kuhn segment length, osmotic second virial coefficients, characteristic viscosities, sedimentation coefficients, etc). Experimental methods employed: elastic light scattering, viscosimetry, osmometry, sedimentation, gel permeation chromatography.

The Laboratory is also involved in theoretical and computer modelling research in statistical physics of macromolecules (ion-containing polymers, polymer gels, polymer liquid crystals, topological restriction in polymer systems, microdomain structures in block-copolymer systems).

Laboratory for Polymer Structure Research

Head of laboratory-- Professor Aleksandr I. Pertsin

The laboratory was founded in 1989 on the basis of the laboratory for organic crystal chemistry organized in 1954 and led by Professor A. A. Kitaigorodsky (skii) in 1954-1985.

Investigations of the surface and bulk structure polymers by the methods of X-ray photoelectron and Auger spectroscopies, X-ray diffraction, electron microscopy and computer modeling.

Laboratory for Polymer Materials

Head of laboratory-- Professor Andrei A. Askadsky (skii)

The laboratory was found in 1989. Investigation of the structure and mechanical relaxation properties of heat-resistant polymer materials, study of conductivity of compositions based on heat-resistant polymers and organoelement compounds, prediction of physical properties of polymers, computer design of polymers. Preparation of gradient-modulus polymeric materials.

Laboratory for Stereochemistry of Sorption Processes

Head of laboratory-- Professor Vadim A. Davankov

The laboratory was founded in 1975. Separation of enantiomers by ligand-exchange chromatography, synthesis of new types of sorbents for HPLC (hydrophobic, exclusion, ion-exchange, chiral) on the basis of porous mineral matrixes with grafted polymer layers, synthesis and study of hyper crosslinked polymer networks and sorbents based on these materials.

Team for Mesomorphic Organosilicon Compounds

Team leader-- Dr. Natalia N. Makarova

The team was founded in 1989. The study on the effect of various factors (specific interactions, the degree of molecular anisodiametry, packing coefficient, structural and spatial isomerism of polymer chain unit) on the formation of mesomorphic state in organosilicon monomer and polymer compounds.

Laboratory for Condensation Polymers

Head of the laboratory-- Professor Iakov S. Vygodskii

The laboratory was found in 1992. The study of synthesis and characterization of thermally stable, soluble, functional high performance polymers (polyimides, polyamides, polydiketones etc.).

Team for Metallosiloxanes

Team leader-- Professor Aleksandr A. Zhdanov

The team was set up in 1993. Synthesis and investigation of structure and properties of frame-work and polymeric metallosiloxanes. Synthesis of linear and crosslinked siloxane-urethane block copolymers and interpenetrating polymer networks on siloxane base.

Team for Chemistry of Polycondensation Thermoplastics

Team leader-- Professor Sergei N. Salazkin

The team was set up in 1993. The study of the synthesis and characterization of aromatic polyketones, obtained by nucleophylic and electrophylic substitution reactions.

Team for Sulfur-containing Polymers

Team leader-- Professor Vladimir I. Nedel'kin (Nedelkin)

The team was set up in 1994. Synthesis of sulfur-containing polymers by nucleophylic, electrophylic substitution and by direct interaction of sulfur with aromatic compounds. Investigation of the structure and properties of polymers and composition materials on their basis.

Laboratory for Physiologically Active (Bio)Polymers

Head of laboratory-- Professor Igor' A. Yamskov

The laboratory was set up in 1991 at the Institute of Food Substances. In 1995 it became a division of INEOS.

Synthesis, isolation, structure and bioactivity of oligosaccharides. Development of hydrophylic sorbents for isolation and purification of glycoproteins, glycosidases, lectins, poly- and oligosaccharides. Synthesis of macromolecular sorbents with hypolipidemic and wound healing activity.

Laboratory for Cryochemistry of (Bio)Polymers

Head of laboratory-- Professor Vladimir I. Lozinsky (skii)

Laboratory was set up in 1994 at the Institute of Food Substances. In 1995 it became a division of INEOS.

Study of chemical and physico-chemical processes in frozen macromolecular systems, phenomena of cryodenaturation of biopolymers, cryomechanical cracking of macromolecules, cryochemical synthesis of polymers, and, especially, cryotropic gel-formation. Development of high-porous polymeric cryogels for applied purposes: for biotechnology, food industry, material technology and other.

Team for Mucopolysaccharides

Team leader-- Dr. Arif I. Gamzazade

The team was set up in 1993 at the Institute of Food Substances. In 1995 it became a division of INEOS. Study on the structure and polyelectronic properties of intermediates in polymer-analogous and interpolyion reactions of nitrogen- and sulfur-containing polysaccharides (chitin, chitosan, chondroitin, heparin, etc.). The search of the relationship "structure-activity" in particularly modified derivatives of these polysaccharides.

Physical Division

Laboratory for X-Ray Diffraction Studies

Head of laboratory-- Professor Mikhail Iurii Antipin

The laboratory was reorganized from the similar group in 1977. Structural chemistry and stereochemistry of organometallic, organoelement, coordination, organic and biologically active compounds. Development of experimental and computational techniques for X-ray diffraction method, especially of precision character, and for molecular mechanics calculations. In 1989, on the basis of this laboratory the Center of X-ray Structural Investigations of the General and Technical Chemistry Division of the Russian Academy of Sciences was organized. The laboratory serves also as a Russian affiliated Center of the Cambridge Structural Database.

Laboratory for Nuclear Magnetic Resonance

Head of laboratory-- Professor Aleksandr S. Peregudov

The laboratory was set up in 1978 on the basis of the team for nuclear magnetic resonance, organized in 1961. In 1978-1991 it was led by Professor E. I. Fedin. In 1994 the Center was included in NMR Division of Sophisticated Instruments Facility supported by Russian Foundation of Basic Research.

The NMR study of structure and molecular dynamics of organoelement and polymer compounds in solutions and solid state. Development of interpretation schemes and experimental techniques of NMR.

Nuclear Magnetic Resonance Instrumentation Laboratory

Head of laboratory-- Ph.D. Il'ya P. Amiton

Investigation, development, modernisation, repairing in NMR-instrumentation area (NMR-spectroscopy, NMR-tomography ("NMR-imaging"), NMR in-vivo spectroscopy

etc.) for scientific, industrial and medical applications. Testing of NMR-systems and subsystems. Consulting for users, designers, and manufacturers.

Laboratory for Physical Chemistry of Solid State

Head of laboratory-- Professor Granit K. Semin

The laboratory was founded in 1989 on the basis of the team for nuclear quadrupole resonance organized in 1961.

The study of inter- and intramolecular interactions by means of nuclear quadrupole resonance and photoelectron spectroscopy. The search for correlation between the properties of substances at the micro- and macro-levels. Development of measuring techniques.

Laboratory for Molecular Spectroscopy

Head of laboratory-- Professor Boris V. Lokshin

The laboratory was founded in 1965. Application of molecular spectroscopy methods (IR, far IR, UV, visible and Raman spectroscopy) for studying the structure and reactivity of organoelement compounds, the structure of unstable compounds at low temperatures and molecular dynamics in crystals.

Laboratory for Computer Chemistry

Head of laboratory-- Professor Yuriy (Iurii) A. Borisov

The laboratory was set up in 1987. The modelling methods for investigating the structure, physico-chemical properties and reactivity of organoelement compounds and polymers, bibliographic and factual databases, new computer software.

Laboratory for Quantum Chemistry

Head of laboratory-- Dr. Ivan V. Stankevich

The laboratory was founded by Professor D. A. Bochvar in 1967, based on the team for quantum chemistry. In 1987 it was renamed to computer chemistry laboratory, which was directed by Professor Iurii A. Borisov. In 1989 the team was separated from the computer chemistry laboratory and in 1994 it was transformed into the laboratory again.

In 1973 Professor D. A. Bochvar and Dr. E. G. Gal'pern (Galpern) inferred from an MOLCAO calculation of the polyhedral carbon cluster C₆₀ (Fullerene) that this molecule should be stable.

Development and mathematical substantiation of the methods for quantum-chemistry modeling of electron molecular structure and their application to the theory of reactivity of organoelement compounds. The use of quantum chemistry methods in the search for new molecular systems, simulation of their structure and prediction of the properties.

Laboratory for Electron Paramagnetic Resonance

Head of laboratory-- Professor Nikolay N. Bubnov

The laboratory was founded in 1992 on the basis of the team for electron paramagnetic resonance. In 1964-1989 it was a part of the laboratory for organophosphorus compounds.

Development of the methods for preparation and analysis of active substance forms, viz. free radicals, ion-radicals and paramagnetic complexes. The study of the structure and reactivity of active free radicals and ion radicals, dynamic effects in paramagnetic complexes by means of ESR method in combination with flash photolysis. FMR-study of ultradispersed particles.

Scientific and Technical Centrum on Raman Spectroscopy of the General and Technical Chemistry Division of the Russian Academy of Sciences

Head of the Centrum-- Dr. Sergei S. Bukalov

The Centrum allows the scientists to carry out investigation using the present day level experimental Raman facilities.

Pilot Plant Laboratory

Head of laboratory-- Aleksandr S. Kogan

The laboratory was founded in 1962. Technical realization of processes developed at the Institute, creation and development of technological schemes and regulations, production of chemicals on the pilot scale.



7. Institute of Physiologically Active Materials (IPAM)

Chernogolovka post office, Noginskii district, Moscow region, 142432

Directed by academician Nikolai S. Zefirov, tel.524-50-62

(**Zefirov, Nikolai S.**, D. Chem. S. Born in 1935. Corresponding member of the General and Technical Chemistry Department of the Academy since 1981. Academician since December 1987. He is presently director of the Institute of Physiologically Active Materials (IPAM) located in Chernogolovka, Noginskii District, Moscow Region.)



8. Institute of Electrochemistry named after A. N. Frumkin (IEI RAS)

31, Leninskii ave., V-71, Moscow, 117071

tel. 952-04-28, fax: 952-08-46

Directed by Corresponding Member Vladimir Ev. Kazarinov, tel. 952-46-48

Kazarinov, Vladimir E., D. Chem S. Born in 1933. Corresponding member of the General and Technical Chemistry Department of the Academy in 1993. Since 1977, he has been Director of the Electrochemistry Institute in Moscow which was established in 1958. He also heads the double layer and electro-catalysis department

of the institute where studies are conducted on ion metal/gas and metal/solution interfaces with the combined use of electrochemical, radio tracer and optical methods and surface spectroscopy; methods for investigating surface micro inhomogeneities in electrochemical systems are devised. Photoelectron emissions at the metal/solution interface are observed. Work is conducted on the direct conversion of the ionizing radiation energy in the semiconductor/solution system into chemical and electrical energies. He is presently director of the Institute of Electrochemistry named after A. N. Frumkin (IEI RAS).

Retrospect: Established in 1958. Since 1977, Vladimir E. Kazarinov, D. Chem. S., and corresponding member of the RAS has been Director of the institute. Deputy Directors have included: Vladimir S. Bagotskii, D. Tech. S., since 1970 who headed the Porous Gas Electrodes Laboratory from 1972; and, Nadezhda A. Shumilova, D. Chem. S., since 1962 and who also headed the Oxygen Electrocatalysis Department from 1975. Institute research extends from theoretical work in electron and proton transfer to applied electrochemistry on batteries. At present, the main directions of research include the equilibrium properties of interfaces, the elementary act of heterogeneous and homogeneous charge transfer processes, the working out of the scientific principles of new processes of electrochemical synthesis and the technology of production of organic compounds, electrocatalysis, electrolysis, the development of new types of power sources and sensors, electrochemical data converters, bioelectrochemistry, radiation electrochemistry, electrochemistry of polymeric systems, the automation of scientific experiments, and the design and construction of electrochemical instruments. The institute is organized into 15 laboratories, a scientific library, a mechanical shop and a glass-blowing shop. The staff of the institute numbered some 368 persons in 1991 of whom 248 were scientific workers which included two corresponding members of the RAS and of whom 33 held doctoral degrees and 119 held candidate degrees. The institute holds diplomas for four discoveries, and from 1976 to 1987 received some 285 certificates for inventions that were introduced into industrial practice by some 100 Russian institutions. A number of the inventions have been patented abroad.

(older material)

Structure and Personnel: The institute is organized into four departments and 12 laboratories and two research groups: the departments are:

- (1.) The Theoretical Department** under Dr. A. M. Kuznetsov, D. Chem. S.--studies quantum mechanical theory of chemical, electrochemical and biochemical reactions in polar media; non-local electrostatics and applications to physical chemistry, electrochemistry and biophysics; the theory of the structure of electrified interfaces; the theory of optical methods for the study of the fine structure of electrochemical interfaces, the adsorption phenomena, photo emission, and phase transitions in the double layer, and the theory of electrochemical phenomena in systems with liquid and solid electrolytes, involving diffusion-migration transport of ions.
- (2.) the Double Layer and Electro-catalysis Department** under V. E. Kazarinov, CM of the RAS studies metal/gas and metal/solution interfaces with the combined use of electrochemical, radio tracer and optical methods, surface spectroscopy, the development of the methods for investigating surface micro-inhomogeneities in electrochemical systems, and photoelectron emissions at the metal/solution interface, microcalorimetry, and the direct conversion of the ionizing radiation energy in a semiconductor/solution system into chemical and electrical energies.

- (3.) **The Bioelectrochemistry Department** under Iurii A. Chizmadzhev, CM RAS, studies the theory of excitable media, membrane transport, equilibrium electrochemical properties of lipid bilayers, double layer and adsorption, mechanics of model and cellular membranes, interaction and fusion of membranes, cells in electric fields and their motion, rotation, electroporation, electro-fusion and electrotransfection, and electrochemistry of interfaces between immiscible liquids, and
- (4.) **The Electrochemical Devices Department** under Professor Iurii B. Vassil'ev, D. Chem. S.

The 12 laboratories include: (1.) **The Electrochemical Transducers Laboratory** under M. A. Novitskii, D. Chem. S., studies electrochemical transducers, electrochemical impedance, electrochemical processes in systems with hydrodynamic fluxes, and solid electrolytes; (2.) **The Electrochemistry of Metals Laboratory** under A. D. Davidov, D. Chem. S. studied electrochemical modulation of electrodes, cathodic incorporation, phase formation processes, anodic dissolution of metals as applied to different kinds of electrochemical machining with a view to obtaining both a preset form and preset properties of the surface layer and also as applied to anodes of chemical power sources, cathodic deposition of metals at high current densities in vigorously stirred electrolytes, conversion of the energy of radiations at semiconductor electrodes, the development of the electrochemical impedance method as applied to the investigation of the structure and properties of interfaces and of the mechanism and kinetics of electrode reactions; (3.) **The Metal Catalysts Laboratory** under Professor Iurii B. Vassil'ev, D. Chem. S., studies the adsorption and kinetics of electrode processes on platinum group metals, the chemical and structural factors in electrocatalysis, electrode processes during electrosynthesis of fluororganic compounds, and the development of electrochemical methods and devices for environmental monitoring and medicinal purposes; (4.) **The Electrochemical Macrokinetics Laboratory** under Iurii M. Vol'fkovich, D. Chem. S., studies electrocatalysis, the macrokinetics of porous electrodes from carbon materials including promoted electrodes, macrokinetics of processes in porous media, in electrochemical cells with capillary or ion-exchange membranes, the structure of formation processes in porous and dispersion media, the structure of porous media, and anodic and cathodic processes in lithium cells with aprotic solvents; (5.) **The Nonmetallic Materials Electrochemistry Laboratory** under Professor M. R. Tarasevich, D. Chem. S., studies the electrocatalytic and electrochemical properties of nonmetallic systems, processes in batteries, sensors and devices used for medical purposes, employing novel nonmetallic materials; (6.) **The Electrode Processes Kinetics Laboratory** under Professor L. I. Krishtalik, D. Chem. S., studies the elementary act of electrochemical and biological charge transfer reactions, and industrial electrolysis processes and electrical power engineering; (7.) **The Nonplatinum Catalysts Laboratory** under Professor A. G. Pshenichnikov, D. Chem. S., studies the surface state, structure and electrocatalytic properties of compact and dispersed catalysts based on nickel and other transition metals, electrodes and membranes on the basis of metalhydrides, processes in solid polymer electrolyte and electrode systems, macrokinetic processes in porous electrodes and layers, gas generation mechanism in electrochemical systems, and processes in hydrogen-oxygen cells and metal-hydrogen chemical power sources; (8.) **The Electrosynthesis Laboratory** under Professor G. A. Tedoradze, D. Chem. S., studies the theoretical principles of electrochemical halogenation, dehalogenation and other reactions involving charge transfer to the organic compound molecule, the electric double layer structure at the metal/electrolyte interface in the presence of organic compounds, and the electrochemical methods of purification of effluents; (9.) **The**

Polymer Systems Electrochemistry Laboratory under Professor A. V. Vannikov, D. Chem. S., studies the electrochemical synthesis of polymer systems and electrochemical methods of their doping, charge transfer processes in polymer media, photo, radiation, electrically and thermally-initiated, the electrical, photo and radiation-electrical properties of polymers, transient processes, the development of new nonsilver light-sensitive materials on the basis of electron donor-acceptor complexes, and the development of information registering systems; **(10.) The Radiation Electrochemistry Laboratory** under Professor G. F. Egorov, D. Chem. S., studies radiation electrochemistry of two-phase aqueous-organic systems, the development of the theoretical principles of the radiation chemical and electrochemical behavior of the extraction system components (extractants, diluents, aqueous solutions of actinides) with the object of solving practical problems of the nuclear fuel reprocessing, agentless methods of oxidation and reduction of transition metaions in aqueous solutions and in two-phase aqueous organic system, physical chemistry of disperse systems (liquid-liquid) the development of methods for control of the aggregative stability and breakdown of stable emulsions, and radiation purification and decontamination of water; **(11.) The Electrochemical Instruments Laboratory** under V. N. Alekseev, D. Chem. S., studies the development and refinement of volumetric methods of electrochemical systems under simultaneous exposure to a small homonic signal, light flux, hydrodynamic forces, etc., nonlinear methods of investigation of electrochemical systems, and the design and construction of instruments and devices based on the methods--in cooperation with other laboratories of the institute, and, **(12.) The Automation of Scientific Investigation Laboratory** under M. Ya. Katz, D. Chem. S., studies the development of hardware for the automation of the working place of researchers, the development of standard systems for automation of physico-chemical methods and problem oriented applied software for these methods, the development of a system for the automation of the scientific activity and administrative economic management of the institute, and the development of systems and applied general purpose software for the automation of scientific studies.

There are two Research Groups active in the Institute: **the Lithium Cells Group** under Doctors A. M. Skundin and L. S. Kanvskii, both Doctors of Chemical Sciences who lead research in Anodic and cathodic processes in lithium cells with aprotic solutions, and **the Radiation Sources Group** under D. M. Zorin who leads studies in the refinement and maintenance of powerful ionizing radiation sources (pulsed linear electron accelerators, radioactive cobalt sources) for use by research groups of the institute of electrochemistry and other institutes, both academic and nonacademic, the development of automated measuring techniques for the investigation of fast electrochemical, radiation chemical and photochemical processes initiated by ionizing, conventional light sources or laser radiation pulses. (Material provided in a brochure provided by Professor Kazarinov with a letter dated 22 June 1992. V. E. Kazarinov, Ed. A. N. Frumkin *Institute of Electrochemistry, 1958-1991*. Moscow: "Nauka", 1991, 112 pp.)(Also see: LDA 89-11378.)



8. The Chemistry Institute in Nizhnii Novgorod

Retrospect: This institute was founded in 1970 under Director Grigorii A. Razuvaev, D. Chem. S., since '70; Deputy Directors: Deviatikh, Grigorii G., D. Chem. S., since '82; and Viazankin, Nikolai S., D. Chem. S., since '71.

(Older Material)

The historical organization and structure of this institute is as follows:

Metallic Ceramic Compounds Laboratory;

Polymer Stabilization Laboratory;

Unidentified Laboratory: Deviatikh, Grigorii G., D. Chem. S., since '72.

[**Deviatikh, Grigorii G.**, D. Chem. S. Born in 1918 in Viatka Province. Russian chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1968, and academician, 1974. He graduated from the chemistry Department of inorganic chemistry at the University of Gorkiy in 1941. He is head of the Department of inorganic chemistry at the University of Gorkiy, and since 1972 he has headed an unidentified laboratory at the Institute of Chemistry of the AN SSR in Gorkiy. Since 1982, he has served as Deputy Director of the Chemistry Institute in Gorkiy, that researches the creation of pure compounds. In 1985, he was awarded the Lenin Prize for his work on the development of pure substances. His work is in the separation of stable isotopes and the preparation and analysis of extremely pure substances. In 1980, he received the A. S. Popov Prize. In 1981, he was the recipient of the D. I. Mendeleev Gold Medal for his work in research in the chemical sciences. In 1988, he was named head of the new Institute of the Chemistry of Viscose Substances in Nizhnii Novgorod. (GSE 8, p. 170.)]

In 1988 this institute was divided into two institutes--each laboratory listed above constituting the basis for each of the new institutes :

9. The Institute of Metalorganic Chemistry in Niznii Novgorod.

49, Tropinina st., GSP-445, Niznii Novgorod, 603600

tel. 66-97-84, teletype: 151775 Niznii Novgorod Litii, fax: (8-831)

235-64-80. Directed by Corresponding Member Gleb L. Abakumov, tel.66-27-09

This institute was taken from a Department of the General and Technical Chemistry of the RAS. Its Director since 1988 has been Gleb L. Abakumov, D. Chem. S.

(**Abakumov, Gleb L.** D. Chem. S. Corresponding member of the General and Technical Chemistry Department of the Academy since 1987. He is presently director of the Institute of Metalorganic Chemistry (IMC) located in Niznii Novgorod.)

10. The Institute of the Chemistry of Viscose Substances in Niznii Novgorod.

Deviatikh, Grigorii G., D. Chem. S. Born in 1918 in Viatka Province. Russian chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1968, and academician, 1974. He graduated from the chemistry Department of inorganic chemistry at the University of Gorkiy in 1941. He is head of the Department of inorganic chemistry at the University of Gorkiy, and since 1972 he has headed an unidentified laboratory at the Institute of Chemistry of the AN SSR in Gorkiy. Since 1982, he has served as Deputy Director of the Chemistry Institute in Gorkiy, that researches the creation of pure compounds. In 1985, he was awarded the Lenin Prize for his work on the development of pure substances. His work is in the separation of

stable isotopes and the preparation and analysis of extremely pure substances. In 1980, he received the A. S. Popov Prize. In 1981, he was the recipient of the D. I. Mendeleev Gold Medal for his work in research in the chemical sciences. In 1988, he was named head of the new Institute of the Chemistry of Viscose Substances in Nizhnii Novgorod. (GSE 8, p. 170.) {This institute was taken from the Department of Physical Chemistry and Technology of Inorganic Materials Since 1988, its Director has been Grigorii G. Deviatikh. He received the A. S. Popov Prize for his scientific contributions in 1980. }



11. Institute of Food Stuffs in Moscow

Located at 28 Vavilova st., Moscow, U-334, GSP-1, 117813. Tel. 135-62-88; teletype: 207362 EOS; fax: 135-50-85. Directed by Professor Mikhail N. Manakov.



12. Institute of Synthetic Polymeric Materials (ISPM)

Located at 78 Profsouznaia (aya) st., U-393, Moscow, 117393. (Tel. 335-91-00; fax: 428-22-29. Directed by Nikolai F. Bakeev.

Bakeev, Nikolai F., D. Chem. S. Born in 1932. Corresponding member of the General and Technical Chemistry Department of the Academy since December 1987; academician in 1993. In 1987, he shared the V. A. Kargin Prize in physical chemistry with A. L. Volinskii and E. A. Sinevich. He is presently Director of the Institute of Synthetic Polymeric Materials in Moscow which was established from within the General and Technical Chemistry Section of the RAS. The Institute of Synthetic Polymeric Materials (ISPM) was established in 1981 within the General and Technical Chemistry Section of Russian Academy of Sciences.

Recent directions of ISPM's scientific activity are:

R&D investigations in the field of new generation of thermostable synthetic polymers and high-strength composite polymeric materials;

Research of synthetic polymeric materials with special complex of electrical, magnetic, optical, acoustic and other physical properties;

R&D of high-filled heterogeneous composite polymeric materials;

R&D of flame-retardant polymers for different applications;

R&D of solid-state reaction chemistry depending on outer factor influence like high pressure, shear rate, ultrasound vibrations and others.

Research in the field of scientific background for high-temperature superconductive polymeric materials design;

Co-ordinations of some State Scientific Research Projects dealing with new polymeric materials R&D.

ISPM comprises 6 scientific laboratories. Big laboratories are subdivided into some scientific groups. The labs are:

- 1. The laboratory of organosilicon polymers molecular design**
- 2. The laboratory of physical and chemical investigations of polymers**
- 3. The laboratory of physics and chemistry of electroconductive polymers**
- 4. The laboratory of polymer burning**
- 5. The laboratory of solid-state chemical reactions**
- 6. The laboratory of electrophysical properties of polymers and composites**

The average age of the institute's scientific personnel is 39.

Some undergraduate and postgraduate students of Moscow Physical and Technical Institute are doing their practical works at ISPM.

Personnel Total: 146



13. Structural Macrokinetics Institute in Chernogolovka, Noginskii District

(1996 update)

Mail to Chernogolovka post office, Noginskii district, Moscow region, 142432.

Directed by Academician Nikolai S. Zefirov. (Tel. 524-50-62)

Zefirov, Nikolai S., D. Chem. S. Born in 1935. Corresponding member of the General and Technical Chemistry Department of the Academy since 1981. Academician since December 1987. He was formerly director of the Institute of Physiologically Active Materials (IPAM) located in Chernogolovka, Noginskii District, Moscow Region. He is now Director of the Structural Macrokinetics Institute located in Chernogolovka.

The Institute of Structural Macrokinetics Russian Academy of Sciences (Russian acronym is ISMAN) is young developing academic institution in the field of macroscopic kinetics of chemical reactions. The researchers working at the Institute are interested in the processes of any chemical nature in which an important part is played by physical factors, e.g. processes of heat and mass transfer, phase and structural transformations. Theoretical and experimental studies of mutual effect of chemical and physical processes on each other, the revealing of direct and inverse relations between them, the description of phenomena, modes, and effects due to these relations make up a scientific approach to investigations developed at the Institute. In this regard strongly exothermic processes, rich in macrokinetic effect, are of great interest. Because of this, the theory and practice of combustion became a basis for the research activity at the Institute.

The Insatiate is located in a small town Chernogolovka, Moscow region, and is part of the department of general and technical chemistry of Russian Academy of Sciences with a staff of nearly 500 people (researches and technicians). ICEMAN was established in 1987 on the base of the department of macroscopic kinetics of the Institute of Chemical Physics, USSR Academy of Sciences. By the time the Institute was established a well-united team of young like-minded researchers who used macrokinetic approach in theoretical and experimental investigations and acquired a taste for practical applications had been already successfully working.

Staff of Institute of Structural Macrokinetics

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14. The Institute of Chemical Physics in Chernogolovka of Russian Academy of Science (ICPC)
Chernogolovka,, Noginskii district, Moscow Region, 142432; teletype: 346611 ATOM. Directed by Professor Sergei M. Baturin, tel. 524-50-87.

10 scientific departments,
and 60 laboratories:

1. Department of Combustion and Explosion
2. Department of Kinetics and Catalysis
3. Department of High Dynamic Pressure
4. Department of Substance Structure
5. Department of Polymer and Composite Materials
6. Department of Kinetics of Biological and Chemical Processes
7. Mathematical Department
8. Department of Photochemistry
9. Department of Chemical Technology
10. Department of Ecological Monitoring

1. Department of Combustion and Explosion
Professor G. B. Manelis, Head of Department

Gas Dynamics Laboratory

Professor Vladimir E. Fortov, Head of Laboratory, mail to:
fortov@ficp.ac.ru
Chernogolovka, Moscow r-n, 142432, Russia
Phone/Fax: +07 095 9132322
WWW: <http://www.ficp.ac.ru>

(1997 update)

FORTOV, Vladimir Eugenievich, D. PM. S. Born in January 23, 1946, Moscow, USSR. He graduated from the Moscow Institute of Physics and Technology as M. Sc. in "Space Research and Plasma Thermodynamics" in (1968) and did post-graduate courses at that Institute, earning his Ph.D. in 1971: his thesis was entitled "Physics of Intense Shock Waves in Dense Plasma"; he received his Doctor of Physics and Mathematics degree in 1976 and his dissertation was entitled: "Physics of Strongly Coupled Plasma. He has been a Professor of Chemical Physics and Plasma Physics since 1978 and has been teaching in the Moscow Institute of Physics and Technology since 1991. He is also a Professor of "High Energy Density Physics". He was elected a Correspondent Member of USSR Academy of Sciences of a Division of Physics and Energy (1987) and the Division of Pure and Technical Chemistry (1990); in 1991, he became an Academician of the Russia Academy of Sciences both of these Divisions. He has been Chief of the Laboratory of Gas Dynamics of the Institute of Chemical Physics in Chernogolovka since 1971, and was the Chief of a Laboratory in the Moscow High Temperature Institute from 1988 to 1990. Since 1990, he has been the Director of the High Energy Density Research Center of RAS, the Chairman of the Russian Foundation for Basic Researches (Moscow, since 1993), and since 1996 he has been the Head of the State Committee on Science and Technology and Deputy Prime Minister to the President of Russia.

In 1986, he was awarded the USSR State Award in Physics and Mathematics "For Dual Protection System and Space Impact Experiments in Internal Project "Vega" of the Halley Comet Experiment Exploration", was awarded by USSR Red Banner Order (1988) "For Investigation in Physics and Computational Mathematics" and Medal "For Merits for Fatherland" (1996).

Since 1991 until now Vladimir E. Fortov has been an Academician of Russia Academy of Sciences, Member of New York Academy of Sciences (USA), a Member of American Physical Society, Division of Condensed Matter Physics and Division of Shock Waves, a Correspondent Member of AIRAPT, a Member of European Working Union "European Conference of Thermophysical Properties", Chairman of Union "Physics of Low Temperature Plasma" Russian Academy of Sciences, Chairman of Russian Scientific Council "Synchrotron Radiation Beam Technologies" Ministry of Science and Technology, Member of Editorial Boards of International Journal "Pressure Research", Gordon and Breach, International Journal "Physics of High Energy Density", Russian Journal "Thermophysics of High Temperature", Co-Editor of International Review Edition, Soviet Technical Review -Thermal Physics Review, Sec.B, Gordon and Breach.

The Gas Dynamics Laboratory unites researchers in the field of High Energy Density Physics.

Gas Dynamics Laboratory
Overview

The Gas Dynamics Laboratory of the Institute of Chemical Physics in Chernogolovka was organized about twenty years ago for carrying out investigations in the High Energy Density Physics. We explore now the behaviour of the matter under extreme physical conditions: high pressure, high temperature, intense particles, ions and laser beams, impulse dense electro-magnetic fields, shock and detonation processes, chemical explosions, plasma generation, materials stress loading and spalling and so on.

We have developed now various experimental facilities: explosion chambers, explosion driven magnetic generators, laser installations, plasma generators and others.

We also make a significant efforts in theoretical investigations in Thermodynamics, Equation of State, Strongly Coupled Plasma Physics, Interaction of intense particles, ions and laser beams with matter, Explosion and Detonation, Computational Hydrodynamics, large scale and parallel computing and modeling.

2. Department of Kinetics and Catalysis

Professor O. Efimov, Head of Department

3. Department of High Dynamic Pressure

Professor A. Dremin, Head of Department

4. Department of Substance Structure

Professor L. O. Atovmyan, Head of Department

Laboratory of cryochemistry and radiation chemistry,

Professor I. M. Barkalov, Head of Laboratory, mail to: barkalov@icp.ac.ru

5. Department of Polymer and Composite Materials

Professor B. Rozenberg, Head of Department

6. Department of Kinetics of Biological and Chemical Processes

Professor G. Bogdanov, Head of Department

7. Mathematical Department

Professor V. Gourarii, Head of Department

8. Department of Photochemistry

Head of Department is Dr. Vladimir F. Razumov

Address: Institute of Chemical Physics

Chernogolovka, Moscow Region

Russia, 142432

Tel: (095) 524-5006

Fax: (096) 517-3588

E-mail: razumov@icp.ac.ru

Dr. Vladimir Fiodorovich Razumov is Head of Department of Photochemistry , Institute of Chemical Physics in Chernogolovka, RAS. Address: Chernogolovka, Moscow Region, Russia, 142432. Tel: (095) 524-5006, Fax: (096) 517-3588, E-mail: razumov@icp.ac.ru

RESEARCH INTERESTS: Photochemistry of liquid and solid states, microdispersed systems and organized molecular assemblies. Properties of silver halide microcrystals and nanoparticles. Photographic processes.

EDUCATION: 1967-- 1973-- Study at Moscow Institute of Physics and Technology, Department of Chemical and Molecular Physics.

RESEARCH EXPERIENCE: 1973-1980-- Junior scientific researcher (Institute of Chemical Physics in Chernogolovka RAS). 1979-- Candidate of Science. Institute of Chemical Physics (Russian Academy of Sciences).

1980-1989-- Senior scientific researcher (Institute of Chemical Physics in Chernogolovka RAS). 1989-- Present-- Head of Laboratory of Photochemistry of microdispersed systems, Institute of Chemical Physics in Chernogolovka. Senior scientific associate of the Laboratory. Senior scientific associate of Russia Academy of Science. 1989-Present-- Member of Chair of Chemical Physics in Moscow Institute of Physics and Technology. His lecture courses are "The critical phenomena and phase transitions" and "Photochemical kinetics". 1989-Present-- Member of Photographic Council (RAS). 1989-- Present-- The member of editorial board of "Zhurnal nauchnoi i prikladnoi fotografii" (Journal of Photographic Science and Technology) Russian Academy of sciences. 1990-Present-- Head of Department of Photochemistry in Institute of Chemical Physics in Chernogolovka RAS.

1993-- Doctor of Science. Institute of Chemical Physics (Russian Academy of Sciences). Numerous publications.

RESEARCH LABORATORIS

Laboratory of Organic photochemistry

Address: Institute of Chemical Physics

Chernogolovka, Moscow Region

Russia, 142432

Tel: (095) 524-5006

Fax: (096) 517-3588

Head Dr. M. V. Alfimov, E-mail: alf@issi.ac.ru

Group of organic photochemistry, Head Dr. M. F. Budyka, E-mail: budyka@icp.ac.ru

Group of photochemistry in organized systems, Head Dr. V. B. Nazarov, E-mail:nazarov@icp.ac.ru

Group of crowned dyes, Head Dr. E. N. Ushakov, E-mail:ushakov@icp.ac.ru

Deputy Head of Laboratory is Dr. Mikhayl F. Budyka

RESEARCH INTERESTS: Charge transfer complexes; Photochemistry of aromatic azides; Bifunctional (bichromophoric) compounds; Quantum chemistry. RESEARCH EXPERIENCE: 1974-1977: Post graduate position. Moscow State University, Chemical department (Head Prof. A.N.Kost) . Subject of research: Reaction of cycloaddition of vinylpyridines; reactions of nucleophilic substitution in heterocycles, including quantum-chemical description. 1978-1981: Junior Research position. Institute of Chemical Physics, Department of kinetics and catalysis (Head Prof. A.E.Shilov). Subject of research: The models of cytochrome P-450. 1981-1983: Department of kinetics in chemistry and biology (Head Prof. N.M.Emanuel). Subject of research: Synthesis of antitumor agents. 1983- present: Senior Research position, Head of research group of organic photochemistry, Deputy Head of Laboratory of Organic Photochemistry, Department of photochemistry (Head Prof. M.V.Alfimov), Institute of Chemical Physics. Subject of research: Inter- and intra-molecular photoinduced electron transfer; Photochemistry of amine-halomethane complexes, mechanism of dyes formation; Photochemistry of

arylazides; Photoinitiators of polymerization; Chemistry of silver and silverless photographic processes; Orbital interactions in covalently linked bichromophoric systems; Supramolecular photochemistry. EDUCATION AND SCIENTIFIC DEGREES: 1974-- Diploma (Chemistry)-- equiv. M.S., Chemical Department, Moscow State University, with honors 1978-- Candidate of Science (Chemistry)--equiv. Ph.D., Moscow State University. Thesis: "The nucleophilic substitution in 5-azacinnoline" 1994-- Doctor of Science (Chemistry), Institute of Chemical Physics. Thesis: "Photochemistry of complexes of aromatic amines with polyhalomethanes"

RESEARCH GROUPS of LABORATORY

Group of organic photochemistry, Head Dr. M.F.Budyka, E-mail: budyka@icp.ac.ru

Group of photochemistry in organized systems, Head Dr. V.B.Nazarov, E-mail: nazarov@icp.ac.ru

Group of crowned dyes, Head Dr. E.N.Ushakov, E-mail: ushakov@icp.ac.ru

RESEARCH INTERESTS of LABORATORY

Investigation of processes of photoinduced electron transfer in organized molecular systems, photocyclization and photodissociation of organic compounds, charge-transfer complexes

Investigation of triplet states of aromatic compounds in organized systems at room temperatures

Investigation of photochemical and complexing properties of disubstituted ethylenes bearing dye- and crown-groups

**Laboratory of Photochemistry of microdispersed systems
Head Dr. V. F. Razumov, E-mail: razumov@icp.ac.ru**

Head of Laboratory: Dr. Vladimir F. Razumov.

Institute of Chemical Physics in Chernogolovka, RAS.

Address: Chernogolovka, Moscow Region, Russia, 142432. Tel: (095) 524-5006,

Fax: (096) 517-3588-- razumov@icp.ac.ru

RESEARCH DIRECTION: Dynamic and mechanism of photoinitiated processes in organized molecular assemblies. Photochemistry of diarylethylenes in solutions, microemulsions and hydroso. Study of silver halide microcrystals and nanoparticles. Photographic processes.

Numerous Publications.

Laboratory of Photodynamics processes

Head Dr. G. F. Novikov, E-mail: novikov@icp.ac.ru

Laboratory of Photodynamic processes

Dr. Gennadii F. Novikov, Head of Laboratory, mail to: novikov@icp.ac.ru

Since 1989 he has been Head of the Laboratory of Photodynamic processes of the Institute of Chemical Physics in Chernogolovka. He is Senior scientific associate of the Laboratory and a Senior scientific associate of Russia Academy of Science. From 1985 to 1989 he was Head of a group, and a Senior scientific associate of the Department of Photochemistry, at the same institute. From 1983 to 1985 he was Senior scientific associate of the Department of Photochemistry, at the same

institute. From 1975 to 1983 he was a Candidate of Physical-Mathematical Sciences and a Scientific associate of the laboratory of electro-physics, at the same institute. From 1964 to 1975 he was a Junior scientific associate of the laboratory of electro-physics, at the same institute. **Research interests:** Dynamic, kinetics and mechanism of elementary processes in condensed media. Electron-ion processes of photochemistry and radiation chemistry of solids. Elementary processes of latent image formation in silver halides photographic emulsions. **Education:** 1958--1964-- Study at Moscow physical-technical institute, Department of Chemical and Molecular Physics. 1966-- 1969-- **Post-graduate study**, Moscow physical-technical institute (Chiefs: Prof. E.L.Frankevich and Prof. B.S. Yakovlev). **POST-GRADUATE PROFESSIONAL EDUCATION** 1968--All-Union Meeting on radiate modification of polimers. Moscow, USSR 1969--All-Union conference on radiation chemistry and radiation biochemistry. Obninsk, USSR. 1972--Session on questions of radiation-chemistry transformations. Minsk, USSR. 1980--2nd Working Meeting on Radiat. Interract. Leipzig, GDR. 1980--Meeting on radiation chemistry of organic compounds. Moscow, USSR. 1981--All-Union Meeting on radiation physics solid state. Zvenigorod, USSR. 1983--Scientific work in Laboratory Photoprocesses of Bulgarian Academy of Sciences (Chief--Prof. I. Malinovski) 1985--Scientific work in Laboratory of Photoprocesses of Bulgarian Academi of scienses, Bulgarian. (Chief: Prof. I.Malinovski) 1986--IX All-Union Meeting on kinetics and mechanism of chemical reactions in solids. Alma-Ata, USSR. 1986--All-Union conference "Physical processes in lightsensitive systems based on silver halides". Kemerovo, USSR. 1987--Scientific tour on Universities and Colleges of Great Britain. 1988--All-Union conference on problems of creating of modern color cinema-photo-materials. Chernogolovka, USSR, 1988. 1989--Scientific work in Institut fur Angewandte Physik der Iohan Wolfgang Goethe-Universitat at Frankfurt/Main, Germany. (Chief: Prof. F.Granzer) 1989--International Symposium on Imaging Systems-ISIS'89, Dresden, GDR. 1990-- The International congress of photographic science. Beijing, China. 1991--1st USSR-China Meeting on problems of photochemistry and photography. Chernogolovka, USSR. 1991--All-Union symposium "Photochemical and photophysical processes in silver halides". Chernogolovka, USSR. **Major accomplishments:** First-time experimental observation contribution of geminate electron-ion pairs in radiation-induced conductivity of hydrocarbons at low temperature. First-time detection of the influence of light on the radiation yield of free electrons at the separation of geminate electron-ion pairs generated by irradiation. Elaboration of the method of numerical solution of equation of Smoluhowski for the diffusion-drift task. Elaboration of the experimental microwave method for simultaneous measuring of photoconductivity and photodielectric effect in condensed media. First-time experimental measuring of the rate konstants of free electron-hole recombination in silver bromide and silver chloride. The detection of the oscillation process at the photolysis of spirochromenes in organic solutions at high lightintensities. Numerous publications. Scientific Editorial Activity: 1991-- Present-- The member of scientific editorial staff of "Zhurnal nauchnoi i prikladnoi fotografii" (Russian Academy of scienses).
(last updated December 21, 1996)

9. Department of Chemical Technology

Professor V. Savchenko, Head of Department

10. Department of Ecological Monitoring

Professor G. Vasiliev, Head of Department

V. M. Anisimov, Head of, mail to: vam@kon.icp.ac.ru

Webmaster: A. I. Prokhorov, Database & Webmaster, mail to: aipro@kon.icp.ac.ru
S. A. Kagolovsky (skii) , Network master, mail to: ser@icp.ac.ru
Last modified 11-Oct-1996 11:25

Center for Sophisticated Instrument Facilities

Head of the Center-- Prof. Alexey R. Khokhlov, Corr. Memb. Russ. Acad. Sci.

In 1994 **the Institute of Organoelement Compounds and the Institute of Chemical Physics** of the Russian Academy of Sciences founded the **Center for Sophisticated Instrument Facilities** under financial support of the Russian Foundation for Basic Research. Works of the Center are based on the principles used in international laboratories equipped with sophisticated instrumental facilities.

The Center allows RFBR grant holders to carry out researches using the state-of-the-art experimental facilities.

The Center consists of 13 divisions:

- Computer Methods
- Electron Microscopy
- Infrared Spectroscopy
- Laser Light Scattering Spectroscopy
- Mass Spectrometry
- Molecular Thermophysics, Hydrodynamics, and Electrooptics
- NMR Spectroscopy
- Optical Spectroscopy
- Scanning Tunnelling Microscopy
- Small Angle X-ray Scattering and Electronography
- Spectropolarimetry
- X-ray Microanalysis
- X-ray Structural Studies



15. Physiologically Active Materials Institute in Chernogolovka
Chernogolovka post office, Noginskii district, Moscow region, 142432,
Directed by Academician Nikolai S. Zefirov, D. Chem. S.

Zefirov, Nikolai S., D. Chem. S. Born in 1935. Corresponding member of the General and Technical Chemistry Department of the Academy since 1981. Academician since December 1987. He was formerly director of the Institute of Physiologically Active Materials (IPAM) located in Chernogolovka, Noginskii District, Moscow Region. He is now Director of the Structural Macrokinetics Institute located in Chernogolovka. **tel. 524-50-62**



1997 update:
Institutions and Organizations of the Department of General and Technical Chemistry This is the latest list of institutes under this department:

- 1. Institute of High-molecular Compounds (IHC)**
31, Bolshoi prosp., V-4, Saint-Petersburg, 199004
tel. 213-04-61, fax: 218-68-69, for telegrams: 199004 Saint-Petersburg
Polimer
Directed by Corresponding Member Evgenii F. Panarin, tel. 213-74-07
- 2. Institute of Metalloorganic Chemistry (IMC)**
49, Tropinina st., GSP-445, Niznii Novgorod, 603600
tel. 66-97-84, teletype: 151775 Niznii Novgorod Litii, fax: (8-831)
235-64-80
Directed by Corresponding Member Gleb L. Abakumov, tel. 66-27-09
- 3. Institute of Petro-chemical Synthesis named after A.V.Topchiev (IPCS)**
29, Leninskii ave., Moscow, V-71, GSP-1, 117912
tel. 954-22-92, fax: 230-22-24
Directed by Academician Nikolai Al. Plate, tel. 952-59-27
- 4. Institute of Organic Chemistry named after N. D. Zelinskii (IOC)**
47, Leninskii ave., Moscow, V-334, GSP-1, 117913
tel. 137-38-32, fax: 135-53-28
Directed by Academician Vladimir Al. Tartakovskii, tel. 137-29-44
- 5. Institute of Food Stuffs (IFS)**
28, Vavilova st., Moscow, V-334, GSP-1, 117813
tel. 135-62-88, teletype: 207362 EOS, fax: 135-50-85
Directed by Prof. Mihail N. Manakov, tel. 135-62-88
- 6. Institute of Syntetic Polymeric Materials (ISPM)**
70, Profsouznaia st., V-393, Moscow, 117393
tel. 335-91-00, fax: 420-22-29
Directed by Nikolai F. Bakeev, tel. 335-91-00
- 7. Institute of Structural Macrokinetics (ISM RAS)**
Chernogolovka, Noginskii district, Moscow region, 142432
tel. 524-50-47, teletype: 346683 ISMAN
Directed by Corresponding Member Aleksandr G. Merzanov, tel. 524-50-47
- 8. Institute of Physical Chemistry (IPC)**
31, Leninskii ave., V-312, Moscow, GSP-1, 117915
tel. 955-46-01, teletype: 207335 KLEONA, telex: 411029 PESUM SU,
fax:
952-75-14
Directed by Corresponding Member Iurii M. Polukarov, tel. 952-04-62
- 9. Institute of Chemical Physics named after N. N. Semenov (ICP)**
4, Kosyigina st., V-334, Moscow, GSP-1, 117977
tel. 137-29-51 teletype: 112790 RDKL, fax: 938-21-56
Acting director academician Anatolii L. Buchachenko, tel. 137-32-32
- 10. Institute of Chemical Physics in Chernogolovka**
Chernogolovka, Noginskii district, Moscow region, 142432
teletype: 346611 ATOM
Directed by Prof. Sergei M. Baturin, tel. 524-50-87

11. Institute of Electrochemistry named after A. N. Frumkin (IEI RAS)

31, Leninskii ave., V-71, Moscow, 117071

tel. 952-04-28, fax: 952-08-46

Directed by Corresponding Member Vladimir Ev. Kazarinov, tel. 952-46-48

12. A. N. Nesmeyanov Institute of Organoelement Compounds (INEOS)

28, Vavilova st., V-334, Moscow, GSP-1, 117813

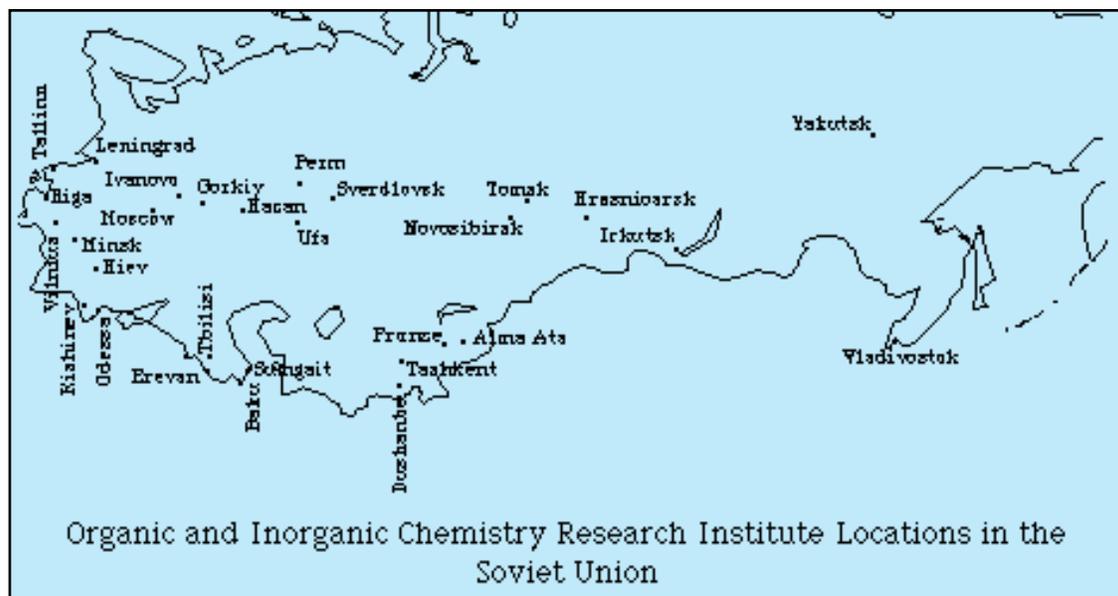
tel. 135-92-02, teletype: 2073662 EOS, fax: 135-50-85

Acting director academician Mark Ef. Volpin, tel. 135-61-66

13. Institute of Physiologically Active Materials (IPAM)

Chernogolovka post office, Noginskii district, Moscow region, 142432

Directed by academician Nikolai S. Zefirov, tel. 524-50-62



Other National Research Efforts in General and Technical Chemistry:

Institutes (14 in number) involved in research similar to that done in the eight SRIs subordinate to the General and Technical Chemistry Department of the AN SSSR are listed below in the order of their founding:

1940s

1. Chemistry Institute in Dushanbe.
2. Chemistry Institute in Tashkent.
3. Solid State Chemistry Institute in Novosibirsk.
4. Chemistry and Chemical Technology Institute in Vilnius.
5. Chemical Sciences Institute in Alma Ata.
6. Chemistry Institute in Tallinn.
7. Catalysis Institute in Novosibirsk.
8. Chemistry Institute in Ekaterinburg (Sverdlovsk).
9. Electrochemistry Institute in Ekaterinburg (Sverdlovsk).
10. Chemistry Institute in Kishinev.
11. Wood Chemistry Institute in

Riga. 12. Chemistry Institute in Vladivostok. 13. Physical Technical Problems of the North Scientific Research Institute in Yakutsk. 14. Polymer Chemistry and Physics Institute in Tashkent.



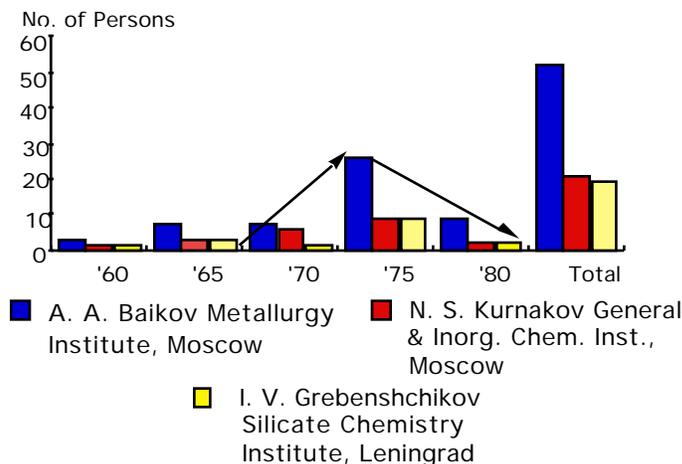
**Department of Physical Chemistry and Technologies of Inorganic Materials
(DPCTIM) in Moscow**

32a, Leninskii ave., Moscow, GSP-1, 117993, tel.938-17-46

Membership of the Physical Chemistry and Technology of Inorganic Materials Department--administrative responsibilities: The Physical Chemistry and Technology of Inorganic Materials Department had 20 academicians and 36 corresponding members in 1987--a total of 56 scientists, a large membership when compared with some of the other departments of the academy. Its membership included the Presidents of the Ukrainian SSR, Latvian, and Kazakh SSR Academies of Sciences, the minister of the Ministry of Higher and Secondary Specialized Education, and three rectors of major universities or schools--the N. E. Bauman Moscow Higher Technical School in Moscow, the A. A. Zhdanov Leningrad State University, and the D. I. Mendeleev Chemistry Technology Institute in Moscow. It included the Chairman of the Buriat Affiliate of the academy, the Deputy chairmen of the Noginsk and Urals Departments, and three members of the Presidium of the national academy. It counted some 18 Directors of Scientific Research Institutes and eight Deputy Directors of SRIs among its members--three of these Directors headed affiliated research organizations under national ministries. Two of the senior scientists were promoted in 1988 to act as advisors to the Presidium of the national academy--a retirement because of age but also a recognition of their long years of service.

Figure 24

Personnel of the Top Three SRIs of the
Physical Chemistry and Technology of
Inorganic Materials Department, 1960-1980



Compiled from: CR 80-13202, pp. 243-244; 283-286; and 394-395.

Academicians--age and schools: The average age of the academicians of the Physical Chemistry and Technology of Inorganic Materials Department of the Russian Academy of Sciences was almost 75 years in 1991. This average was skewed considerably by the fact that nine of the 24 academicians whose birth dates were known were over 80 years old. Only one academicians date of birth was not known at the time of this analysis. The oldest member was 89 and the youngest was 59. When the octogenarians and septuagenarians are removed from the analysis--assuming they hold those positions out of respect for the elderly more than for their active contributions to scientific research or to scientific research management--the average age drops to 63. Only nine academicians fall in this category. Seventeen of the 25 academicians graduated from 13 known institutions; only 8, though degree holders, graduated from institutions not known at this time. Moscow State University graduated three; Leningrad State University and the Leningrad Polytechnic graduated one each; the D. I. Mendeleev Chemical Engineering Institute in Moscow, two; the N. E. Bauman Moscow Higher Technical School, two, and the Moscow Academy of Mines, the University of Gorkiy, the Kirov Institute of Chemical Engineering, the University of Kiev, the Kiev Industry Institute, the University of Kazan', the S. M. Kirov Urals Polytechnic Institute, and the Kiev Polytechnic Institute--each graduated one student. Again, considering the age of the older academicians in this department, the choice and opportunity for advanced graduate work was relatively limited for many of them.

Corresponding Members--age and schools: The birth dates of 29 of the 37 corresponding members of the department are known and their average age is 70.8 years. Fifteen of these were born before the Russian Revolution, and of that group of 15 the average age was almost 81 years. The group born after the revolution averaged about 60 years in age. Although 24 of the 37 corresponding members of the department held degrees, only 11 institutions are known to have graduated 16 of these. Institutions from which these 16 graduated included: Moscow State University, two; D. I. Mendeleev Moscow Institute of Chemical Engineering, two; the M. I. Kalinin Moscow Institute of Nonferrous Metals and Gold, two; the

Lensovet Leningrad Technological Institute, two; the University of Kazan', two, and, the Leningrad Mining Institute, the Moscow Mining Academy, the Leningrad Institute of Technology, the Novocherkassk Polytechnic Institute, the Urals Polytechnic Institute, and the Moscow Institute of Steel 1--each graduated one person.

(1997 update)

Bureau of the Department

Academician-secretary

Academician Iurii Al. Buslaev, tel.938-17-67

Buslaev, Iurii A., D. Chem. S. Born in 1929 in Syzran. Russian inorganic chemist. Corresponding member, 1968; academician, 1981--of the Physical Chemistry and Technology of Inorganic Materials Department. Academician secretary to the Department since October 1988. He graduated from the Moscow D. I. Mendeleev Chemical Engineering Institute in 1952. He has worked in the N. S. Kurnakov Institute of General and Inorganic Chemistry of the AN SSSR and the RAN since 1952. Since 1967, he has been deputy director of the Kurnakov Institute in Moscow, that was established in 1934 to study metal alloys, rare earth elements, and the chemistry of complex compounds and polymers. Since 1969, he has served as Chief of the Inorganic Polymers laboratory of that institute. His works are in the chemistry of transitional metals, the syntheses of their complex compounds, multiple bonds in inorganic chemistry, polymerization of inorganic compounds, and obtaining new classes of refractory substances. (GSE 4, p. 211.)

Deputies of the Academician-secretary:

Academician Iurii Al. Zolotov, tel.952-02-24

Zolotov, Iurii A., D. Chem. S. Born in 1932 in Vysokovsk, Klinskii Raion, Moscow Oblast. Russian analytical chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1970; academician in 1993. He graduated from Moscow State University in 1955 and began work at the Institute of Geochemistry and Analytical Chemistry of the AN SSSR. Since 1975, he has been head of the Analytical Chemistry Division, and head of the Solvent Extraction Laboratory--both of the V. I. Vernadskii Geochemistry and Analytical Chemistry Institute in Moscow. From 1975 to 1989, Zolotov was Deputy Director of this institute. His works have dealt with the extraction of inorganic compounds. In 1989, he was made Director of the N. S. Kurnakov General and Inorganic Chemistry Institute in Moscow. He is presently a deputy to the Academician Secretary of the Physical Chemistry and Technologies of Inorganic Materials Department of the Academy.(GSE 9, p. 672.)

Academician Viktor V. Kafarov, tel.258-92-65

Kafarov, Viktor V., D. Tech. S. Born in 1914 in the Lithuanian SSR. Chemical engineer. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1966, and academician since 1979. He graduated from the Kirov Institute of Chemical Engineering in Kazan' in 1938. In 1944, he began working at the Mendeleev Institute of Chemical Engineering in Moscow, becoming head of a subdepartment in 1960. His research is on the processes of and equipment used in chemical engineering as well as on the

cybernetics of chemical engineering processes. He is presently a deputy to the Academician Secretary of the Department of Physical Chemistry and Technological Problems of Inorganic Materials of the Academy (GSE 11, p. 334.)

Academician Sergei T. Kishkin, tel.261-17-92

Kishkin, Sergei T. Born in 1906 in Lugansk, now Voroshilovgrad. Russian scientist in physical metallurgy. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1960, and academician since 1966. honored worker in Science and Technology of the RSFSR. He graduated from the Bauman Moscow Higher Technical School in 1931. From 1948 to 1960, he was head of a subdepartment at the Moscow Institute of Aviation. His work is in physical metallurgy. Recipient of the State Prize 1942, 1949, 1968. He is now a deputy to the Academician Secretary of the Physical Chemistry and Technological Problems of Inorganic Materials Department of the Russian Academy of Sciences. (GSE 12, p. 524.)

Academician Iurii D. Tretiakov, tel.939-20-74

Tretiakov, Iurii D., D. Chem. S. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1984, and academician since December 1987. He is now a deputy to the Academician Secretary of the Physical Chemistry and Technological Problems of Inorganic Materials Department of the Russian Academy of Sciences.

Academician Michail M. Shults, tel.350-65-16(SPb)

Shults, Mikhail M., D. Chem S. Born in 1919 in Petrograd. Russian physical chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1972, and academician since 1979. He graduated from the chemistry Department of Leningrad State University in 1947 and performed research in the Department until 1952. In 1952 and 1953, and again from 1959 to 1972, he headed a laboratory at the university scientific research institute of chemistry and from 1953 to 1959, he taught in the chemistry Department. In 1965, he became a professor at the I. V. Grebenshchikov Institute of Silicate Chemistry of the AN SSSR, and since 1972 he has been its Director. The institute was established in 1948 to conduct research on the physical chemistry of silicates, and it has worked on developing new methods of grinding and polishing glass. It is subordinate to the academy's Physical Chemistry and Technology of Inorganic Compounds Department. His works are in the physical chemistry of glass and thermodynamics of heterogeneous equilibrium processes. Recipient of the State Prize, 1973. He is presently a deputy to the Academician Secretary of the Physical Chemistry and technological Problems of Inorganic Materials Department of the Russian Academy of Sciences. (GSE 29, p. 641.)

Responsible for scientific-organizing activities:

Academician Aleksei M. Kutepov, tel.938-18-64

Kutepov, Aleksei M. D. Tech. S. Born 1931. In 1979, he was given the I. I. Popzunov Prize for his research, and he became a corresponding member of the Physical Chemistry and technology of Inorganic Materials Department of the Academy in 1987; academician in 1993. In 1985, he was a deputy chairman of the GKNT--the State Committee for Science and Technology. He is now responsible

for the scientific-organizing activities of the Department of Physical Chemistry and Technological Problems of Inorganic Materials of the Russian Academy of Sciences.

Members of the Bureau:

Academician Vladimir V. Boldyirev, tel.20-04-23(N.)

Boldyirev, Vladimir V., D. Chem. S. Born in 1927. Inorganic Chemist. Specialist in the field of Solid State and Kinetic Heterogeneous Reactions. Academician since 1990 of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy. He pioneered in the classification of physical reactions of solids. He graduated from the Tomsk State University in 1948 and joined its faculty. From 1958 to 1963 he held the chair of radiation chemistry at the Tomsk Polytechnical Institute. From 1964 to 1975, he worked at the Chemical Kinetics and Combustion Institute in Akademgorodok, heading the Laboratory of Chemical Kinetic Reactions in the Solid State. In 1967, he was named Deputy Director of that institute, and in 1975 he became its Director. In 1976, he became director of the Physico-Chemical Institute's Foundation for the Recasting of Mineral Raw Materials. He has been a professor since 1963, holding the; chair of Solid State Chemistry at the Novosibirsk State University. Since 1971, he has chaired the Scientific Council on the problems of solid state chemistry of the Siberian Branch. From 1976 to 1988, he was head editor for the chemical series scientific journal Izvestia of the Siberian Department of the SSSR. He has authored 78 scientific works, co-authored another 450, been credited with 95 inventions and holds eight patents.

Academician Nikolai An. Vatolin, tel.28-53-00(Ek.)

Vatolin, Nikolai A., D. Tech. S. Born in 1926. Academician of the Physical Chemistry and Technology of Inorganic Materials Department and of the Urals Department since 1981. Since 1967, he has been Director of the Metallurgy Institute at Ekaterinburg (Sverdlovsk) that is subordinate to the academy's Urals Department. The institute develops physical-chemical fundamentals for new metallurgical processes. From 1980 to 1988, he served as deputy chairman of the Urals Department.

Academician Igor V. Gorinin, tel.274-26-20(SPb)

Gorinin, Igor V., D. Tech. S. Born in 1926. Academician of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1984. Specialist in materials science and technology. Holder of the Lenin and U.S.S.R. State Prizes for his research.

Academician Grigorii G. Deviatikh, tel.66-47-50(N.N.)

Deviatikh, Grigorii G., D. Chem. S. Born in 1918 in Viatka Province. Russian chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1968, and academician, 1974. He graduated from the chemistry Department of inorganic chemistry at the University of Gorkiy in 1941. He is head of the Department of inorganic chemistry at the University of Gorkiy, and since 1972 he has headed an unidentified laboratory at the Institute of Chemistry of the AN SSR in Gorkiy. Since 1982, he has served as Deputy Director of the Chemistry Institute in Gorkiy, that researches the creation of pure compounds. In 1985, he was awarded the Lenin Prize for his

work on the development of pure substances. His work is in the separation of stable isotopes and the preparation and analysis of extremely pure substances. In 1980, he received the A. S. Popov Prize. In 1981, he was the recipient of the D. I. Mendeleev Gold Medal for his work in research in the chemical sciences. In 1988, he was named head of the new Institute of the Chemistry of Viscose Substances in Nizhnii Novgorod. (GSE 8, p. 170.)

Academician Boris N. Laskorin, tel.324-78-85

Laskorin, Boris N., D. Tech. S. Born in 1915 in Brest. Russian chemical engineer. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1966, and academician since 1976. He graduated from the University of Kiev in 1938 and received his Doctorate of Technical Sciences degree in 1956. He became a professor in 1958. His works are in the chemistry and technology of inorganic materials--in physicochemical sorption and extraction processes. In 1983, he received the V. G. Khlopin Prize for work in inorganic chemistry. (GSE 14, p. 242.)

Academician Nikoli P. Lyakishev, tel.135-20-60

Lyakishev, (Liakishev), Nikoli P., D. Tech. S. Born in 1929. Corresponding member since 1981. Academician of the Physical Chemistry and Technology of Inorganic Materials Department of the Russian Academy of Sciences since December 1987. From 1978 to 1988, he was Director of the I. P. Bardin Ferrous Metallurgy Scientific Research Institute in Moscow that is directly subordinate to the Ministry of Ferrous Metallurgy. The institute was established in 1944 and does research in the development of precision alloys. Since 1988, he has been Director of the Metallurgy and Ore Dressing Institute in Alma Ata that was founded in 1956 to develop new methods of extracting and producing metals used in industry such as alumina, low-grade bauxite and rhenium.

Academician Bruno An. Purin, tel.94-66-58(R.)

Purin, Bruno A., D. Chem. S. Born in 1928. Academician of the Chemical and Biological Sciences Department of the Latvian Academy since 1971. He has served as its President since 1984. Corresponding member of the Physical Chemistry, and Technology of Inorganic Materials Department of the Academy since 1984 and academician of that Department since 1987. Since 1967, he has been the Director of the Inorganic Chemistry Institute in Riga that was founded in 1946 and that is involved with the plasma chemistry of inorganic compounds, the reactivity of metals in different media, and selective extraction and determination of elements and their compounds.

Academician Fedor G. Reshetnikov, tel.196-66-61

Reshetnikov, Fedor G., D. Tech. S. Born in 1919 in the village of Mar-Buda, Sumy Oblast. Russian physical chemist and metallurgist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1974; academician in 1963. He graduated from the M. I. Kalinin Moscow Institute of Nonferrous Metals and Gold in 1941 and from the F. E. Dzerzhinskii Artillery Academy in 1944. Since 1966, he has been Deputy Director of the All-Union Inorganic Materials Scientific Research Institute in Moscow. His works are in the development of the technology and physicochemical principles of processes for obtaining rare and radioactive metals and nuclear fuels (carbides,

nitrides, and other compounds) for fuel elements in atomic power plants. Recipient of the State Prize, 1951. (GSE 22, p. 135.)

Academician Viktor Iv. Trofimov, tel.444-22-71(K.)

Trofimov, Viktor I., D. PM. S. Born in 1930. Academician of the Physical and Technical Problems of Materials Science Department since 1973. Since 1987, he has been an academician of the Physics, Chemistry, and Technology of Inorganic Materials Department of the Academy. He has acted as Director of the Problems of Materials Science Institute in Kiev since 1973, that was established in 1955 to develop high temperature materials, to study problems of the structure of solids, and to coordinate all powder metallurgy in Russia. He has served as a Vice President of the Ukrainian academy since 1974 and was reelected in 1988.

Academician Gennadii P. Shveykin, tel.44-26-22(Ek.)

Shveykin, Gennadii P., D. Tech S. Born in 1926 in the city of Karabash, Cheliabinsk Oblast. Russian chemist. Corresponding member since 1976, and academician since 1987 of the Physical Chemistry and Technology of Inorganic Materials Department and of the Urals Department. He graduated from the S. M. Kirov Urals Polytechnical Institute in 1951 and joined the staff of the Institute of Chemistry of the Urals Department of the RAN. Since 1972, he has been Director of the Chemistry Institute in Ekaterinsburg (Sverdlovsk). The Institute of Chemistry, established in 1958, does research in high temperature synthesis of pure refractory combinations and polymer chemistry. He is also a member of the Urals Department. His work deals with the chemistry of refractory metals and their compounds. (GSE 29, p. 649.)

Academician Sergei V. Iakovlev, tel.245-97-80

Yakovlev, (Iakovlev) Sergei V., D. Tech. S. Born in 1914. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department since 1981, and academician since December 1987. Since 1974, he has been Director of the Water Supply, Sewage, Hydraulic Structures and Engineering Hydrogeology Scientific Research Institute in Moscow that is under the direct administration of the State Committee for Construction Affairs. The institute does research on water treatment for industrial water supply systems, purification plants, industrial waste water, sewage systems, and hydraulic projects for industry and municipalities.

Corresponding Member Vladimir N. Antsiferov, tel.39-11-19 (Perm')

Antsiferov, Vladimir N. Located in Perm, he has been a Corresponding Member of the Department of Physical Chemistry and Technologies of Inorganic Materials Department of the Russian Academy since 1993.

Corresponding Member Aleksandr V. Elutin, tel.231-13-09

Eliutin, Aleksandr V. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since December 1987. (LDA 89-11378.)

Corresponding Member Valentin M. Ievlev, tel.16-12-07(Voronez)
(no entry)

Corresponding Member Vladimir T. Kalinnikov, tel.3-14-45(Apatityi)

Kalinnikov, Vladimir T., D. Chem. S. Born in 1935. Chairman of the Kola Affiliate since 1985. Corresponding member since of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since December 1987. (LDA 89-11378.)

Corresponding Member Pavel Dz. Sarkisov, tel.258-87-33

Sarkisov, Pavel D. Corresponding member of the Physical Chemistry and Technologies of Inorganic Materials Department of the Academy in 1993. Scientist-secretary Dr. Natalia N. Melnikova, tel.938-52-96

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Academicians

Bannikh, Oleg A., D. Tech. S. Born in 1931. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department since December 1987; academician since 1993.

Boldirev, Vladimir V., D. Chem. S. Born in 1927. Inorganic Chemist. Specialist in the field of Solid State and Kinetic Heterogeneous Reactions. Academician since 1990 of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy. He pioneered in the classification of physical reactions of solids. He graduated from the Tomsk State University in 1948 and joined its faculty. From 1958 to 1963 he held the chair of radiation chemistry at the Tomsk Polytechnical Institute. From 1964 to 1975, he worked at the Chemical Kinetics and Combustion Institute in Akademgorodok, heading the Laboratory of Chemical Kinetic Reactions in the Solid State. In 1967, he was named Deputy Director of that institute, and in 1975 he became its Director. In 1976, he became Director of the Physico-Chemical Institute's Foundation for the Recasting of MineraRaw Materials. He has been a professor since 1963, holding the; chair of Solid State Chemistry at the Novosibirsk State University. Since 1971, he has chaired the Scientific Council on the problems of solid state chemistry of the Siberian Branch. From 1976 to 1988, he was Head editor for the chemical series scientific journal Izvestia of the Siberian Department of the SSSR. He has authored 78 scientific works, co-authored another 450, been credited with 95 inventions and holds eight patents. He is currently serving as a member of the Bureau governing body of the Physical Chemistry and Technology of Inorganic Materials Department.

Buslaev, Iurii A., D. Chem. S. Born in 1929 in Syzran. Russian inorganic chemist. Corresponding member, 1968; academician, 1981--of the Physical Chemistry and Technology of Inorganic Materials Department. Academician Secretary to the department since October 1988. He graduated from the Moscow D. I. Mendeleev Chemical Engineering Institute in 1952. He has worked in the N. S. Kurnakov Institute of General and Inorganic Chemistry of the AN SSSR and the RAS since 1952. Since 1967, he has been Deputy Director of the Kurnakov Institute in Moscow, that was established in 1934 to study metal alloys, rare earth elements, and the chemistry of complex compounds and polymers. Since 1969, he has served as Chief of the Inorganic Polymers laboratory of that institute. His works are in the

chemistry of transitional metals, the syntheses of their complex compounds, multiple bonds in inorganic chemistry, polymerization of inorganic compounds, and obtaining new classes of refractory substances. (GSE 4, p. 211.)

Deriagin, Boris V., D. Chem. S. Born in 1902. Russian scientist in the field of physical chemistry and molecular physics. Corresponding member of the General and Technical Chemistry Department of the Academy since 1946; academician in 1993. Originally elected to the Chemical Sciences Department. Also a member of the Physical Chemistry and Technology of Inorganic Materials Department. He graduated from Moscow State University in 1922. Since 1935, he has been Director of the Laboratory of Thin Layers (now the division of surface phenomenon) of the Institute of Physical Chemistry of the Russian Academy of Sciences. He developed the teaching on surface forces and their effect on the property of diverse systems. M. V. Lomonosov Prize, 1958. (GSE 8, p. 143.)

Deviatikh, Grigori G., D. Chem. S. Born in 1918 in Viatka Province. Russian chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1968, and academician, 1974. He graduated from the chemistry Department of inorganic chemistry at the University of Gorkiy in 1941. He is Head of the Department of inorganic chemistry at the University of Gorkiy, and since 1972 he has headed an unidentified laboratory at the Institute of Chemistry of the AN SSR in Gorkiy. Since 1982, he has served as Deputy Director of the Chemistry Institute in Gorkiy, that researches the creation of pure compounds. In 1985, he was awarded the Lenin Prize for his work on the development of pure substances. His work is in the separation of stable isotopes and the preparation and analysis of extremely pure substances. In 1980, he received the A. S. Popov Prize. In 1981, he was the recipient of the D. I. Mendeleev Gold Medal for his work in research in the chemical sciences. In 1988, he was named Head of the new Institute of the Chemistry of Viscose Substances in Nizhnii Novgorod. He is currently serving as a member of the Bureau governing body of the Physical Chemistry and Technology of Inorganic Materials Department. (GSE 8, p. 170.)

Dianov, Evgenii M., D. Chem. S. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since December 1987; academician since 1993. Since 1976, he has been Head of the Fiber Optics Subdepartment of the Theoretical Department of the P. N. Lebedev Physics Institute in Moscow.

Fridliander, Iosif N. Born in 1905 in Andizhan. Russian physical metallurgist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1976, and academician since 1984. He graduated from the N. E. Bauman Moscow Higher Technical School in 1937. His work deals with the physical metallurgy of light alloys. Recipient of the State Prize, 1949; Lenin Prize, 1963. (GSE 28, p. 381.)

Gorinin, Igor V., D. Tech. S. Born in 1926. Academician of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1984. Specialist in materials science and technology. Holder of the Lenin and USSR State Prizes for his research. He is currently serving as a member of the Bureau governing body of the Physical Chemistry and Technology of Inorganic Materials Department.

Kafarov, Viktor V., D. Tech. S. Born in 1914 in the Lithuanian SSR. Chemical engineer. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1966, and academician since 1979. He graduated from the Kirov Institute of Chemical Engineering in Kazan' in 1938. In 1944, he began working at the Mendeleev Institute of Chemical Engineering in Moscow, becoming Head of a subdepartment in 1960. His research is on the processes of and equipment used in chemical engineering as well as on the

cybernetics of chemical engineering processes. He is currently serving as a Deputy to the Academician Secretary of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy. (GSE 11, p. 334.)

Kishkin, Sergei T. Born in 1906 in Lugansk, now Voroshilovgrad. Russian scientist in physical metallurgy. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1960, and academician since 1966. honored worker in Science and Technology of the RSFSR. He graduated from the Bauman Moscow Higher Technical School in 1931. From 1948 to 1960, he was Head of a subdepartment at the Moscow Institute of Aviation. His work is in physical metallurgy. Recipient of the State Prize 1942, 1949, 1968. He is a Deputy to the Academician Secretary of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy. (GSE 12, p. 524.)

Kunaev, Askar M., D. Tech. S. Born in 1929. Academician of the Physical Chemistry and Technology of Inorganic Materials Department of the national academy since 1981. Since 1972 he has been an academician of the Chemical and Technological Sciences Department of the Kazakh academy. He was the Director of the Metallurgy and Ore Dressing Institute in Alma Ata from 1970 to 1988. The institute was established in 1956 to develop new methods of extracting and producing metals used in industry such as alumina, low-grade bauxite and rhenium. It is subordinate to the Chemical Technical Sciences Department of the Kazakh Academy of Sciences. From 1974 to 1986, he served as President of the Kazakh Academy of Sciences.

Kurdiumov, Georgii V., D. PM. S. Born in 1902 in Rylsk, in Kursk Oblast. Russian physicist. Corresponding member, 1946, and academician, 1953. Originally elected to the Physical and Mathematical Sciences Department. Principal membership is in the General Physics and Astronomy Department. Since 1969, academician of the Ukrainian Academy of Sciences Physical and Technical Problems of Materials Sciences Department. He graduated from the Leningrad Polytechnical Institute in 1926. From 1925 to 1932, he worked at the Leningrad PhysicoTechnical Institute. In 1932, he joined the Dnepropetrovsk PhysicoTechnical Institute. In 1944, he became Director of the Institute of Metallurgy and Metal Physics of the Central SRI of the Ministry of Ferrous Metallurgy. In 1962, he became Director of the Institute of Solid State Physics of the Russian Academy of Sciences. Since 1975, he has served as Deputy Chairman of the Noginsk Scientific Center. Kurdiumov pioneered in studies of martensite transformations in crystalline materials, that is of fundamental importance for the theory of phase transitions and heat treatment of steels and alloys. He is a member of the German Academy of Sciences (1970) and of other academies throughout the world. Recipient of the State Prize, 1944. In 1979, he received the D. K. Chernov Gold Medal in recognition of his contributions in physics. (GSE 14, p. 123.)

Kutepov, Aleksei M. D. Tech. S. Born 1931. In 1979, he was given the I. I. Popzunov Prize for his research, and he became a corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy in 1987; academician in 1993. In 1985, he was a Deputy Chairman of the GKNT--the State Committee for Science and Technology. He is now serving as the scientist responsible for organizing the scientific activities of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy.

Kuznetsov, Fedor A., D. Chem. S. Born in 1932. Physical Chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1984, and academician since December 1987. He also is a member of the Siberian Department of the Academy. He graduated from the Leningrad State University in 1955. He began work at the Inorganic Chemistry Institute of the Siberian Department in 1958, served as an aspirant, a junior

researcher, and senior researcher in a major laboratory in that institute. From 1971 to 1983, he has acted as Head of the Epitaxial Layers Laboratory and of the Electronics Materials Laboratory of the Inorganic Chemistry Institute in Novosibirsk, being named its Director in 1983. The institute was established in 1957 in cooperation with the N. S. Kurnakov General and Inorganic Chemistry Institute for the purpose of studying complex compounds, splitting uranium and plutonium, and the extraction and investigation of rare earth metals. He has been a professor at the Novosibirsk University since 1976, holding the chair in inorganic chemistry since 1986. He is the Head editor of *Izvestiya*. In 1988 he was named Chairman of the Scientific Council on Inorganic Chemistry. He is a member of the Electrochemical Society of the USA--since 1979. Recipient of the State Laureate Prize in 1981.

Kuznetsov, Nikolai T., D. Chem. S. Born in 1931. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since December 1987; academician in 1993.

Laskorin, Boris N., D. Tech. S. Born in 1915 in Brest. Russian chemical engineer. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1966, and academician since 1976. He graduated from the University of Kiev in 1938 and received his Doctorate of Technical Sciences degree in 1956. He became a professor in 1958. His works are in the chemistry and technology of inorganic materials--in physicochemical sorption and extraction processes. In 1983, he received the V. G. Khlopin Prize for work in inorganic chemistry. He is currently serving as a member of the Bureau governing body of the Physical Chemistry and Technology of Inorganic Materials Department.(GSE 14, p. 242.)

Lyakishev, Nikolai P., D. Tech. S. Born in 1929. Corresponding member since 1981. Academician of the Physical Chemistry and Technology of Inorganic Materials Department of the AN SSSR from December 1987. From 1978 to 1988, he was Director of the I. P. Bardin Ferrous Metallurgy Scientific Research Institute in Moscow that is directly subordinate to the Ministry of Ferrous Metallurgy. The institute was established in 1944 and does research in the development of precision alloys. Since 1988, he has been Director of the Metallurgy and Ore Dressing Institute in Alma Ata that was founded in 1956 to develop new methods of extracting and producing metals used in industry such as alumina, low-grade bauxite and rhenium. He now heads the A. A. Baikov Metallurgy Institute in Moscow, and is currently serving as a member of the Bureau governing body of the Physical Chemistry and Technology of Inorganic Materials Department.

Paton, Boris E., D. Tech. S. Born November 1918 in Kiev. Russian metallurgist and specialist in welding technology. Son of E. O. Paton. Since 1958, he has been an academician of the Physical and Technical Problems of Materials Science Department of the Ukrainian Academy of Sciences. Since 1962, he has been an academician of the Physical Chemistry and Technology of Inorganic Materials Department of the national academy (originally having been elected to the Technical Sciences Department). Since 1963, he has been on the Presidium of the national academy of sciences. He graduated from Kiev Industrial Institute in 1941. He has been affiliated with the E. O. Paton Institute of Electrical Welding of the Ukrainian Academy of Sciences since 1942. He headed a laboratory there from 1942-50, was assistant Director of the institute from 1950-53, and has been Director since 1953. From 1961 to 1966, he was a candidate member of the CC CPSU , and has been on the Central Committee of the CPSU since 1966. Since 1962, he has served as President of the Ukrainian Academy of Sciences. Since 1964, he has been a member of the Presidium of the Committee for Lenin Prizes and State Prizes in Science and Technology. Since 1966, he has been one of five Deputy chairmen of the Council of the Soviet Union. From 1966, he was a full-member of the Central Committee of

the Communist Party of the Soviet Union. In 1973 and 1974, he was Deputy Chairman of the Soviet of the Union of the Supreme Soviet of the USSR. From 1977, he served as a board member of the GKNT General Assembly. His works have included: developing electroslag welding, producing unique high-pressure vessels for the power and chemical industries and the manufacture of large assemblies for ships and hydroelectric generators and for other purposes; developing programs for improving the welding industry in Russia and accelerating technical progress; developing special purpose smelting plants and creation of a new branch of quality metallurgy known as special-purpose electrometallurgy. He is a member of the Bulgarian (1969) and the Czechoslovakian (1973) academies of sciences. He was on the editorial board of Science in Russia. Recipient of the State Prize, 1950; the Lenin prize, 1957. In 1981, he was the recipient of the M. V. Lomonosov Gold Medal for his contributions to science. (GSE 19, p. 339.)

Purin, Bruno A., D. Chem. S. Born in 1928. Academician of the Chemical and Biological Sciences Department of the Latvian Academy since 1971. He has served as its President since 1984. Corresponding member of the Physical Chemistry, and Technology of Inorganic Materials Department of the Academy since 1984 and academician of that Department since 1987. Since 1967, he has been the Director of the Inorganic Chemistry Institute in Riga that was founded in 1946 and that is involved with the plasma chemistry of inorganic compounds, the reactivity of metals in different media, and selective extraction and determination of elements and their compounds. He is currently serving as a member of the Bureau governing body of the Physical Chemistry and Technology of Inorganic Materials Department.

Reshetnikov, Fedor G., D. Tech. S. Born in 1919 in the village of Mar-Buda, Sumy Oblast. Russian physical chemist and metallurgist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1974; academician in 1963. He graduated from the M. I. Kalinin Moscow Institute of Nonferrous Metals and Gold in 1941 and from the F. E. Dzerzhinskii Artillery Academy in 1944. Since 1966, he has been Deputy Director of the All-Union Inorganic Materials Scientific Research Institute in Moscow. His works are in the development of the technology and physicochemical principles of processes for obtaining rare and radioactive metals and nuclear fuels (carbides, nitrides, and other compounds) for fuel elements in atomic power plants. Recipient of the State Prize, 1951. He is currently serving as a member of the Bureau governing body of the Physical Chemistry and Technology of Inorganic Materials Department. (GSE 22, p. 135.)

Rusanov, Vladimir D., D. PM. S. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1984; academician in 1993.

Shults, Mikhail M., D. Chem. S. Born in 1919 in Petrograd. Russian physical chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1972, and academician since 1979. He graduated from the Chemistry Department of Leningrad State University in 1947 and performed research in the Department until 1952. In 1952 and 1953, and again from 1959 to 1972, he headed a laboratory at the university scientific research institute of chemistry and from 1953 to 1959, he taught in the chemistry Department. In 1965, he became a professor at the I. V. Grebenshchikov Institute of Silicate Chemistry of the AN SSSR, and since 1972 he has been its Director. The institute was established in 1948 to conduct research on the physical chemistry of silicates, and it has worked on developing new methods of grinding and polishing glass. It is subordinate to the academy's Physical Chemistry and Technology of Inorganic Compounds Department. His works are in the physical chemistry of glass and thermodynamics of heterogeneous equilibrium processes. Recipient of the State Prize, 1973. He is one of the deputies of the Academician

Secretary of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy. (GSE 29, p. 641.)

Shveykin, Gennadii P., D. Tech S. Born in 1926 in the city of Karabash, Cheliabinsk Oblast. Russian chemist. Corresponding member since 1976, and academician since 1987 of the Physical Chemistry and Technology of Inorganic Materials Department and of the Urals Department. He graduated from the S. M. Kirov Urals Polytechnical Institute in 1951 and joined the staff of the Institute of Chemistry of the Urals Department of the RAS. Since 1972, he has been Director of the Chemistry Institute in Ekaterinburg (Sverdlovsk). The Institute of Chemistry, established in 1958, does research in high temperature synthesis of pure refractory combinations and polymer chemistry. He is also a member of the Urals Department. His work deals with the chemistry of refractory metals and their compounds. He is currently serving as a member of the Bureau governing body of the Physical Chemistry and Technology of Inorganic Materials Department. Located in Ekaterinburg. (GSE 29, p. 649.)

Trefilov, Viktor I., D. PM. S. Born in 1930. Academician of the Physical and Technical Problems of Materials Science Department since 1973. Since 1987, he has been an academician of the Physics, Chemistry, and Technology of Inorganic Materials of the Russian Academy of Sciences. He has acted as Director of the Problems of Materials Science Institute in Kiev since 1973, that was established in 1955 to develop high temperature materials, to study problems of the structure of solids, and to coordinate all powder metallurgy in Russia. He has served as a Vice President of the Ukrainian academy since 1974 and was reelected in 1988.

Tretiakov, Iurii D., D. Chem. S. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1984, and academician since December 1987. He is Head of the Inorganic Chemistry Division of the Chemistry Department of the Moscow State University. He is a Deputy to the Academician Secretary of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy.

Vatolin, Nikolai A., D. Tech. S. Born in 1926. Academician of the Physical Chemistry and Technology of Inorganic Materials Department and of the Urals Department since 1981. Since 1967, he has been Director of the Metallurgy Institute at Ekaterinburg (Sverdlovsk) that is subordinate to the academy's Urals Department. The institute develops physical-chemical fundamentals for new metallurgical processes. From 1980 to 1988, he served as Deputy Chairman of the Urals Department. He is currently serving as a member of the Bureau governing body of the Physical Chemistry and Technology of Inorganic Materials Department. Located in Ekaterinburg.

Iakovlev, Sergei V., D. Tech. S. Born in 1914. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department since 1981, and academician since December 1987. Since 1974, he has been Director of the Water Supply, Sewage, Hydraulic Structures and Engineering Hydrogeology Scientific Research Institute in Moscow that is under the direct administration of the State Committee for Construction Affairs. The institute does research on water treatment for industrial water supply systems, purification plants, industrial waste water, sewage systems, and hydraulic projects for industry and municipalities. He is currently serving as a member of the Bureau governing body of the Physical Chemistry and Technology of Inorganic Materials Department.

Zolotov, Iurii A., D. Chem. S. Born in 1932 in Vysokovsk, Klinskii Raion, Moscow Oblast. Russian analytical chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1970; academician in 1993. He graduated from Moscow State University in 1955 and began work at the Institute of Geochemistry and Analytical Chemistry of the AN SSSR. Since 1975, he has been Head of the Analytical Chemistry Division of

the Chemistry Department of Moscow State University , and Head of the Solvent Extraction Laboratory of the V. I. Vernadskii Geochemistry and Analytical Chemistry Institute in Moscow. From 1975 to 1989, Zolotov was Deputy Director of this institute. His works have dealt with the extraction of inorganic compounds. In 1989, he was made Director of the N. S. Kurnakov General and Inorganic Chemistry Institute in Moscow. He is Head of the Analytical Chemistry Division of the Chemistry Department of the Moscow State University. (GSE 9, p. 672.)

Corresponding Members

Aleskovskii, Valentin B., D. Chem. S. Born in 1912 in the city of Mary, Turkmen SSR. Soviet chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1972. He graduated from the Lensovet Leningrad Technological Institute in 1937, and joined the institute staff. From 1965 to 1975, he served as its rector. Since 1975, he has been rector of the A. A. Zhdanov Leningrad State University, established in 1819 on the basis of the Main Pedagogical Institute. His works are in the synthesis of inorganic materials. (GSE 30, p. 10.)

Antsiferov, Vladimir N. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the National Academy in 1993. He is located in Perm. He is currently serving as a member of the Bureau governing body of the Physical Chemistry and Technology of Inorganic Materials Department. (Tel. 39-11-19.)

Bochkarev, Ellin P., D. Tech S. Born in 1926. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1981.

Bokiy, Georgii B. Born in 1909 in St. Petersburg. Russian crystallographer and crystal chemist. Corresponding member since 1958. Also member of the General and Technical Chemistry and Siberian Department. He graduated from the Leningrad Mining Institute in 1930. From 1930 to 1958, he worked in the Institute of General and Inorganic Chemistry of the AN SSSR. From 1959 to 1965, he was a member of the Presidium of the Siberian Department of the AN SSSR. He taught at Moscow State University from 1939 to 1963, becoming a professor in 1944. Since 1963, he has worked at the Institute of Radio Electronics of the RAS. His main works are in the crystal chemistry of complex compounds and minerals and in the history of crystallography. (GSE 3, p. 408.)

Buyanov, Roman A., D. Chem. S. Born in 1927. Inorganic Chemist. Specialist in the problems of chemical technology, physical chemistry and catalysis. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1981. He graduated from the Moscow Chemical Technology Institute imeni D. I. Mendeleev in 1960. He began work at the Institute for Nuclear Research in Dubna. In 1961, he joined the Catalysis Institute in Akademgorodok, as the Deputy Director and Head of a dehydration laboratory. He became a professor in 1976. He served as Head of the coordination center of the nation-wide Council of the USSR on problems of the introduction of new industrial catalysts and the study of catalysis--its introduction and development. In 1988 he joined the editorial board of the chemical series journal "Izvestia of the Siberian Branch of Academy of Sciences of the USSR" Recipient of the Lenin Prize in 1960. He is an Honored Scientist of the former Soviet Union.

Dobatkin, Vladimir I. Born in 1915. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1979.

Eliutin, Aleksandr V. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since December 1987. He is currently serving as a member of the Bureau governing body of the

- Physical Chemistry and Technology of Inorganic Materials Department. (LDA 89-11378.)
- Ievlev, V. M.** Born in 1926. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials department of the Academy since 1964. He is located in Voronez. He is currently serving as a member of the Bureau governing body of the Physical Chemistry and Technology of Inorganic Materials Department.
- Glushchenko, Viktor Iurii** Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the AN SSSR from 1987. Deputy Chairman of the Far Eastern Department since August 1988. LDA 89-11378.)(GSE 30, p. 407.)
- Ippolitov, E. G.,** D. Chem S. Born in 1930. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1979. Also a member of the Siberian department. Since 1977, he has been Director of the Chemistry Institute in Vladivostok, which was founded in 1970 and does research on the composition of marine foam, methods of extracting minerals from sea water, and researches the crystal structures of rare metal fluorides.
- Kalinnikov, Vladimir T.,** D. Chem. S. Born in 1935. Chairman of the Kola Affiliate since 1985. Corresponding member since of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since December 1987. He is Director of the Chemistry and Technology of Rare Elements and Mineral Raw Materials Institute in Apatitii. He is currently serving as a member of the Bureau governing body of the Physical Chemistry and Technology of Inorganic Materials Department. (LDA 89-11378.)
- Khol'kin, Anatolii I.,** D. Chem. S. Born in 1937. Inorganic chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department and of the Siberian Department of the Academy since December 1987. He graduated from the Leningrad Polytechnic Institute in 1960. From 1962 to 1980, he researched in the Inorganic Chemistry Institute of the Siberian Department of the academy, moving from an aspirant, a junior and senior researcher. In 1980, he joined the Chemistry and Chemical Technology Institute of the Siberian Department, as its Deputy Director and in 1981, he became Director of that institute. Since 1982, he has been a professor at the Krasnoyarsk State University, holding the chair of inorganic and organic chemistry. He is a leading member of the of the Scientific Coordinating Council. He received the State Laureate Prize in 1986. (LDA 89-11378.)
- Kozlov, Leonid N.** Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy and of the Urals Department of the Academy since December 1987. (LDA 89-11378.)
- Krasnoshchekov, Iurii I., D. Tech S. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1984.
- Krestov, Gennadii A.,** D. Tech. S. Born in 1931. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1981. Since 1981, he has been Director of the Chemistry of Nonaqueous Solutions Institute at Ivanovo, which is subordinate to the Physical Chemistry and Technology of Inorganic Materials department of the Academy. It was established in 1981 and studies the chemical and dyeing processes of non aqueous solutions.
- Lidorenko, Nikolai S.,** D. Tech. S. Born in 1916 in Kursk. Russian scientist in electrical and power engineering. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1966. He also holds membership in the General Physics and Astronomy Department and in the Physical Chemistry and Technology of Inorganic Materials Department of the Academy. He graduated from the Novochoerkassk Polytechnic Institute in 1940. Since 1950, He has been of the Current Sources Scientific Research Institute in

Moscow which is subordinate to the Ministry of Instrument Building, Automation Equipment and Control Systems. It is in this institute that the solar and electrochemical power sources for the Russian Space program are developed. In 1963 he gained professorial status and became a Head of a subdepartment of the Moscow Polytechnical Institute in 1965. His main work is in the conversions of energy and the design of physical models of information. Lenin Prize, 1960. (GSE 14, pp. 482-83.)

Maliusov, Vladimir A. Born in 1913 in Moscow. Russian Chemical engineer. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1968. He graduated from the D. I. Mendeleev Moscow Institute of Chemical Engineering in 1940. From 1946 to 1963, he worked at the L. Ia. Karpov Physical Chemical Institute. In 1963, he became laboratory Director at the N. S. Kurnakov Institute of General and Inorganic Chemistry of the AN SSSR. His main work is in the hydrodynamics and mass transfer in two-phase liquid gas flows and with new methods of separating mixtures. State Prize, 1953. (GSE 15, p. 381.)

Petrovskii, Gurii T. Born in 1931 in Leningrad. Russian physical chemist and production engineer. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1976. He graduated from the Lensovet Leningrad Technological Institute in 1955. In 1959, he began work at the S. I. Vavilov State Optical Institute of which he became Deputy Director in 1969. Since 1986, he has been Director of the Sosnovii Bor Branch of the S. I. Vavilov Optics Institute in Leningrad. The branch develops and tests lenses, lasers, and other optical instruments. His works deal with the properties and production technology of such optical materials as beryllium fluoride glasses. He discovered the anionic conductivity of fluoride glass dielectrics. Holder of the State Prize. (GSE 30, p. 604.)

Samoylov (Samoilov), Andrei G., D. Tech S. Born in 1907 in Ishim, Tomsk Oblast. Russian specialist in metallurgy. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1976. He graduated from the M. I. Kalinin Moscow Institute of Nonferrous Metals and Gold in 1935. He is associated with the All-Union SRI of Inorganic Materials. His works deal with hard alloys based on tungsten carbide and titanium carbide and with materials for nuclear reactors. Holder of four State Prizes and the Lenin Prize. (GSE 30, p. 622.)

Sedov, Viacheslav M., D. Tech S. Born in 1929. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1981.

Sarkisov, P. D. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy in 1993. He is currently serving on the Bureau governing body of that department.

Slin'ko, (Slinko) Mikhail G., D. Tech. S. Born in 1914 in Moscow. Russian chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1966. Also member of the Siberian department. In 1932, he began working at the State Institute for the Design of Enterprises of the Heavy Chemical Industry. He graduated from Moscow State University in 1941 and fought in WW II. From 1946 to 1956, he worked at the L. Ia. Karpov Institute of Physical Chemistry in Moscow. From 1956 to 1959, he worked on the staff of the CC CPSU; from 1959 to 1976, he was Deputy Director of the Institute of Catalysis of the Siberian Division (now Department) of the AN SSSR. In 1976, he became Deputy Director of the L. Ia. Karpov Institute of Physical Chemistry. His research has dealt with the creation of mathematical models of catalytic processes and chemical reactors. State Prize, 1946; Lenin Prize, 1960. (GSE 23, p. 536.)

Vyatkin, (Viatkin) German P. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department and of the Urals Department of the Academy since December 1987. (LDA 89-11378.)

Yagodin, (Iagodin) Gennadii A., D. Chem. S. Born June 1927 in Penza Oblast. Russian chemist. Since 1976, he has been a corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy. He graduated from the D. I. Mendeleev Moscow Institute of Chemical Engineering in 1950 after which he joined that university's staff and in 1973 he was appointed its rector. In 1983, he was named rector of the D. I. Mendeleev Chemical Technology Institute in Moscow. Since 1985, he has served as Minister of the Ministry of Higher and Secondary Education, which was established in 1959, and which administers over 890 institutes of higher and secondary specialized education. Since 1985, he has been a board member of the GKNT General Assembly. Since 1985, he has been first Deputy Chairman of the Committee for Lenin Prizes and State Prizes in Science and Technology. In March 1988, he assumed the Chairmanship of the newly created State Committee for Public Education which has taken over the function of the Ministry of Education, the Ministry of Higher and Secondary Specialized Education, and the State Committee for Vocational and Technical Education. This is obviously an important move toward consolidation of offices. His studies include the kinetics of fast reactions in liquid media. In 1981, he was awarded the D. I. Mendeleev Prize in chemistry for his contributions to Russian science. (GSE 30, p. 407.) (LDA 89-11378.)



Research Institutes Directly Subordinate to the Physical Chemistry and Technology of Inorganic Materials Department:

There were five SRIs subordinate to the Physical Chemistry and Technology of Inorganic Materials Department in 1987; in 1980, there had been only three. In 1980 the Chemistry and Chemical Technological Institute in Krasnoyarsk was created; in 1981 the Chemistry of Nonaqueous Solutions Institute was founded in Ivanova. For the moment, little is known about the internal structure nor about the manning totals for these institutes. It may be assumed, that the three older institutes continue to dominate the SRIs subordinate to this department. The three institutes about which we know something are: the A. A. Baikov Metallurgy Institute in Moscow, the N. S. Kurnakov General and Inorganic Chemistry Institute in Moscow, and the I. V. Grebenshchikov Silicate Chemistry Institute in St. Petersburg. In 1996, there were eight research institutes subordinate to the Department of Physical Chemistry and Technologies of Inorganic Materials (DPCTIM).

Organization of the Leading Institutes: The A. A. Baikov Metallurgy Institute is organized into 21 laboratories, and the I. V. Grebenshchikov Silicate Chemistry Institute in St. Petersburg is organized in five divisions. The five research institutes directly subordinate to the department in the order of their establishment are given below:

1. N. S. Kurnakov General and Inorganic Chemistry Institute in Moscow.

Located at 31 Leninskii ave., Moscow, U-71, GSP-1, 117907. Tel. 952-07-87. Directed by Academician Iurii A. Zolotov. Tel. 952-02-24.

Zolotov, Iurii A., D. Chem. S. Born in 1932 in Vysokovsk, Klinskii Raion, Moscow Oblast. Russian analytical chemist. Corresponding member of the Physical

Chemistry and Technology of Inorganic Materials Department of the Academy since 1970; academician in 1993. He graduated from Moscow State University in 1955 and began work at the Institute of Geochemistry and Analytical Chemistry of the AN SSSR. Since 1975, he has been head of the Analytical Chemistry Division, and head of the Solvent Extraction Laboratory--both of the V. I. Vernadskii Geochemistry and Analytical Chemistry Institute in Moscow. From 1975 to 1989, Zolotov was Deputy Director of this institute. His works have dealt with the extraction of inorganic compounds. In 1989, he was made Director of the N. S. Kurnakov General and Inorganic Chemistry Institute in Moscow. He is presently a deputy to the Academician Secretary of the Physical Chemistry and Technologies of Inorganic Materials Department of the Academy.(GSE 9, p. 672.)

Retrospect: Established in 1934. The N. S. Kurnakov General and Inorganic Chemistry Institute is organized around four divisions that research metal alloys, rare earth elements, chemistry of complex compounds and polymers.

(old material)

Structure and Scientific Personnel: Nikolai M. Zhavoronkov, D. Tech. S., headed the institute from 1962 to 1989. Since 1989, the Director of the institute has been Iurii A. Zolotov, D. Chem. S. Deputy Directors: Buslaev, Iurii A., D. Chem. S., since '67; Gorodetskii, Aleksandr V., since '72; and, Lazarev, Vladislav B., D. Chem. S., since '76.

Chemistry of Rare Earths Division:

Fluoride Laboratory;
Inorganic Polymers Laboratory;
Synthesis of Rare Metals Compounds Laboratory;
X-Ray of Rare Elements Laboratory;

Light Elements Division:

Actinide Metals Laboratory;
Crystallography and Crystal Chemistry Laboratory;
Optical Chemistry Laboratory;
Platinum Metals Laboratory;

Structure of Inorganic Compounds Division:

Ferrous Oxide Compounds Laboratory;
Hydrogen Compounds Laboratory;
Oxidizing Compounds Laboratory;
Phase Diagrams Laboratory;

Technology of Inorganic Chemistry Division:

Chloride Technology Laboratory;
Fused Salts Laboratory;
Hydrothermal Equilibria Laboratory;
Laser Material Research Laboratory;
Natural Salts Chemical Technology Laboratory;
Rectifications Laboratory;
Semiconductor Laboratory.



2. I. V. Grebenshchikov Silicate Chemistry Institute in St. Petersburg.

Located at 24/2 Odoevskogo st., U-155, St. Petersburg, 199155. Tel. 350-65-16. Directed by Mikhail M. Shults. Tel. 350-65-16.

Shults, Mikhail M., D. Chem S. Born in 1919 in Petrograd. Russian physical chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1972, and academician since 1979. He graduated from the chemistry Department of Leningrad State University in 1947 and performed research in the Department until 1952. In 1952 and 1953, and again from 1959 to 1972, he headed a laboratory at the university scientific research institute of chemistry and from 1953 to 1959, he taught in the chemistry Department. In 1965, he became a professor at the I. V. Grebenshchikov Institute of Silicate Chemistry of the AN SSSR, and since 1972 he has been its Director. The institute was established in 1948 to conduct research on the physical chemistry of silicates, and it has worked on developing new methods of grinding and polishing glass. It is subordinate to the academy's Physical Chemistry and Technology of Inorganic Compounds Department. His works are in the physical chemistry of glass and thermodynamics of heterogeneous equilibrium processes. Recipient of the State Prize, 1973. He is presently a deputy to the Academician Secretary of the Physical Chemistry and technological Problems of Inorganic Materials Department of the Russian Academy of Sciences. (GSE 29, p. 641.)

Retrospect: Established in 1948. Does research on physical chemistry of silicates, develops new methods of grinding and polishing glass, and specializes in refractory materials and ceramics. Director Shults, Mikhail M., D. Chem. S., since 1972.

Structure and Scientific Personnel: Director Mikhail M. Shults, D. Chem. S., since '72; Deputy Directors: Moiseev, Viktor V., C. Chem. S., since '64; and Rumiantsev, Pavel F., C. Tech. S., since '76;

(old material)

Ceramics Research Division;

Crystalline Materials Research Division:

Crystalline Structure Calculations Laboratory;

Glass Research Division:

Glass Properties Laboratory;

Structural Physics Laboratory;

Polymer Research Division:

Polymers Investigation Laboratory;

Diffusion Processes Laboratory;

Electron Processes Laboratory;

Fine Film Inorganic Coatings Laboratory;

Solid Phase Processes Laboratory.



3. New Chemical Problems Institute in Chernogolovka.

Located in Chernogolovka P/O, Noginskii district, Moscow region, 142432. Tel. 524-50-24. Directed by Professor Vladimir N. Troitskii. Tel. 524-50-24.

Established in 1964. The institute does research in plasma synthesis, analytical chemistry, and inorganic synthesis. Director V. T. Troitskii, since 1988. Deputy Director Evdokimov, Vladimir I., D. Chem. S., since '75.



4. Chemistry and Chemical Technology Institute in Krasnoyarsk.

(old material)

The institute develops chemical processes and technology for mining natural resources in the Krasnoyarsk region and coal in the Kansk-Achinskii basin and for processing Siberian timber. In 1980 the Director of this institute was Sergei P. Gubin, D. Chem. S. The institute was created in 1980, and in 1991, it was divided into two institutes:

- (1.) The Institute for Chemico-Metallic Processes taken from the Department of the Physico-chemical and Technology of Inorganic Materials of the RAS under the Directorship of Gennadii L. Pashkov, D. Tech. S.--since 1991, and,
- (2.) The Institute of Organic Chemistry of the Natural resources of Siberia was taken from a department of Technical Chemistry of the RAS. The new institute is under the direction of Boris N. Kuznetsov, D. Chem. S.--since 1991.



5. Chemistry of Nonaqueous Solutions Institute in Ivanova.

Located at 1 Akademicheskaya (aya), Ivanova, 153045. Tel. 37-85-13

Director Gennadii A. Krestov, D. Tech. S. Born in 1931. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1981. Since 1981, he has been Director of the Chemistry of Nonaqueous Solutions Institute at Ivanovo, which is subordinate to the Physical Chemistry and Technology of Inorganic Materials department of the Academy. It was established in 1981 and studies the chemical and dyeing processes of nonaqueous solutions. He also heads all work in the Chemistry of Solutions in Liquid Materials research.

Retrospect: Founded in 1981. The institute studies the chemical and dyeing processes of nonaqueous solutions. The total number of personnel in the institute in 1991 was 400 persons of whom some 280 were scientific researchers, including 16 doctorate holders, and 100 persons with the candidate of science degree. The Director of the institute is a corresponding member of the Russian Academy of Sciences. The institute is organized into five major research areas with a total of 21 laboratories, most of which have special research groups operating within them. Since its founding in 1981, the institute has produced some 120 highly trained specialists to carry on fundamental research in development studies of chemical solutions, in the hydrodynamics and physical chemistry of nonaqueous solutions.

Structure and Scientific Personnel: Director Gennadi A. Krestov, D. Tech. S., since 1981; Deputy Director for scientific work Professor A. M. Kolker, and Scientific Secretary A. V. Agafonov, C. Chem. S.

(old material)

The Chemistry of Solutions in Liquid Materials research area is headed by Director G. A. Krestov. The 12 laboratories working in this area include:

- 1) **The Structure of Chemical Solutions Laboratory**, headed by Professor G. A. Krestov. Other researchers include A. V. Agafonov, C. Chem. S.; S. G. Kudriavtsev, C. Chem. S.; V. K. Abrosimov, D. Chem. S., and A. G. Krestov, C. Chem. S.
- 2) **The Structure and Thermodynamics of Non-electrolytic Systems Laboratory** under G. A. Alper, C. Chem. S. Other scientists include: Iurii M. Kessler, D. Chem. S.
- 3) **The Ion-molecular Processes in Solutions Laboratory** headed by V. A. Abakshin, C. Chem. S. Other scientists include V. P. Korolev, C. Chem. S., and V. I. Parfeniuk, C. Chem. S.
- 4) **The Nonaqueous Medium Transference Process Laboratory** under V. N. Afanas'ev, C. Chem. S.
- 5) **gazofaznie solvatatsionnie protsessi i khimia klasterov Laboratory** under A. I. Maksimov, D. Chem. S.;
- 6) **The Magneto-Chemical Liquids in Heterogeneous Systems Laboratory** in charge of V. P. Korolev, C. Chem. S. and A. P. Polishchuk, C. Chem. S.;
- 7) **The Physical Chemistry Solutions in Macro-cyclical Combination Laboratory** under the direction of A. I. Vugin, C. Chem. S.;
- 8) **The Cryochemistry of Nonaqueous Solutions Laboratory** under A. M. Kolker, D. Chem. S.;
- 9) **The Solution of Amino Acids and Peptides Laboratory** under V. G. Badelin, C. Chem. S.;
- 10) **The Electro-Chemical Metal Process Laboratory** under S. A. Lilin, C. Chem. S. The Combined Physical Chemistry Center of the Institute is also under this research area and houses two laboratories:
- 11) **The Thermo-Chemical Laboratory** under V. P. Korolev, C. Chem. S., and
- 12) **The Chemical Structure of the Highly-concentrated Electrolytic Systems Laboratory** under V. I. Trostin, D. Chem. S.

The scientific research area **the Coordination of Chemical Purples** (Porfirinov) is headed up by Professor B. D. Berezin. His area has produced some 50 highly trained specialists since the institute was founded. The area has two research laboratories:

- 1) **The Coordination of Chemical Nonaqueous Solutions of Purples and of its Analogs Laboratory** under B. D. Berezin, D. Chem. S.
- 2) **The Chemistry of the Complex Salts of Element Delta** under O. A. Golubchikov, D. Chem. S.

Area three of research thrust is that of the **Chemistry of Textile Materials** that is headed by A. P. Moriganov, D. Tech. S. The two laboratories under this area are:

- 1) **The Theoretical Basis of the Technology of Decorating Textile Materials Laboratory** under A. P. Moriganov, and
- 2) **The Theoretical Basis of the Technology of Dyeing Textile Materials Laboratory** under Iurii A. Kalinnikov, C. Chem. S.

The Area 4 scientific area is the **Technology of Liquified Materials** that has one laboratory--

The Complex Conformation of Highly Concentrated Solutions Laboratory under the area Director A. Ia. Fridman, D. Chem. S.

Area 5 is the **Chemical Cleansing of Dye Solutions in High Molecular Combinations** with some five laboratories:

- 1) **The Physical Chemistry of Dye Solutions Laboratory** under A. G. Zakharov, D. Chem. S.;

- 2) **The Physical Chemistry of Liquid Crystals in the Polyelectrolytic System Laboratory** under A. G. Krestov, C. Chem. S.;
- 3) **The Physical Chemistry of a Cellulose Solution and Production Laboratory** under V. V. Myasoedova, D. Chem. S.;
- 4) **The Physical Chemistry of Polymer Solutions Laboratory** under L. N. Mizerovskii, D. Chem. S.;
- 5) **The Polymerization and Oxidation in Continuously Efficient Compounds Laboratory** under M. M. Mogilevich, D. Chem. S.

The institute also maintains a Thermodynamic Center of Characteristic Zhidkikh Systems under the direction of V. Iurii Garavin, C. Chem. S. (**Information provided by letter dated 27 November 1991 from the Director of the institute, Professor Dr. G. A. Krestov.**)



5. Hyperpure Substances Chemistry Institute in Niznii Novgorod

Located at 49 Tropinina st., GSP-445, Niznii Novgorod, 603600. Tel. 66-47-58. Directed by Academician Grigorii G. Deviatikh.

Deviatikh, Grigorii G., D. Chem. S. Born in 1918 in Viatka Province. Russian chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1968, and academician, 1974. He graduated from the chemistry Department of inorganic chemistry at the University of Gorkiy in 1941. He is head of the Department of inorganic chemistry at the University of Gorkiy, and since 1972 he has headed an unidentified laboratory at the Institute of Chemistry of the AN SSR in Gorkiy. Since 1982, he has served as Deputy Director of the Chemistry Institute in Gorkiy, that researches the creation of pure compounds. In 1985, he was awarded the Lenin Prize for his work on the development of pure substances. His work is in the separation of stable isotopes and the preparation and analysis of extremely pure substances. In 1980, he received the A. S. Popov Prize. In 1981, he was the recipient of the D. I. Mendeleev Gold Medal for his work in research in the chemical sciences. In 1988, he was named head of the new Institute of the Chemistry of Viscose Substances in Nizhnii Novgorod. (GSE 8, p. 170.)



6. The Chemistry and Technology of Rare Elements and Mineral Raw Materials in Apatitii (Apatity)

Located at 14 Fersmana st., Apatitii (Apatity), 184200. Tel. 3-14-45. Director of the Institute is Corresponding Member Vladimir T. Kalinnikov.

Kalinnikov, Vladimir T., D. Chem. S. Born in 1935. Chairman of the Kola Affiliate since 1985. Corresponding member since of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since December 1987. (LDA 89-11378.)



7. Interindustry Scientific Research Center of Technical Ceramics in Moscow

**Located at 48 Ozernaia (aya) st., Moscow, 119361. Tel. 430-77-70.
Directed by Vladimir I. Shevchenko.**

Shevchenko, Vladimir Ia. Corresponding member of the Academy in 1993. Head of the Inter Industry Scientific Research Center of Technical Ceramics in Moscow.



8. A. A. Baikov Metallurgy Institute in Moscow

**Located at 49 Leninskii ave., U-334, Moscow, 117911. Tel. 135-86-11.
Directed by Academician Nikolai P. Lyakishev.**

Lyakishev, Nikolai P., D. Tech. S. Born in 1929. Corresponding member since 1981. Academician of the Physical Chemistry and Technology of Inorganic Materials Department of the AN SSSR from December 1987. From 1978 to 1988, he was Director of the I. P. Bardin Ferrous Metallurgy Scientific Research Institute in Moscow that is directly subordinate to the Ministry of Ferrous Metallurgy. The institute was established in 1944 and does research in the development of precision alloys. Since 1988, he has been Director of the Metallurgy and Ore Dressing Institute in Alma Ata that was founded in 1956 to develop new methods of extracting and producing metals used in industry such as alumina, low-grade bauxite and rhenium.



(1997 listing)

Institutions and Organizations of the Department. This is the latest listing of institutes under this department:

1. Institute of Metallurgy named after A. A. Baikov (IMet)

49, Leninskii ave., V-334, Moscow, 117911, tel.135-86-11
Directed by Academician Nikolai P. Liakishev, tel.135-20-60

2. Institute of General and Inorganic Chemistry named after N. S. Kurnakov

(IGIC)

31, Leninskii ave., Moscow, V-71, GSP-1, 117907, tel.952-07-87
Directed by Academician Iurii Al. Zolotov, tel.952-02-24

3. Institute of New Chemical Problems (INCP)

Chernogolovka p/o, Noginskii district, Moscow region, 142432,
tel.524-50-24
Directed by Prof. Vladimir N. Troitskii, tel.524-50-24

4. Institute of Silicate Chemistry named after I. V. Grebenshikov (ISC)

24/2, Odoevskogo st., V-155, Saint-Petersburg, 199155, tel.350-65-16
Directed by Michail M. Shults, tel.350-65-16

5. Institute of Nonaqueous Solution Chemistry (INSC)

1, Akademicheskaja, Ivanovo, 153045

tel.37-85-13, tel.37-05-86(Iv.)

6. Institute of Hyperpure Substances Chemistry (IHSC)

49, Tropinina st., GSP-445, Niznii Novgorod, 603600, tel.66-47-50
Directed by Academician Grigorii G. Deviatyih, tel.66-47-50

7. Institute of Chemistry and Technology of Rare Elements and Mineral Raw Materials (ICTRMRM)

14, Fersmana st., Apatityi, 184200, tel.3-14-45
Directed by Corresponding Member Vladimir T. Kalinnikov, tel.3-14-45

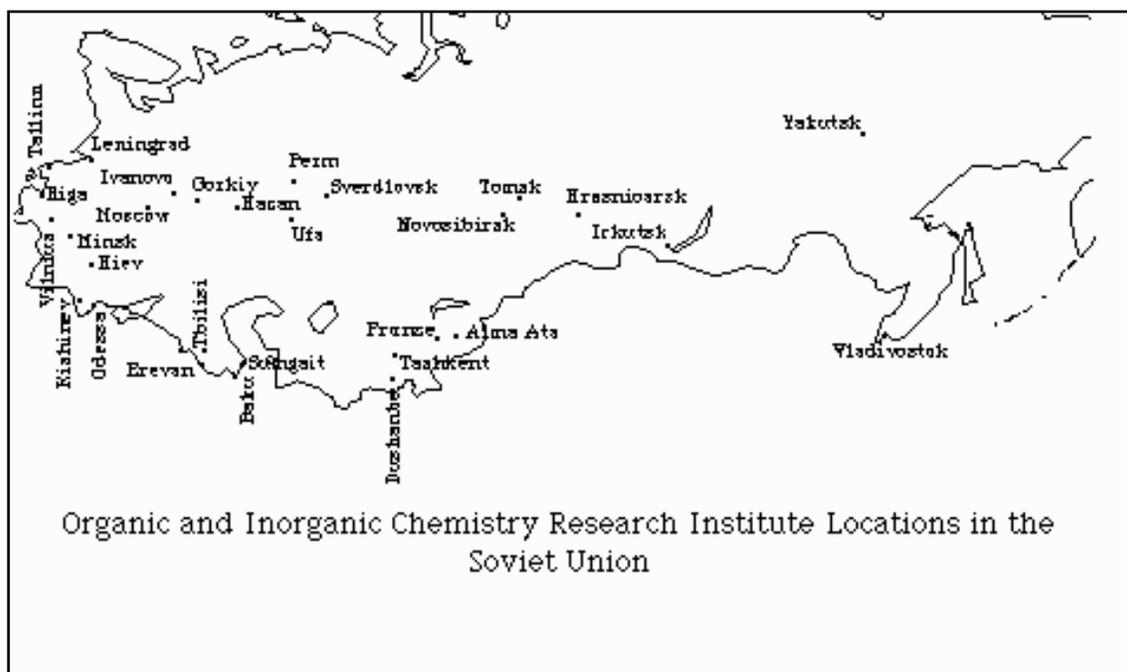
8. Interindustry Scientific-Research Centre of Technical Ceramics (ISRCTC)

48, Ozernaia st., Moscow, 119361, tel.430-77-70
Directed by Vladimir Iar. Shevchenko, tel.430-77-70



National Research in The Physical Chemistry and Technology of Inorganic Chemistry

Twenty-three institutes have been established throughout the former Soviet Union to research in areas similar to those of the institutes directly subordinate to the Physical Chemistry and Technology of Inorganic Materials Department of the Russian Academy of Sciences. When both organic and inorganic chemical research institutes are considered together, their numbers are exceeded or equaled only by the biological, and the Physical and Mathematical Sciences --including cybernetics.



1930s and earlier

1. General and Inorganic Chemistry Institute in Kiev.
2. L. V. Pisarzhevskii Physical Chemistry Institute in Kiev.
3. General and Inorganic Chemistry Institute in Minsk. Established in 1959 from the 1931 Chemistry Institute.
4. Peat Institute in Minsk.
5. Inorganic and Physical Chemistry Scientific Research Institute in Baku.
6. Inorganic and Physical Chemistry Institute in Frunze.
7. Inorganic Chemistry Institute in Riga.

1940s

8. Diamond Institute in Yakutsk. No date given in source.
9. Inorganic Chemistry and Electrochemistry Institute in Tbilisi.
10. Inorganic Chemistry Institute in Novosibirsk.
11. Iurii G. Mamedaliev Petrochemical Processing Institute in Baku.
12. Chemical Additives Institute in Baku. Founded in 1965 from the laboratory for the technology and synthesis of additives of the Petrochemical Synthesis Institute of 1959.

1960s

13. Chemical Kinetics and Combustion Institute in Novosibirsk.
14. Theoretical Problems of Chemical Technology Institute in Baku.
15. Physical Organic Chemistry and Coal Chemistry Institute in Donetsk.
16. A. V. Dumanskii Colloidal Chemistry and Hydrochemistry Institute in Kiev.
17. General and Inorganic Chemistry Institute in Erevan.
18. Organic Catalysis and Electrochemistry Institute in Alma Ata.
19. Petroleum Chemistry Institute in Tomsk.

1970s

20. New Chemical Problems Institute in Chernogolovka.
21. Physical Chemistry Institute in Odessa.
22. Continuum Mechanics Institute in Perm'.
23. Chemistry and Chemical Technology Institute in Krasnoyarsk.

Department of Physical and Chemical Biology (DPCB)
32a, Leninskii ave., Moscow, 117993, tel.938-52-40

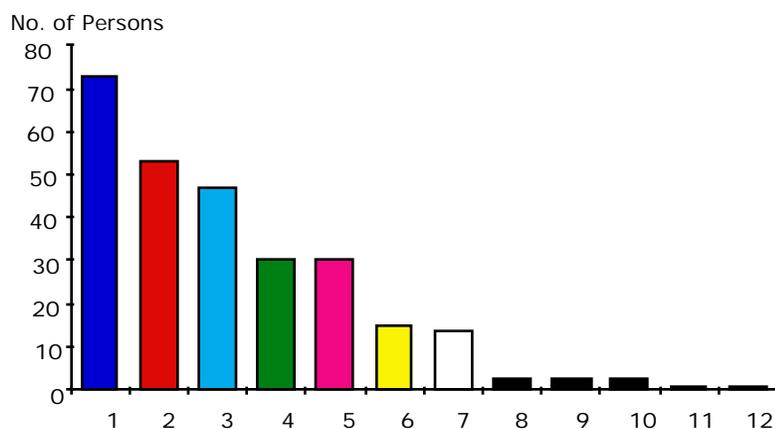
(Formerly: The Biochemistry, Biophysics and Chemistry of Physiologically Active Compounds Department)

Academician Secretary of the Department is Dmitrii G. Knorre, tel. 938-16-67 or 938-52-40.

Knorre, Dmitrii G., D. Chem S. Born in 1926. Chemist, Biochemist, specialist in chemical kinetics of complex reactions, bioorganic chemistry, and molecular biology. Corresponding member since 1968, and academician since 1981. Principal membership in the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) of the of the AN SSSR from 1981. He graduated from the D. I. Mendeleev Moscow Chemico-Technological Institute in 1947. He worked at the Chemical Physics Institute from 1947 to 1960 when he joined the Siberian Department in a laboratory studying natural polymers and joined the Department of biochemistry of the Novosibirsk Institute of Organic Chemistry. In 1962, he acted as head of the Natural Polymers Laboratory of the Organic Chemistry Institute in Novosibirsk that was established in 1958 and whose basic work is in the study of aromatic and heterocyclic chemistry and in natural products. He was named Director-organizer of the Novosibirsk Bioorganic Chemistry. He was named to the Presidium of the Siberian Branch in 1988. From 1967 to 1983, he was a professor on the faculty of natural sciences holding the chair in molecular biology from 1979. He is an Honored Scientist of the former Soviet Union. He received the Laureate Prize of the Soviet Ministry in 1987, and the M. M. Shemiakin AN SSSR Prize in 1988. He holds other recognitions and awards for his work. (GSE 12, p. 554.)

Retrospect: The last full count of personnel assigned to the 12 institutes in this department was published in 1980 and is shown in Figure 18. Obviously, by 1992, the numbers of institutes and scientists in this department had grown.

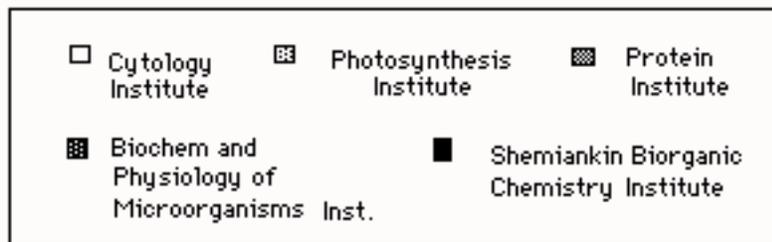
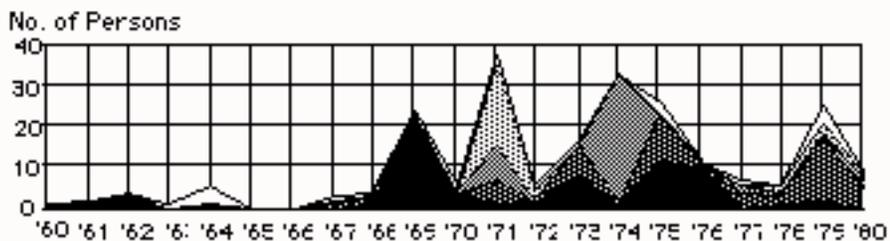
Figure 18
Personnel of the Biochemistry, Biophysics
and Chemistry Department, 1980



1. M. M. Shenyankin Bioorganic Chemistry Institute in Moscow; 2. Biochemistry and Physiology of Microorganisms Institute in Moscow; 3. Protein Institute in Puschino; 4. Photosynthesis Institute in Puschino; 5. Cytology Institute in Leningrad; 6. A. N. Bakh Biochemistry Institute in Moscow; 7. K. A. Timiriazev Plant Physiology Institute in Moscow; 8. Molecular Biology Institute in Moscow; 9. Biological Physics Institute in Puschino; 10. Microbiology Institute in Moscow; 11. Biochemistry and Physiology of Plant Growth in Saratov; and, 12. Agrochemistry and Soil Science Institute in Puschino. Compiled from: CR 80-13202, pp. 171-417.

Figure 18

Assignment of Personnel in Five SRI's of the Biochemistry,
Biophysics, and Chemistry of Physiologically Active
Compounds Department, 1960-1980



Compiled from : CR 80-13202, pp. 183-185; 198-201; 223-225; 313-315; and 379-381.

Administrative responsibilities: Of the 20 academicians listed in this department in 1989, six held responsible positions as heads of major laboratories; two acted as Deputy Director of a SRI, and nine either served or had served as Directors of departmental SRIs. Among the 44 corresponding members one was Vice President of a republic academy, seven headed major laboratories, five served as Deputy Directors of major SRIs, and four were Directors of SRIs. Fifty-eight percent of the academicians and corresponding members of Physical and Chemical Biology Department held major scientific administrative posts in research units subordinate to the department.

Academicians--age and schools: The average age of the 20 academicians of Physical and Chemical Biology Department in 1991 was 72.65 years. This average is skewed by the fact that nine of the academicians were over 83 years old and the youngest one was 54. Two were 90; two were 89; three were 88; one was 83, and one was 81. Their educational background is interesting: Only two academicians have no degrees attributed to them, though both graduated from agriculturally-related institutions. Of the other eighteen, the institutions which graduated them is known in the cases of 14: Moscow State University graduated five; the D. I. Mendeleev Moscow Chemical Engineering Institute in Moscow, two; the K. A. Timiriyev Moscow Agricultural Academy (now the V. I. Lenin) one; the Kazan' Institute of Agriculture and Forestry one; the Kazan' Medical Institute one; the University of Erevan one; the 1st Moscow Medical Institute one; the University of Voronezh one, and the 2nd Moscow Chemical Engineering Institute one. These 14 graduates attended nine different institutions. One-half of the academicians of this department were born during or before the Russian Revolution.

Corresponding Members--age and schools: Corresponding members totaled 44 in 1989. Ten of the 39 corresponding members whose birth dates are known were over 80 years old in 1991. The oldest member was 92 and the youngest was 48 years old. The average age of the corresponding members of this department was 69.4 years. Russian scientists have pursued biological interests from the beginning of science in Russia. Only two of the 44 members appear to have no degrees; one holds a candidates degree. Institutions, where known, which graduated these corresponding members include: Moscow State University graduated seven; the M. V. Lomonosov Moscow Institute of Fine Chemical Technology, two; The K. A. Timiriyev Moscow Academy of Agriculture, one; the S. Ordzhonikidze Moscow Aviation Institute, one; the 1st Moscow Medical School Institute, one; the 1st Leningrad Medical School Institute, one; the Saratov Agricultural Institute, one; the Odessa Agricultural Institute, one, the Kuban Agricultural Institute, one, and the Kazan' Institute of Chemical Engineering, one. There were four women among the corresponding members of this department in 1989.

(1997 update)

Bureau of the Department

Academician-- Secretary

Academician Dmitrii G. Knorre, tel.938-16-67, 938-52-40

Deputies of the Academician-Secretary:

Academician Andrei D. Mizarbekov, tel.135-23-11

Mirzabekov, Andrei D., D. Chem. S. Born in 1937. Corresponding member since 1981, and academician and Academician Secretary to the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department since

October 1988, and member of the Presidium of the Academy from that date. Since 1985, he has been Director of the Molecular Biology Institute in Moscow that was founded in 1959. It studies recombinant DNA and the structural characteristics of nucleic acids, proteins, enzymes, viruses, and biopolymers.

Academician Mikhail V. Ivanov, tel.135-21-39

Ivanov, Mikhail V. D. Bio. S., Born in 1930. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Substances Department of the Academy since 1970, and academician since December 1987. Since 1979, he has been Director of the Microbiology Institute in Moscow, that was established in 1930. In 1992, it encompassed over 20 laboratories and research groups. Areas of study and research include the following: the varieties of the microbial world and new forms of microorganisms--studied in almost all of the laboratories; ecological and geochemical studies of halophilic, thermophilic, acidophilic microorganisms in various types of soil, in water depth and bottom sediments of the World oceans, and in glaciers in the Antarctica--all of which focuses on their roles in the cycle of substances in the biosphere--in the processes of formation, and the variation and destruction of the deposits of soil treasures. These studies have led to the development of a new branch of biotechnology: the bio-geotechnology of metals that includes the bacterial enhancement of oil recovery from oil pools; the study of the cytology, physiology and biochemistry of microorganisms as producers of physiologically active compounds such as enzymes, lipids, etc., and, the study of viruses that cause diseases in plants and the development of measures to fight such diseases.

Academician Aleksei Al. Bogdanov, tel.939-53-63

Bogdanov, Aleksei A., D. Chem. S. Corresponding member of the Biochemistry, Biophysics and Chemistry of Physiologically Active Compounds Department of the Academy since 1984. Elevated to academician status in 1993.

Responsible for scientific-organizing activities:

Prof. Boris P. Gottih, tel.938-50-55

Members:

Academician Aleksandr Al. Buslaiev, tel.135-23-31
(no entry)

Academician Georgii P. Georgiiev, tel.135-60-89

Georgiiev, Georgii P., D. Bio. S. Born in 1933 in Leningrad. Russian biologist. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy since 1970. Academician since December 1987. He graduated from the First Moscow Medical Institute in 1956, went to work at the A. N. Severtson Institute of Animal Morphology of the AN SSSR, and in 1963 became head of a laboratory of the Institute of Molecular Biology of the Academy. His work is in molecular biology. He discovered in animal cells a new type of ribonucleic acid-nuclear RNA, similar to DNA--the predecessor of messenger RNA in 1961. He discovered informosomes, particles in the cell nuclei that contain messenger RNA, and he decoded their structure in 1964. He was on the editorial board of Science in Russia. (GSE 6, p. 299.)

Academician Vadim T. Ivanov, tel.330-56-38

Ivanov, Vadim T., D. Chem. S. Born in 1937 in Feodosiia, Crimean Oblast. Russian chemist. Academician of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Substances Department of the Academy since 1987. He graduated from Moscow State University in 1960. In 1963, he joined the staff of the Institute of the Chemistry of Natural Compounds of the AN SSSR--now the M. M. Shemiakin Institute of Bio-organic Chemistry. Since 1971, he has headed the Peptide Chemistry Laboratory of the institute in Moscow that was founded in 1939. His works are on the synthesis and structure of biologically active peptides and proteins and the mechanisms of their reactions. He received the Lenin Prize--with Iu. A. Ovchinnikov--in 1978. (LDA 89-89-11358.) (GSE 30, p. 463.)

Academician Adolf T. Mokronosov, tel.482-51-36

Mokronosov, Adolf T., D. Bio S. Born in 1928. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy since 1981, and academician since December 1987. He has been the Director of the K. A. Timiriazev Plant Physiology Institute in Moscow since 1988. One of the oldest of the Academy's scientific research institutes, it researches soil science, the physiology of plants, and solar technology and photosynthesis.

Academician Nikolai N. Nikolskii, tel.247-18-29

Nikolskii, Nikolai N., D. Bio. S. Academician of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy in 1993. He has been the Director of the Cytology Institute in St. Petersburg since 1988. Before the breakup of the Soviet Union, Nikolskii headed the Scientific Council of the Academy on the problems of cell biology. The Cell Cycle Physiology Laboratory of the institute, headed by Professor Nikolaskii, studies the effects of growth factors on cells--particularly the EGF--the epidermal growth factor.

Academician Vladimir P. Skulachev, tel.939-55-30

Skulachev, Vladimir P. Born in 1935 in Moscow. Russian biochemist. Corresponding member of the Biochemistry, Biophysics, and chemistry of Physiologically Active Compounds Department of the Academy since 1974; academician in 1993. He graduated from Moscow State University in 1957, and joined the staff of the university in 1960. Head of the Department of bio-energetics of the interDepartmental laboratory of bio-organic chemistry from 1965 to 1973, and in 1973, he became head of that laboratory. His works are in the mechanics of biological oxidation. Recipient of the State Prize, 1975. Lenin Komsomol Prize in Science & Technology, 1967. The A. N. Bakh Prize, 1972. (GSE 23, p. 514.)

Corresponding Member Vladimir G. Debabov, tel.315-37-47

Debabov, Vladimir G., Born in 1935. Corresponding member of the Biochemistry, Biophysiology, and Chemistry of Physiologically Active Compounds Department of the Academy since 1987. Since 1978, he has been the Director of the Genetics and Selection of Microorganisms Scientific Research Institute in Moscow which was established in 1968 to study E Coli overproducers, insecticide toxin genes, Bacillus

sp., and protoplast fusion. Researches industrial interferon production. (LDA 89-11378.)

Corresponding Member Lev P. Ovchinnikov, tel.923-48-11

Ovchinnikov, Lev P., C. Bio. S., Born in 1943. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy since December 1987. Since 1974, he has been a senior researcher in the Protein Biosynthesis Laboratory of the Protein Institute in Pushchino. In 1991, he was a Deputy Director of the Protein Research Institute and head of the Regulation of Protein Biosynthesis Laboratory of the institute whose main area of research includes the organization and functioning of the translation apparatus of eukaryotes with special attention being paid to mRNP particles (informosomes), to elongation factors EF-1 and EF-2 and to ribosomes..

Corresponding Member Evgenii D. Sverdlov, tel.196-00-00

Sverdlov, Evgenii D., D. Chem S. Born in 1938. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy since 1984. He is head of the Human Gene Structure and Function Laboratory of the M. M Shemiakin Biochemistry Institute in Moscow. In 1988, he was made Director of the V. L. Komarov Botany Institute in St. Petersburg which was founded in 1714.

Corresponding Member Boris F. Poglazov, tel.952-34-41

Poglazov, Boris F., D. Bio. S. Born in 1930. Corresponding member of Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy in 1993. Since 1988, he has been Director of the A. N. Bakh Biochemistry Institute in Moscow which dates back to 1935 to study living organisms, enzymes, proteins, vitamins, and antibiotics. In 1978, he received the A. N. Bakh Prize in biochemistry.

Scientist Secretary: Dr. Vadim V. Verzilov, tel.938-51-89

Staff of the Department

Vladimir N. Goloskov, tel.938-58-99

Elena B. Novikova, tel.938-52-37

Tatiana Al. Rytikova, tel.938-58-54

Dr. Viacheslav Al. Strelnikov, tel.938-56-63

Ludmila Al. Fokina, tel.938-52-40

Academicians:

Atabekov, Iosif G. D. Bio. S., Corresponding member of Physical and Chemical Biology Department of the Academy since December 1987; academician in 1993. He is also an academician of the Russian Academy of Agricultural Sciences. He graduated in 1956 from the All-Union Agricultural Institute with a specialty as a scientist-agriculturist. He has been on the Microbiology Institute staff since 1978 and has been Head of the General and Comparative Virusology Laboratory of the institute. He has also held the Virology Chair of the biological faculty at Moscow State University since that time. The Virusology Laboratory personnel execute fundamental and applied studies of plant viruses and develop bacteriophages, create

diagnostical test systems for viral diseases of berries, fruits, and flowers and develop technical cultures to be used in virusless plant-growing.

Baev, Aleksandr A., D. Bio S. Born in 1903 in Chita. Russian biochemist. Corresponding member of the academy in 1968, and academician from 1970. Academician Secretary from 1971 to 1988 and member of the academy Presidium since 1970. He graduated from the medical department of the Kazan' Medical Institute in 1927. He worked in a subdepartment there from 1930-35, and in the A. N. Bakh Institute of Biochemistry of the AN SSSR from 1935 to 1959. After 1959 he worked at the Molecular Biology Institute of the AN SSSR. He became Head of the Molecular Biology and Genetics of Microorganisms Laboratory at Pushchino in 1979. His works in molecular biology--cellular respiration and the chemical structure and functions of transfer ribonucleic acids (t-RNA)--are numerous. (GSE 2, p. 538.)

Bogdanov, Aleksei A., D. Chem. S. Corresponding member of the Biochemistry, Biophysics and Chemistry of Physiologically Active Compounds Department since 1984. Elevated to Academician status in 1993. He is one of the deputies of the Academician Secretary of the Academy's Department of Physical and Chemical Biology.

Dobrovolskii, (Dobrovolskii) Gleb V., D. Bio S. Corresponding member of Physical and Chemical Biology Department of the Academy since 1984; academician since 1993, and dean of Soil Science Faculty at Moscow State University since 1971. In 1987, he received the V. V. Dokuchaev Gold Medal for his work in research.

Eliakov, Georgii B., D. Chem S. Born in 1929 in Kostroma. Russian chemist and biochemist. Corresponding member since 1970, and academician since December 1987. He is also a member of the Far Eastern Department and since 1980, he has been Deputy Chairman of that department. He graduated from the Department of Chemistry at Moscow State University in 1952. From 1955 to 1959, he worked in Moscow. Since 1959, he has been in Vladivostok where in 1962, he organized and headed the Chemical Laboratory of Natural Physiologically Active Compounds of the Far Eastern Department of the Siberian Department of the AN SSSR and the RAS (Russian Academy of Sciences). Since 1964, he has been Director of the Bio-organic Chemistry Institute (Pacific) in Vladivostok that is subordinate to the Far Eastern Department and that studies the exploitation of marine and terrestrial plant and animal sources of natural drugs. He has also been Head of the Steroid and Terpenoid Chemistry Laboratory of that institute. His works are in the synthesis of triterpenoid glycosides, triterpenoids, sterols, and glycosides from the roots of ginseng and other plants of the Araliaceae family. (GSE 9, p. 115.)

Georgiev, Georgii P., D. Bio. S. Born in 1933 in Leningrad. Russian biologist. Corresponding member since 1970. Academician since December 1987. He graduated from the First Moscow Medical Institute in 1956, went to work at the A. N. Severtson Institute of Animal Morphology of the AN SSSR, and in 1963 became Head of a laboratory of the Institute of Molecular Biology of the AN SSSR and the RAS (Russian Academy of Sciences). His work is in molecular biology. He discovered in animal cells a new type of ribonucleic acid-nuclear RNA, similar to DNA--the predecessor of messenger RNA in 1961. He discovered informosomes, particles in the cell nuclei that contain messenger RNA, and he decoded their structure in 1964. He was on the editorial board of Science in Russia. He is presently a member of the Bureau Governing Body of the Physical and Chemical Biology Department of the Academy. (GSE 6, p. 299.)

Gitel'zon, (Gitelzon) Iosif I., D. Bio. S. Born in 1928. Biophysicist. Specialist in biosynthesis, blood regulatory systems, and ocean bioluminescence. Corresponding member since 1979, and academician since 1992. He graduated from the Moscow State University in 1951 and from the Krasnoyarsk Medical

Institute in 1952. He worked at the Krasnoyarsk Agricultural Institute from 1953 to 1957. In 1957, he joined the Physics Institute Krasnoyarsk. In 1961, he headed the Laboratory of Photo Biology of that institute. In 1981 he headed all laboratories and in 1985, he was made Director of the Biophysics Institute of the Siberian Department located in Krasnoyarsk. He is a professor, holding a chair in physiology and biochemistry of animals and humans at the Krasnoyarsk State University. He is an Honored Scientist of the former Soviet Union. In April 1991, the Presidium of the Siberian Department of the RAS established the International Center for Closed Ecological Systems that is intended to work closely with other scientists throughout the world working on man-made biospheres--something that Russian scientists had developed in BIOS-3 in the 1970s and 1980s. Dr. Gitel'zon, as Director of the Institute of Biophysics is also heading up this new international research institute.

Il'in, (Ilin) Iurii V., D. Chem S., Head of the Genome Mobility Laboratory of the Molecular Biology Institute in Moscow. He graduated from the Moscow State University Chemistry Department in 1966, and defended his thesis on the study of the structure of the chromatine deoxynucleoproteids in 1970, and defended his dissertation on the mobile elements of the *Drosophila* in 1981. He joined the institute in 1966. His scientific interests at present are on genome organization, mobile genetic elements, and the control of gene expression. In 1993, he was elected an academician in Physical and Chemical Biology Department of the Academy.

Ivanov, Mikhail V. D. Bio. S., Born in 1930. Corresponding member of Physical and Chemical Biology Department of the Academy since 1970, and academician since December 1987. Since 1979, he has been Director of the Microbiology Institute in Moscow, that was established in 1930. In 1992, it encompassed over 20 laboratories and research groups. Areas of study and research include the following: the varieties of the microbial world and new forms of microorganisms--studied in almost all of the laboratories; ecological and geochemical studies of halophilic, thermophilic, acidophilic microorganisms in various types of soil, in water depth and bottom sediments of the World oceans, and in glaciers in the Antarctica--all of which focuses on their roles in the cycle of substances in the biosphere--in the processes of formation, and the variation and destruction of the deposits of soil treasures. These studies have led to the development of a new branch of biotechnology: the bio-geotechnology of metals that includes the bacterial enhancement of oil recovery from oil pools; the study of the cytology, physiology and biochemistry of microorganisms as producers of physiologically active compounds such as enzymes, lipids, etc., and, the study of viruses that cause diseases in plants and the development of measures to fight such diseases. He is currently a Deputy to the Academician Secretary of the Physical and Chemical Biology Department of the Academy.

Ivanov, Vadim T., D. Chem. S. Born in 1937 in Feodosiia, Crimean Oblast. Russian chemist. Academician since 1987. He graduated from Moscow State University in 1960. In 1963, he joined the staff of the Institute of the Chemistry of Natural Compounds of the AN SSSR--now the M. M. Shemiakin Institute of Bio-organic Chemistry. Since 1971, he has headed the Peptide Chemistry Laboratory of the institute in Moscow that was founded in 1939. His works are on the synthesis and structure of biologically active peptides and proteins and the mechanisms of their reactions. He received the Lenin Prize--with Iurii A. Ovchinnikov--in 1978. He is currently a member of the governing Bureau of the Physical and Chemical Biology Institute of the Academy. (LDA 89-89-11358.) (GSE 30, p. 463.)

Kabachnik, Martin I., D. Chem S. Born in 1908 in Ekaterinburg (Sverdlovsk). Russian organic chemist. Academician since 1958. He graduated from the Second Moscow Chemical Engineering Institute in 1931. Since 1954, he has been the Head

of the Phosphor-organic Chemistry Laboratory of the Element-organic Compounds Institute. Since 1977, he has been Deputy Director of the A. N. Nesmeianov Element-organic Compounds Institute in Moscow. His works are in the chemistry of organophosphorous compounds and theoretical problems of organic chemistry. Recipient of the State Prize, 1946. (GSE 11, p. 316.)

Khokhlov, Aleksandr S., D. Chem S. Born in 1916 in Moscow. Russian chemist. Corresponding member of Physical and Chemical Biology Department of the Academy since 1964; academician in 1993. He graduated from Moscow Institute of Fine Chemistry Technology in 1941. From 1948 to 1952, he researched at the Institute of Biological and Medical Chemistry of the Academy of Medical Science of the USSR. From 1952 to 1954, he headed a laboratory at the Institute of Experimental Cancer Pathology and Therapy (now the Institute of Experimental and Clinical Oncology.) From 1954 to 1959, he headed a section of the All-Union Antibiotics Institute. In 1959, he became Deputy Director of the M. M. Shemiakin Institute of Bio-organic Chemistry and Head of one of its laboratories. He has served as Deputy Director since 1960 of the Shemiakin Bio-organic Chemistry Institute in Moscow. Since 1975, Head of the Isolation and Purification of Natural Substances Laboratory of the Shemiakin Bio-organic Chemistry Institute. His works are in antibiotics, anti-neoplastic agents, microbial bioregulation, and other natural substances. (GSE 28, p. 598.)

Knorre, Dmitrii G., D. Chem S. Born in 1926. Chemist, Biochemist, specialist in chemical kinetics of complex reactions, bioorganic chemistry, and molecular biology. Corresponding member since 1968, and academician since 1981. Principal membership in Physical and Chemical Biology Department of the academy and of the Siberian Department since 1981. He graduated from the D. I. Mendeleev Moscow Chemico-Technological Institute in 1947. He worked at the Chemical Physics Institute from 1947 to 1960 when he joined the Siberian Department in a laboratory studying natural polymers and joined the Department of biochemistry of the Novosibirsk Institute of Organic Chemistry. In 1962, he acted as Head of the Natural Polymers Laboratory of the Organic Chemistry Institute in Novosibirsk that was established in 1958 and whose basic work is in the study of aromatic and heterocyclic chemistry and in natural products. He was named Director-organizer of the Novosibirsk Bioorganic Chemistry. He was named to the Presidium of the Siberian Branch in 1988. From 1967 to 1983, he was a professor on the faculty of natural sciences holding the chair in molecular biology from 1979. He is an Honored Scientist of the former Soviet Union. He received the Laureate Prize of the Soviet Ministry in 1987, and the M. M. Shemiakin AN SSSR Prize in 1988. He holds other recognitions and awards for his work. He is currently the Academician Secretary of the Physical and Chemical Biology Department of the Academy. (GSE 12, p. 554.)

Kondrat'eva, (Kondrateva) Elena N., D. Bio S. Corresponding member since 1981; academician since 1993. In 1976, she was listed as a junior researcher in the X-Ray Astronomy subdepartment of the Spectroscopy Laboratory of the P. N. Lebedev Physics Institute in Moscow.

Krasnovskii, Aleksandr A., D. Bio S. Born in 1913 in Odessa. Russian biochemist and biophysicist. Academician since 1976. He graduated from the Moscow Chemical Engineering Institute in 1937. Since 1944, he has worked at the Institute of Biochemistry of the AN SSSR and the RAS (Russian Academy of Sciences) where since 1959, he has headed the Photo Biochemistry Laboratory. Since 1954, he has been a professor in the subdepartment of biophysics at Moscow State University. His works are in the initial stages of photosynthesis, photo chemistry or chlorophyll, and state and formation of pigments in organisms. He discovered the reversible photochemical reduction reaction of chlorophyll and its analogs and

products. He received the A. N. Bakh Prize in 1978 in recognition of his work in biochemistry. (GSE 13, p. 484.)

Krayevskii, Aleksandr A., D. Biochem. S., Academician of the Biochemistry Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy in 1993. He is Head of the Chemical and Biological Analysis of Biopolymers and Cells laboratory of the Molecular Biology Institute in Moscow. He graduated from the Moscow Institute of Fine Chemical Technology in 1955. His thesis dealt with the synthesis of polyenic aliphatic fatty acids in 1963, and he defended his dissertation on peptidyl transferase center of ribosomes: substrate specificity and mechanism of action in 1976. His present interests are in the molecular mechanisms of enzymes action including DNA dependent and RNA dependent DNA polymerases, and the strategy of synthesis of selective inhibitors of HIV reproduction.

Kursanov, Andrei L., D. Bio S. Born in 1902. Russian plant physiologist and biochemist--son of L. I. Kursanov. Academician since 1953. He graduated from Moscow State University in 1926. From 1952 until August 1988, he served as Director of the Timiriazev Plant Physiology Institute in Moscow that was founded in 1889. It is subordinate to the academy's Biochemistry, Biophysics, and Chemistry of Physiologically Active Materials Department and does research in Soil Science, plant physiology and solar technology involving photosynthesis. In 1954, he founded and became editor-in-Chief of the journal *Fiziologiya rastenii* (Plant Physiology.) His works have included studies of enzyme actions in living plant cells. In collaboration with A. I. Oparin, he studied tannin in tea and other plants. He developed the theory of transfer of organic substances in plants and of the deposit of these substances in reserve. In 1984, he received the M. V. Lomonosov Gold Medal for his scientific research. (GSE 14, pp. 132-3.)

Mirzabekov, Andrei D., D. Biochem. S. Born in 1937. Corresponding member since 1981, and academician and Academician Secretary to Physical and Chemical Biology Department since October 1988, and member of the Presidium of the Academy from that date. He joined the Molecular Biology Institute as a laboratory assistant in 1962. He had graduated from the Institute of Fine Chemical Technology's Department of Drugs and Aromatic Compounds in 1961, defended his thesis on the primary structure of t-RNA, Oligonucleotides of valine t-RNA ribonucleases hydrolysates in 1965, and in 1972, he defended his dissertation on Valine t-RNA I--the structural bases of recognition. His current interests are in molecular biology, chromatin structure, protein complexes, DNA sequencing, and the human genome. Since 1985, he has been Director of the Molecular Biology Institute in Moscow that was founded in 1959. He replaced Academician Vladimir A. Engelhardt. The institute was established to solve problems that include molecular gene biology; the structure and functional organization of chromosomes and chromatine; the human genome; genetic and protein engineering and biotechnology; molecular and cell oncology; the structure and physico-chemical properties of nucleic acid and proteins; the interaction of nucleic acids and proteins--recognition problems, and molecular cell biology--cell engineering, hybrid and reconstructive cells, the mechanism of enzyme action and their regulation, and polyenzyme complexes. The institute is organized into some 24 laboratories.

Mokronosov, Adolf T., D. Bio S. Born in 1928. Corresponding member of Physical and Chemical Biology Department of the Academy since 1981, and academician since December 1987. He has been the Director of the K. A. Timiriazev Plant Physiology Institute in Moscow since 1988. One of the oldest of the Academy's scientific research institutes, it researches Soil Science, the physiology of plants, and solar technology and photosynthesis. he is currently on the Bureau governing body of the Physical and Chemical Biology Department of the Academy.

Nikolskii, Nikolai N., D. Bio. S. Academician of Physical and Chemical Biology Department of the Academy in 1993. Director of the Cytology Institute in St. Petersburg since 1988. Before the breakup of the Soviet Union, Nikolskii headed the Scientific Council of the AN SSSR on the problems of cell biology. The Cell Cycle Physiology Laboratory of the institute, headed by Professor Nikolaskii, studies the effects of growth factors on cells--particularly the EGF--the epidermal growth factor. He is currently a member of the governing body Bureau of the Physical and Chemical Biology Department of the Academy.

Ovodov, Iurii S. Born in 1937. Academician of Physical and Chemical Biology Department of the Academy and of the Far Eastern Department in 1993. Head of the Carbohydrate Chemistry Laboratory of the Bioorganic Chemistry Institute in Vladivostok since '69, which was established in the mid-1960s and which studies the exploitation of marine and terrestrial plant and animal sources of natural drugs. Professor Ovodov has been a Deputy Director of the institute since 1969.

Petrov, Rem V., D. Med. S. Born in 1930. Academician of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) since 1984. Also academician of the Academy of Medical Sciences. Vice President of the academy for Biology since October 1988. He was Editor-in-Chief of Science in Russia. In 1987, he received the I. I. Mechnikov Gold Medal in recognition of his contributions to the chemical and biological sciences.

Salganik, Rudol'f I., D. Bio. S. Born in 1923. Biologist and molecular geneticist. Corresponding member since 1981, and academician since 1992. He has written or co-authored some 268 scientific works of which his monographs "Macromolecules in the Functioning Cell" (1978), "The Cell Nucleus" (1979) are well-known. He graduated from the Moscow State Medical Institute in 1944. Until 1957, he worked at the Kiev Medical Institute, and at the Nutrition Institute of the Ukraine Ministry of Health. In 1957, he joined the Cytology and Genetics Institute of the Siberian Department as Head of the Laboratory of Nucleonic Acids and, in 1961, he was named Deputy of the institute. From 1970 to 1975, he was the organizer Director of biologically active substances research. He has been a professor at the Novosibirsk State University since 1971, holding the chair in molecular genetics. In that capacity he has guided the work of 31 aspirants for the candidate degree. He is Chairman of the Novosibirsk Independent All-Union biochemical substances scientific circle. He is editor of the biochemistry series of the journal "Izvestia." Winner--with others--of the 1979 State Prize in Science and Technology for the cycle of work on the realization of "Reverse Transcription" devoted to the enzymatic synthesis of structural genes and their use in the study of the genetic apparatus of living creatures and of viruses (1973-1977). Iosef Riman, Director of the Czech Institute of Molecular Genetics was also a member of this group of honorees. He received the Lenin Prize in 1990 and holds a number of other medals and recognitions for his accomplishments.

Sandakhchiev, Lev. S., D. Bio. S. Born in 1937. Biologist. Specialist in molecular biology and biotechnology. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) of the Academy since 1981, and academician since 1992. He has authored and co-authored 103 scientific works. He graduated from the Moscow Chemo-Technological Institute imeni D. I. Mendeleev in 1959. From 1959 to 1974, he worked at the Novosibirsk Institute of Organic Chemistry, as a senior laboratory assistant, a junior researcher, a senior researcher, and Head of a laboratory. In 1974, he joined the All-Union Molecular Biology Institute of the Ministry of Medicine and Microbiology Industry of the SSSR, as a Department Head, and Deputy Director, becoming Director of that institute. In 1986, he became General Director of Scientific Production

Organization "Vektor." He serves on the scientific council for the government's program on "Human Genomes", "New Methods of Bioengineering", and is member of the Council on the physico-chemical problems of biology and biotechnology. and of the priority authority group on "The Science of Life and Biotechnology." He received the State Prize in 1985.

Skulachev, Vladimir P. Born in 1935 in Moscow. Russian biochemist. Corresponding member of the Physical and Chemical Biology Department of the Academy since 1974; academician in 1993. He graduated from Moscow State University in 1957, and joined the staff of the university in 1960. Head of the Department of Bio-Energetics of the interdepartmental laboratory of bio-organic chemistry from 1965 to 1973, and in 1973, he became Head of that laboratory. His works are in the mechanics of biological oxidation. Recipient of the State Prize, 1975. Lenin Komsomol Prize in Science & Technology, 1967. The A. N. Bakh Prize, 1972. He is presently serving on the Bureau governing body of the Physical and Chemical Biology Department of the Academy. (GSE 23, p. 514.)

Spirin, Aleksandr S., D. Bio S. Born in 1931 in Kaliningrad, Moscow Oblast. Russian biochemist. Academician of Physical and Chemical Biology Department of the RAS since 1970. He graduated from Moscow State University in 1954, where he studied under A. N. Belozerskii. In 1962, he was Head of a laboratory at the A. N. Bakh Institute of Biochemistry of the AN SSSR. Since 1967, he has been Director of the Pushchino Protein Research Institute that was established in 1967 as one of four institutes comprising the Science Research Center at Pushchino. It conducts research on protein structure and the biosynthesis of polypeptide chains. Since 1974, Head of the Protein Biosynthesis Laboratory of the Protein Research Institute. His works are in the biochemistry of nucleic acids and the biosynthesis of proteins. Lenin Prize, 1976. (GSE 24, p. 426.)

Tarchevskii, Igor A., D. Bio S. Born in 1931. Corresponding member of Physical and Chemical Biology Department of the RAS since 1981, and academician since December 1987. Since 1976, he has been Director of the Biology Institute at Kazan', that is subordinate to the academy's Kazan' affiliate. Established in 1945, the institute studies the natural resources of the Tatar Autonomous Republic.

Corresponding Members

Abelev, Garri I., D. Bio. S. Born in 1928. Corresponding member of Physical and Chemical Biology Department since December 1987. (LDA 89-11378.)

Bergel'son, (Bergelson) Lev D., D. Chem. S. Born in 1918. Corresponding member of Physical and Chemical Biology Department of the Academy since 1968. Since 1969, he has been Chief of the Lipid Chemistry Laboratory of the M. M. Shemiakin Bio-organic Chemistry Institute in Moscow.

Boronin, Aleksandr M., D. Bio. S. Born in 1937. Corresponding member of the Geochemistry, Geophysics, and Chemistry of Physiologically Active Compounds Department of the Academy in 1993. Since 1979, he has headed the Extra chromosomal Heredity of Microorganisms Department and within that he has led research in the Plasmid Biology Laboratory. studies the proliferation, functional significance, the classification, and the structure and evolution of Gram-negative bacterial plasmids, mostly of fluorescent pseudomonads. Scientists under his direction study the genetics of microbial degradation of organic compounds and the genetics of cellulose biodegradation. They also investigate the genetics and physiology of rhizospheric pseudomonads with the result of increasing crop yields. Since 1988, he has been Director of the Biochemistry and Physiology of Microorganisms Institute in Puschino, which was established in 1964 and is subordinate to Physical and Chemical Biology Department of the Academy.

Butenko, Raisa G., D. Bio S. Born in 1920 in Belyi, Kalinin Oblast. Soviet biologist. Corresponding member Biochemistry, Biophysics, and Chemistry of

Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) of the Academy since 1974. She graduated from the K. A. Timiriazev Moscow Academy of Agriculture in 1943. Since 1947, she has been working at the K. A. Timiriazev Institute of Plant Physiology of the AN SSSR where she was made Head of a laboratory in 1968. Since 1968, she has occupied the post of Chief of the Tissue Culture and Morphogenesis Laboratory of the K. A. Timiriazev Institute of Plant Physiology of the Academy. In 1984, she was awarded the USSR State Prize for her work--with others--on "The Development of the Basic Principles of the Cellular (Genetic-tissue culture) Engineering of Plants," published from 1964-1982. Her works have been in plant cells cultivated in vitro, morphogenesis in isolated cell culture, and plant tissue. (GSE 30, p. 29.)

Chizmadzhev, Iurii A., D. Chem. S., Born in 1931. Academician of Physical and Chemical Biology Department of the Academy since December 1987. (LDA 89-11378.)

Debabov, Vladimir G., Born in 1935. Corresponding member of Physical and Chemical Biology Department of the Academy since 1987. Since 1978, he has been the Director of the Genetics and Selection of Microorganisms Scientific Research Institute in Moscow which was established in 1968 to study E Coli overproducers, insecticide toxin genes, Bacillus sp., and protoplast fusion. Researches industrial interferon production. He is currently a member of the Bureau governing body of the Physical and Chemical Biology Department of the Academy. (LDA 89-11378.)

Evstigneeva, Raisa P., D. Biol. S. Born in 1925 in Moscow Oblast. Soviet chemist. Corresponding member of Physical and Chemical Biology Department of the Academy since 1976. She graduated from the M. V. Lomonosov Moscow Institute of Fine Chemical Technology in 1947, and joined its staff in 1950, becoming a professor in 1965. In 1969, she became Chairman of the subdepartment of the chemistry and technology of fine organic compounds. Her works have been in the isolation of naturally occurring physiologically active chemical compounds. (GSE 30, p. 364.)

Grachev, Mikhail A., D. Biochem. S. Born in 1939. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds of the Academy since 1987. Biochemist. Specialist in bioorganic chemical fermentation and analytical chemistry. He graduated from the Moscow State University in 1961 and began working at the Natural Compounds Institute of the AN SSSR. From 1965 to 1984, he headed a laboratory of the Novosibirsk Institute of Organic Chemistry, heading also a Laboratory in Ultra-micro biochemistry at the Novosibirsk Institute of Bioorganic Chemistry from 1984 to 1987. In 1987, he became Director of the Limnological Institute of the Russian Academy of Sciences located in Irkutsk. He has authored and co-authored some 111 scientific works of which three are major monographs. He has supervised the work of ten aspirants for the candidate degree. He is on the Scientific Council on Analytical Chemistry. He received a State Prize in 1985. In December 1990, the Baikal International Center for Ecological Research was established under Grachev's direction at ceremonies attended by representatives from nine countries. He was made the Executive Director of BICER that is located at the Limnological Institute in Irkutsk, Russia. (LDA 89-11378.)

Gren, Elmar Ia., D. Chem. S. Born in 1935. Corresponding member of Physical and Chemical Biology Department of the AN SSSR since December 1987. Academician of the Chemical and Biological Sciences Department of the Latvian academy since 1987. Since 1976, he has been Deputy Director of the Organic Synthesis Institute in Riga which was established in 1957 and which combines fundamental theoretical research on organic synthesis with the production of new organic compounds such as pharmaceuticals. (LDA 87-11012.)

Ivanitskii, Genrikh R., D. PM. S. Born in 1936 in Moscow. Russian biophysicist. Corresponding member of Physical and Chemical Biology Department of the Academy since 1976. He graduated from the S. Ordzhonikidze Moscow Aviation Institute in 1960. In 1954, he began working at the Institute of Biophysics of the AN SSSR. From 1976 to August 1988, he was Director of the Pushchino Biological Physics Institute which does research on the physical and chemical properties of nucleic acids, radiobiology, and the automation of bioprocesses. He is a recipient--with others--of the Lenin Prize in 1980 for discovery of a new category of autowave processes and research of their role in disturbing the stability of vulnerable distribution systems. His works have included the development of biophysical methods of research using computer technology and coherent optics and applying them to cytology. He helped to perfect a scanning optical microscope. In 1970, he organized a center for machine analysis of cell structures. (GSE 30, p. 463.

Karava'ko, (Karavako) G. I., D. Bio. S. Corresponding member of Physical and Chemical Biology Department of the Academy in 1993. He graduated from Moscow State University in 1959 from the biological l-soil faculty with specialties in plant physiology and microbiology. He finished his postgraduate course at INMI of the Academy in 1962 and immediately became a member of the Institute staff. He now heads the Microbial Transformation of Minerals Laboratory of the Microbiology Institute. Scientists in this laboratory search for, isolate and study the microorganisms active in the destruction of sulfide and non-sulfide minerals, study the mechanism, conditions and kinetics of the microbial destruction of minerals, and develop the microbiological bases for the bio-technological leaching of metals from ores and concentrates and for the biosorption of ions of metals from solutions.

Khomutov, Radii M., D. Chem S. Born in 1929. Corresponding member of Physical and Chemical Biology Department of the Academy since 1981, and Deputy Director of the Institute of Molecular Biology of the Academy. He heads the Chemistry of Enzymatic Regulation Laboratory of the institute. Professor Khomutov graduated from the Moscow State University Chemistry Department in 1952, joined the institute as a senior research scientist in 1959. In 1955, he defended his thesis on the interaction of salts and oxide of mercury with viniesters and ethers, and in 1966, he defended his dissertation on the chemistry and mechanism of biological activity of antibiotic cycloserine. His current interests are in the chemistry of physiologically active compounds and enzymology. He received the State Prize in 1984--for his work--with others--on "The Chemical Principles of Biological Catalysis." (1964-1982.)

Kiselev, Lev L., D. Biochem. S., Corresponding member of Physical and Chemical Biology Department of the Academy in 1993. He is Head of the Molecular Bases of Ontogenesis Laboratory of the Molecular Biology Institute in Moscow. He graduated from Moscow State University in 1959 and defended his thesis on the secondary structure of soluble ribonucleic acids in 1964, and in 1972, he defended his dissertation on regulation problems on the specific interaction between transfer RNA and aminacyl-tRNA sythetase. He became a laboratory assistant in the institute in 1959. His current research interests center on protein biosynthesis, the human genome, nucleic acid-protein interactions, oncogenes and anti-oncogenes.

Kiselev, Nikolai A., D. Bio. S. Born in 1928. Corresponding member of Physical and Chemical Biology Department of the Academy since 1979.

Kulaev, Igor S., D. Bio. S., Born in 1930. Corresponding member of Physical and Chemical Biology Department of the Academy since December 1987. In 1990, he was Head of Regulation of Biochemical Processes Laboratory of the Biochemistry and Physiology of Microorganisms Institute of the Russian Academy of Sciences in Pushchino, which studies the molecular bases of biogenesis and the mechanisms of translocation of proteins, enzymes, polyenzyme complexes and other

biopolymers via the microbial cell envelope. Its scientists have discovered new reactions of biosynthesis of the yeast envelope components (mannoproteins, polyphosphates) and the regulatory function of ATP in coordination of these reactions. It has cooperated with the Institute of Organic Synthesis of the Latvian Academy of Sciences in developing the technology for the production of a lysoamidase drug used to treat wounds, burns and other skin defects, infected by Gram-positive cocci, first of all by staphylococci. (LDA 89-11378.)

Kuzin, Aleksandr M. Born in 1906 in Moscow. Russian biochemist and radio biologist. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy since 1960. He graduated from the First Medical School Institute in 1929. He was with the First Medical Institute from 1930 to 1938 and a professor and a subdepartment Chairman at the Third Moscow Medical Institute from 1938 to 1951. Since 1957, he has been Chief of the Biological Radiation Division of the Pushchino Biological Physics Institute. He was Editor-in-Chief of the journal, *Biofizika* until 1961, and since 1961, he has been Editor-in-Chief of *Radiobiologiya*. His works have been in the biochemical and molecular bases for the effect of ionizing radiation on living organisms. (GSE 13, p. 570.)

Martynov, Ivan V., D. Chem S. Born in 1900. Corresponding member of Physical and Chemical Biology Department of the Academy since 1981.

Mel'nikov, (Melnikov) Nikolai N., D. Tech. S. Born in 1938. Since 1981, he has been Director of the Mining Institute in Apatity which is subordinate to the Academy's Kola Affiliate. It conducts research on rock strata at mining sites.

Mozhaeva, G. N. Corresponding member of Physical and Chemical Biology Department of the Academy in 1993. He is Head of the Ionic Channels in Cell Membranes Laboratory of the Cytology Institute in St. Petersburg. He leads studies of the signal transfer from receptors to intracellular structures.

Nichiporovich, Anatolii A., D. Bio S. Born in 1899 in Saratov. Russian plant physiologist and professor (1946). Corresponding member of Physical and Chemical Biology Department of the Academy since 1970. He graduated from Saratov Agricultural Institute in 1922. He has worked at agricultural experiment stations and at the All-Union Institute of Caoutchouc and Gutta-percha. He headed a subdepartment at the Briansk Wood Technology Institute. From 1940, he headed the photosynthesis laboratory of the Institute of Plant Physiology of the AN SSSR. His works have been in the physiology of photosynthesis. Since 1963, he has been Editor-in-Chief of *Biologiya*. (GSE 18, p. 197.)

Ovchinnikov, Lev P., C. Bio. S., Born in 1943. Corresponding member of Physical and Chemical Biology Department of the Academy since December 1987. Since 1974, he has been a senior researcher in the Protein Biosynthesis Laboratory of the Protein Institute in Pushchino. In 1991, he was a Deputy Director of the Protein Research Institute and Head of the Regulation of Protein Biosynthesis Laboratory of the institute. He is serving on the Bureau governing body of the Physical and Chemical Biology Department of the Academy.

Poglazov, Boris F., D. Bio. S. Born in 1930. Corresponding member of Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) of the Academy in 1993. Since 1988, he has been Director of the A. N. Bakh Biochemistry Institute in Moscow which dates back to 1935 to study living organisms, enzymes, proteins, vitamins, and antibiotics. In 1978, he received the A. N. Bakh Prize in biochemistry. He is Head of the Department of Functional Biochemistry of Biopolymers of the Belozerskii Institute of Physico-Chemical Biology of Moscow State University. His department includes five major research groups: the study of the systems of biological motility, the structure and functions of the cytoskeleton, the investigation of an alternative pathway of bioenergetics metabolism in

Mitochondria, the study of protein metabolism in the seeds of higher plants, and the mechanisms of cell response--their formation under the action of external effects. This department is one of the oldest in the institute. He is currently serving on the Bureau governing body of the Physical and Chemical Biology Department of the Academy.

Privalov, Petr L., D. PM. S. Born in 1935. Corresponding member of Physical and Chemical Biology Department of the Academy since 1984. Since 1974, Chief of the Protein Institute's (Puschino) Protein Thermodynamics Laboratory whose work involves the elucidation of the physical principles of folding and stabilizing of unique three-dimensional structures of biological macromolecules, proteins and nucleic acids. The ultimate goal is the creation of artificially stable protein structures.

Prokofiev, Mikhail A., D. Chem S. Born in 1910. Soviet statesman and party figure. Corresponding member of Physical and Chemical Biology Department of the Academy since 1966. He graduated from Moscow University in 1935. Served in the Soviet army from 1935-37 and from 1941-46. From 1937 to 1941, he was a graduate student, and from 1946 to 1951, he engaged in scientific and party work at Moscow University. From 1951 to 1959, he served in the Ministry of Higher Education and the Ministry of Culture, and from 1959 to 1966, he was first Deputy minister of higher and special secondary education of the USSR. In May 1966, he became Minister of Education of both the RSFSR and of the USSR. In 1971, he was elected a member of the Central Committee of the CPSU. His work has been in the chemistry of biological polymers and other natural compounds. (GSE 21, p. 258.)

Saliaev, Rurik, K., D. Bio. S. Born in 1931. Biologist and physiologist. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy since 1984. He graduated from the Leningrad Forest Technical Academy imeni S. M. Kirov in 1966. From 1956 to 1958, he as an aspirant of the chair of plant physiology of that academy. From 1958 to 1963, he worked as a junior researcher a Laboratory of Plant Physiology of the Forestry Institute of the Karelian branch of the AN SSSR. From 1963 to 1971, he was Deputy Director of the Siberian Institute of Plant Physiology and Biochemistry of the Siberian Department in Irkutsk. From 1971 to 1974 and in 1983, he was Deputy Chairman of the Eastern Siberian Branch--now the Irkutsk Scientific Center. From 1974 to 1976, he was the Director of the Soil Biology Institute of the Far Eastern Scientific Center and Deputy Chairman of that center. In 1977, he became Director of the Siberian Department's Institute of Plant Physiology and Biochemistry. He is on the staff of the Irkutsk Science Center which, in 1987, had some 1300 research workers of whom 70 held doctorates and 670 held candidate degrees.

Severin, Evgenii S., D. Chem. S., born in 1934 in Moscow, son of Sergei E. Severin academician of AN SSSR. Evgenii graduated from Moscow State University in 1957 from the Chemical Faculty, studied at the Institute of Pharmacology and Chemical Therapy of the Soviet Academy of Medical Sciences receiving a Ph.D. in Chemistry in 1963. From 1959 to 1966, he was a junior research associate in Chemistry at the Institute of Molecular Biology in Moscow. He did postgraduate work at the Institute of Biological and Organic Chemistry of the Czechoslovak Academy of Sciences in Prague from 1964-65 in Peptide and Protein Chemistry. In 1967-68, he held a one-year fellowship in the Department of Biochemistry of Cambridge University in England, joining the staff and serving as a Senior Research Associate in Enzymology at the Institute of Molecular Biology of the AN SSSR in Moscow from 1968 to 1973 where he worked with Academician A. E. Braunstein. He received his D. Chem. S. degree in 1972 defending his work on the Mechanism of Action of Pyridoxal Enzymes. From 1974 to 1986, he headed a

research unit which became the Laboratory on Enzyme Regulation of Cell Activity at the institute, and from 1971 to 1982 he served as Deputy Director of the Molecular Biology Institute. He has served on the faculty of Moscow State University since 1974 and in 1978 was made a full professor at that institution. From 1986 to 1988, he served as Director of the Institute of Applied Molecular Biology which was set up in the Ministry of Health. From 1988 to 1990, he served as Director of the Research Center of Molecular Diagnostics of the USSR Ministry of Health. From 1990 to 1991, he was Director General of the All-Union Research Center of Molecular Diagnostics and Therapy. In 1991, the name of that center was changed to the Russian Research Center of Molecular Diagnostics and Therapy, a name that it carries today. Professor Severin is the Director General of that center. He is a corresponding member of the Russian Academy of Sciences, an academician of the Russian Academy of Natural Sciences, and academician of the Royal Academy of Pharmacy of Spain, and a member of the Central Council of the Biochemical Society, and of the Committee on State Rewards of Russia, on the Board of the Public Expertise Committee--all of Russia--and on the scientific boards of the Institute of Bioorganic Chemistry of the Russian Academy of Sciences, and of the Russian Research Center of Molecular Diagnostics and Therapy. He serves on the editorial boards of four major scientific journals. He has directed over 40 Ph.D. theses and eight of his students have received D. Chem. S. degrees. He has written three books and has authored some 300 articles and he holds eight patents. He has received numerous awards among which are the USSR State Reward in 1984, and the Lenin prize in 1991.

Smirnov, Vladimir N., D. Bio S. Born in 1937. Corresponding member of Physical and Chemical Biology Department of the Academy since 1981. Since 1979, Chief of the Experimental Cardiology Division of the Academy of Medical Sciences.

Sverdlov, Evgenii D., D. Chem S. Born in 1938. Corresponding member of Physical and Chemical Biology Department of the Academy since 1984. He is Head of the Human Gene Structure and Function Laboratory of the M. M. Shemiakin Biochemistry Institute in Moscow. In 1988, he was made Director of the V. L. Komarov Botany Institute in St. Petersburg which was founded in 1714. He is currently serving on the Bureau, the governing body of the Physical and Chemical Biology Department of the Academy.

Torgov, Igor V., D. Chem S. Born in 1912 in Kazan. Russian chemist. Corresponding member of Physical and Chemical Biology Department of the Academy since 1972. He graduated from the Kazan Institute of Chemical Engineering in 1937, and worked in a factory laboratory until 1939. From 1939 to 1959, he was at the Institute of Organic Chemistry of the AN SSSR, becoming a senior scientific worker there in 1948. Since 1959, Chief of the Steroid Chemistry Laboratory of the M. M. Shemiakin Bio-organic Chemistry Institute in Moscow. His works have been in the chemistry of natural compounds, mainly steroids. (GSE 26, p. 246.)

Vaganov, Evgenii A., D. Bio. S. Born in 1948. Biophysicist. Specialist in ecological biology, forest ecology and dendrochronology. Corresponding member since 1990. He has written or co-authored 52 scientific works of which three are major monographs. He graduated from the Krasnoyarsk State University and went to work at the Physics Institute imeni Kirenskii in 1971 as an engineer and a senior engineer. In 1974, he became a scientific collaborator and in 1979 a senior scientific collaborator. In 1981, he joined the Biophysics Institute of the Siberian Department, organizing the base for the Department of Biophysics of the Institute of Physics of the Siberian Department --as a senior scientific worker. In 1986 he headed a sector and in 1987 he headed one of its laboratories. In 1988, he was named to the post as Head of a Laboratory on the Physics of Woodpulp. In 1990, he became Head of a Laboratory for Dendrochronology of the Forestry and Timber Institute imeni V. N. Sukachev.

Vlasov, Valentin V., D. Chem. S. Born in 1947. Bioorganic chemist. Corresponding member since 1990. Deputy Director of the Novosibirsk Institute of Bioorganic Chemistry. He has authored three and co-authored 103 scientific works. Of his own books, this "Affinity Modification of Biopolymers" published in 1988 is the most significant. He is a professor at Novosibirsk State University where he has guided the work of seven aspirants for the candidate degree. He is on the Scientific Council on physiologically active substances. He is on the editorial board of the American journal "Antisense Research and Development."

Zavarzin, Georgii A. Born in 1933 in Leningrad. Russian microbiologist. Corresponding member of Physical and Chemical Biology Department of the Academy since 1976. He graduated in 1955 from the biological I-soil faculty of the Moscow State University with a specialty in microbiology. In 1958, he finished his postgraduate work at the INMI and became a staff member of the institute. He has headed the Microbial Communities laboratory since 1960. Laboratory scientists concentrate on the relic microbial communities, such as cyanobacteriamats of hyper saline reservoirs and hyper thermophilic communities of hydrotherms. The major thrust of work is on the clarification of the trophic bacterial interaction in microbial communities of amphibial ecosystems--lagoons, swamps, hydrotherms, especially in the production and consumption of hotbed gases. In 1961, he became a department Head at the Institute of Microbiology of the Academy. Since 1985, he has been vice president of the Scientific Committee on Problems of the Environment. His works have been in physiology and systematics of bacteria. (GSE 30, p. 740.)



Research Institutes Directly Subordinate to Physical and Chemical Biology Department

Retrospect: In 1980, the Physical and Chemical Biology Department consisted of five divisions, one computer center, one pilot production plant, one vivarium, 18 laboratories, eight Departments and one subdepartment. In 1989, the Department administered 14 SRIs. In 1992, it controlled 17 Scientific Research Institutes. The leading five research institutes of this Department include the M. M. Shemiakin Bio-organic Chemistry Institute in Moscow, the Biochemistry and Physiology of Microorganisms Institute in Moscow, the Protein Research Institute in Pushchino, the Photosynthesis Institute in Pushchino, and the Cytology Institute in St. Petersburg. The department collects, studies, maintains and supplies non-pathogenic and non-quarantine microorganisms for various institutions and scientists. Its research program provides originadescriptions of a number of microbial general and species. It was the first institute in Russia to work with nitrogen-fixing symbiants of non-pulse plants. The staff of the department numbers about 40 scientists.

Organization of the Leading Five Institutes: The M. M. Shemiakin Bio-organic Chemistry Institute in Moscow is organized into five divisions; the Biochemistry and Physiology of Microorganisms Institute in Pushchino is comprised of eight major laboratories that, in turn, have 19 Departments; the Protein Research Institute in Pushchino is composed of six laboratories; the Photosynthesis Institute in Pushchino is made up of five laboratories, and the Cytology Institute in St. Petersburg counts some 12 laboratories.



Research Institutes Subordinate to the Department: There were 18 Scientific Research Institutes subordinated to the Department in 1996, and they are listed below by date of their founding:

1. K. A. Timiriazev Plant Physiology Institute in Moscow.

Located at 35 Botanicheskaia (aya) st., I-106, 127276, Moscow. Fax: 482-16-85. Directed by Academician Adolf T. Mokronosov.

Mokronosov, Adolf T., D. Bio S. Born in 1928. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) (now the Physical and Chemical Biology Department of the Academy since 1981, and academician since December 1987. He has been the Director of the K. A. Timiriazev Plant Physiology Institute in Moscow since 1988. One of the oldest of the Academy's scientific research institutes, it researches soil science, the physiology of plants, and solar technology and photosynthesis.

Retrospect: Established as the Cabinet of Anatomy and Physiology in St. Petersburg in 1890, in 1925, it became the Laboratory of Biochemistry and the Physiology of Plants. In 1934, it moved to Moscow with the Academy and was reorganized into the Institute of the Physiology of Plants. In 1991, it assumed its present configuration with some 22 specialized laboratories and 11 research groups that permitted it to develop an interdisciplinary approach to environmental research. Its scientists study Soil Science, plant physiology and solar technology involving photosynthesis.

(Old material)

Structure and Scientific Personnel: Director Mokronosov, Adolf T., D. Bio. S., since August '88; Deputy Directors: Smirnov, Aleksandr M., C. Agr. S., '70; and Strogonov, B. P., '80. Some of the major laboratories are given below:

Drought Resistance Laboratory: Chief Pustovoytova, T., '79;

Evolutionary and Ecological Physiology of Plants Laboratory: Chief Shakhov, Aleksandr A. C. Bio. S., '68;

Photosynthesis Laboratory: Chief Nichiporovich, Anatoli, A., D. Bio. S., CPSU, '40;

Plant Growth and Development Laboratory: Chief Chailakhian, Mikhail I, Kh., D. Bio. S., '35;

Stimulation and Inhibition of Physiological Processes Laboratory:

Tissue Culture and Morphogenesis Laboratory: Chief Butenko, Raisa G., D. Bio. S., '68;

Hermetically Scaled Aeroponic Chamber: Chief Murre '79; (See: Ruble, Vol. I., p. 243.)



2. Microbiology Institute in Moscow

Located at 7, Building 2, 60-letia Oktiabria ave., GSP-1, Moscow, 117811. Fax: 135-65-30. Directed by Academician Mikhail V. Ivanov.

Ivanov, Mikhail V. D. Bio. S., Born in 1930. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Substances Department of the Academy since 1970, and academician since December 1987. Since 1979, he has been Director of the Microbiology Institute in Moscow, that was established in 1930. In 1992, it encompassed over 20 laboratories and research groups. Areas of study and research include the following: the varieties of the microbial world and new forms of microorganisms--studied in almost all of the laboratories; ecological and geochemical studies of halophilic, thermophilic, acidophilic microorganisms in various types of soil, in water depth and bottom sediments of the World oceans, and in glaciers in the Antarctica--all of which focuses on their roles in the cycle of substances in the biosphere--in the processes of formation, and the variation and destruction of the deposits of soil treasures. These studies have led to the development of a new branch of biotechnology: the bio-geotechnology of metals that includes the bacterial enhancement of oil recovery from oil pools; the study of the cytology, physiology and biochemistry of microorganisms as producers of physiologically active compounds such as enzymes, lipids, etc., and, the study of viruses that cause diseases in plants and the development of measures to fight such diseases.

Retrospect: This institute was established in 1934 from the Microbiology Laboratory originally located in St. Petersburg. Since its founding, the institute has had only four Directors: academician G. A. Naadson (1867-1940) from 1934 to 1938; academician B. L. Isachenko (1871-1948) from 1939 to 1948; academician A. A. Imshenetskii from 1949 to 1984, and academician Mikhail V. Ivanov from 1984 to the present (1992). In 1984, the fiftieth year of its existence, the institute had 15 Departments.

(older material)

By 1992, it had reorganized into nine laboratories working within four large subject matter areas. In 1992, it encompassed over 20 laboratories and research groups. Areas of study and research include the following:

- (1.) the varieties of the microbial world and new forms of microorganisms--studied in almost all of the laboratories;
- (2.) ecological and geochemical studies of halophilic, thermophilic, acidophilic microorganisms in various types of soil, in water depth and bottom sediments of the World oceans, and in glaciers in the Antarctica--all of which focuses on their roles in the cycle of substances in the biosphere--in the processes of formation, and the variation and destruction of the deposits of soil treasures. These studies have led to the development of a new branch of biotechnology: the bio-geotechnology of metals that includes the bacterial enhancement of oil recovery from oil pools;
- (3.) the study of the cytology, physiology and biochemistry of microorganisms as producers of physiologically active compounds such as enzymes, lipids, etc., and,
- (4.) the study of viruses that cause diseases in plants and the development of measures to fight such diseases. Much of the work in these large scientific areas is

interdisciplinary and its scientists publish in *Microbiologia and Prikladnaia (aya) biokhimiika i mikrobiologia*.

Structure and Personnel: The nine laboratories of the institute in 1992 were:

- (1.) **The Microbial Bio-geochemistry Laboratory** under Academician Dr. M. V. Ivanov, D. Bio. S., who graduated from the Moscow State University from the biological 1-soil faculty with a specialty in plant physiology and microbiology in 1954. In 1957 he finished his postgraduate course at INMI and began work at the Institute. From 1969 he headed this laboratory and from 1972 to 1984, he was Deputy Director of the Biochemistry and Physiology of Microorganisms Institute in Moscow. Since 1984, he has been Director of the Microbiology Institute of the Russian Academy of Sciences in Moscow. The laboratory scientists study the role of microorganisms in the cycle of carbon and sulfur in the biosphere, the microbial fractionation of stable isotopes, oil microbiology--including the technology of microbial enhancement of oil recovery from oil pools, and sea microbiology--especially the study of the bio-geochemistry of anaerobic bottom sediments.
- (2.) **The Microbial Transformation of Minerals Laboratory** under Professor Dr. G. I. Karavaiko, D. Bio. S., corresponding member of the Russian Academy of Sciences, who graduated from Moscow State University in 1959 from the biological soil faculty with specialties in plant physiology and microbiology. He finished his postgraduate course at INMI of the AN SSSR in 1962 and immediately became a member of the Institute staff. Scientists in this laboratory search for, isolate and study the microorganisms active in the destruction of sulfide and non-sulfide minerals, study the mechanism, conditions and kinetics of the microbial destruction of minerals, and develop the microbiological bases for the biotechnological leaching of metals from ores and concentrates and for the biosorption of ions of metals from solutions.
- (3.) **The Microbial Communities Laboratory** under Dr. G. A. Zavarzin, D. Bio. S., corresponding member of the Russian Academy, who graduated in 1955 from the biological 1-soil faculty of the Moscow State University with a specialty in microbiology. In 1958, he finished his postgraduate work at the INMI and became a staff member of the institute. He has headed the laboratory since 1960. laboratory scientists concentrate on the relic microbial communities, such as cyanobacteriamats of hyper saline reservoirs and hyper thermophilic communities of hydrotherms. The major thrust of work is on the clarification of the trophic bacterial interaction in microbial communities of amphibial ecosystems--lagoons, swamps, hydrotherms, especially in the production and consumption of hotbed gases.
- (4.) **The General and Comparative Virology Laboratory** under Dr. I. G. Atabekov, D. Bio. S., academician of both the Russian Academy of Agricultural sciences and the Russian Academy of Sciences, who graduated in 1956 from the All-Union Agricultural Institute with a specialty as a scientist-agriculturist. He has been on the INMI staff since 1978 and has been Head of the laboratory and holder of the Virology Chair of the biological faculty at Moscow State University since that time. laboratory personnel execute fundamental and applied studies of plant viruses and develop bacteriophages, create diagnostical test systems for viral diseases of berries, fruits, and flowers and develop technical cultures to be used in virusless plant growing.
- (5.) **The Oligotrophic Microorganisms Laboratory** under Dr. D. I. Nikitin, D. Bio. S., who graduated in 1953 from the biological faculty of the State University in Lvov with specialties in plant physiology and microbiology. He has worked at INMI since 1956. The laboratory concentrates on the taxonomic and phylogenetic position of oligotrophic microorganism, the characteristic features and uniqueness

of some groups of oligotrophic microorganisms, and the possibilities of biotechnological application of oligotrophs.

- (6.) The Cytology of Microorganisms Laboratory under Dr. V. I. Duda, D. Bio. S., who graduated in 1960 from the biological l-soil faculty of Moscow State University as a soil scientist and agrochemist. In 1963, he finished the postgraduate course at the University and since 1973 he has headed this institute laboratory. The laboratory is seeking new fundamental knowledge on the structural l-functional cell organization of microorganisms and their rearrangement in connection with their ecological adaptation and evolution by moving in three directions: investigating the structural l-functional membrane organization of the microorganism, studying the ultrastructural rearrangements and their regulation in a cell cycle and in the process of ontogenesis in microorganisms, and comparing the cytological characteristics of an ultra structural cell organization of the new forms of microorganisms with the higher taxons of eubacteria and arche-bacteria.
- (7.) **The Regulation of Microbial Metabolism Laboratory** under Dr. V. R. Plakunov, D. Bio. S., who graduated from the Chemical faculty of Moscow State University in 1958 with a specialty in chemistry. He received his doctorate in 1971 and has worked at INMI since 1980. The laboratory carries out research work of the isolates of the new unique bacteria, mainly of “extremophils”, as well as of other producers of physiologically active substances with the purpose of detailing their physical and biochemical characteristics so that they can be used to intensify the existing bio-technological processes and to work out new types of biotechnologies.
- (8.) **The Ecology and Geochemical Activity of Microorganisms Laboratory** under Dr. V. M. Gorlenko, D. Bio. S., who graduated from the biological l-soil faculty of Moscow State University in 1963 with specialties in plant physiology and microbiology. He completed his postgraduate course at INMI in 1968 and became a member of the staff that same year. The laboratory’s main task is to study the role of microorganisms in biogeochemical processes by investigating the ecology of microorganisms oxidizing reduced sulfur compounds and studying their geochemical role in fresh and sea reservoirs, studying the ancient cyanobacteriamats as a source of an organic substance of sea biolithogenic rocks, studying the role of microorganisms in forming ocean iron-manganese nodules, studying the role of microorganisms in the concentration and dispersion of elements, and doing ecophysiological and taxonomic studies of the new species and strains of bacteria.
- (9.) **The Soil Microbiology Laboratory** under Dr. N. S. Panikov, D. Bio.S., who graduated from the biological l-soil faculty of Moscow State University as a soil scientist-agronomist in 1972. He completed his postgraduate course in 1975 at the university. He studied for ten months at London University (1976-77). He also completed a two-year course under the mechanical-mathematical faculty of Moscow State University and in 1989 began working at the INMI as Head of the laboratory. Since 1990, he has served as a Deputy Director of the institute. His laboratory studies the growth regulation mechanisms of microorganisms in soil and plant rhizosphere, the kinetics and stoichiometry of microbial growth in vitro and in situ, the role of soil microorganisms in the formation and consumption of hotbed gases, and the possible use of microorganisms in the growth stimulation of plants.

(Information provided in a letter dated 24 April, 1992, from the Director of the institute, Mikhail V. Ivanov. See also: Institute Microbiology, 1934-1984, Moscow: Science Publishing House, 1984, 78 pp.) (Also See: Ruble, Vol. I., p. 241.)



3. A. N. Bakh Biochemistry Institute in Moscow.

Located at 33 Leninskii ave., U-71, Moscow, 117071. Fax: 954-27-52.
Directed by Corresponding Member Boris F. Poglazov.

Poglazov, Boris F., D. Bio. S. Born in 1930. Corresponding member of Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) in 1993. Since 1988, he has been Director of the A. N. Bakh Biochemistry Institute in Moscow which dates back to 1935 to study living organisms, enzymes, proteins, vitamins, and antibiotics. In 1978, he received the A. N. Bakh Prize in biochemistry.

Retrospect: Established in 1935, institute scientists study chemical substances and the processes of living organisms, including: enzymes, proteins, vitamins, and antibiotics. The institute publishes *Biokhimiya and Biulletin*. Boris F. Poglazov, D. Bio. S., has been the Director of the institute since 1988. In 1978, he received the A. N. Bakh Prize in biochemistry.

(Older material)

Structure and Scientific Personnel: Director Poglazov, Boris F., D. Bio. S., since August '88; Deputy Directors: Kretovich, Vatslav L., D. Bio. S., since '66; and Egorov, Ivan A., D. Bio. S., since '74;

Biochemistry Laboratory: Head Spirin, Aleksandr S., D. Bio. S., since '62;

Biological Electron Transfer Laboratory:

Biological Oxidation Laboratory:

Carbohydrate Biosynthesis Laboratory: Head Stepanenko, Boris N., D. Bio. S., since '78;

Enzyme Preparation Laboratory:

Enzymology Laboratory: Head Kretovich Vatslav L., D. Bio. S., since '44;

Evolutionary Biochemistry Laboratory:

Fermentation Compounds Laboratory: Head Bezborodov, Aleksei M., D. Bio. S., since '79;

Hydrocarbon Biochemistry Laboratory:

Photosynthesis Laboratory: Head Krasnovskii, Aleksandr A., since '69; Senior researcher Brin, G. P., since '66;

Plant Immunology Laboratory:

Protein Chemistry Laboratory:

Radiation Effects Laboratory;

Technical Biochemistry Laboratory: Head Bokuchava, Mikhail A., D. Bio. S., since '61;

Vitamins Laboratory; Senior researcher Bikhovskii, V. Iurii, since '77;



4. The Biophysics Institute in Pushchino

Founded in 1952, institute scientists study muscular contractions, the function of membranes in cell and nerve fibers, nucleic acids, radio biology, and the automation of bioprocesses. It is one of the leading radio biological research centers in the Russian Federation, and its scientists research the influences of radioactive stimulants upon plant life. In 1991 the Biophysics Institute was divided into two

Institutes: **The Cell Biophysics Institute** and the **Theoretical and Experimental Biophysics Institute**--both in Puschino.



5. Cytology Institute in St. Petersburg.

Located at 4 Tihoretskii ave., K-64, St Petersburg, 194064, fax: 247-03-41, Under the direction of Academician Nikolai N. Nikolskii, tel. 247-18-29.

Nikolskii, Nikolai N., D. Bio. S. Elected Academician of the former Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) in 1993. He has been the Director of the Cytology Institute in St. Petersburg since 1988. Before the breakup of the Soviet Union, Nikolskii headed the Scientific Council of the Academy on the problems of cell biology. The Cell Cycle Physiology Laboratory of the institute, headed by Professor Nikolaskii, studies the effects of growth factors on cells--particularly the EGF--the epidermal growth factor. He is presently director of the Cytology Institute in St. Petersburg.

Retrospect: Founded in 1957 following the re-establishment of genetics and cytology research after the defeat of the theories of Lysenko, Lepeshinskaia (aya) and their followers. The institute was founded by Professor D. N. Nasonov who died in the same year. and was later headed by scientists like G. I. Polyanskii, A. S. Troshin, P. P. Rumyantsev, and its Director since 1988, has been N. N. Nikolskii. Before the breakup of the Soviet Union, Nikolskii headed the Scientific Council of the AN SSSR on the problems of cell biology. The total staff of the institute in 1991 was 500, of whom some 300 were researchers. The institute has a large Department of Cell Culture and had 18 independent laboratories. The institute is the leading research institute in Russia in cell biology, and its research ranges from genome organization and cell organelles to structural organization of the intracellular processes, the problems of ion transport, and the effects of hormones and growth factors. Scientists at the institute are involved in the governmental lly-supported project on "The Human Genome."

(Older material)

Structure and Scientific Personnel: Director Nikolskii, N. N., D. Bio. S., since September 1988; Deputy Directors: Professor S. A. Krolenko, D. Bio. S., since 1988, and, Dr. V. N. Parfenov, D. Bio. S., since 1988.

The Department of Cell Culture headed by Professor G. P. Pinaev researches the principles of cell biotechnology and the methods of cell cultivation technology. It maintains a cell culture bank with some 600 cell lines and hybridomas. Dr. Pinaev is on the Executive Committee of the World Federation of Cell Culture Collections. His own research is in cytoskeleton reorganization during ligand-receptor interaction, on the role of heat shock proteins in cell resistance, and on the properties of oncogenes responsible for celimmortality.

The Cell Cycle Physiology Laboratory, headed by Professor Nikolaskii, studies the effects of growth factors on cells--particularly the EGF--the epidermal growth factor. Dr. A. B. Sorokin of the laboratory is involved in studying the intermolecular mechanism of auto-phosphorylation of EGF receptors. He discovered the recycling of undissociated ligand-receptor complexes.

The Ionic Channels in Cell Membranes Laboratory is headed by Dr. G. N. Mozhaeva, and studies the signal transfer from receptors to intracellular structures. Dr. A. P. Naumov of the laboratory has reported on the membranes of nonexcitable cells that are coupled to receptors for hormones and growth factors and whose activity is regulated by secondary messengers with the participation of G-protein at several international conferences.

The Physical Chemistry of Membranes Laboratory is headed by Professor A. A. Lev whose studies on the phenomenon of a high action-selectivity in valinomycin-modified artificial membranes are well known.

The Electron Microscopy and Chemical Organization of Cell Membranes Special Group is led by Dr. Ia. Iurii Komissarchik. The group is developing and using various routine and modern methods of transmission electron microscopy, X-ray structural, and spectral analyses in their research.

The Cell Physiology Laboratory, headed by Dr. A. A. Vereninov studies the modulation of ion transport in proliferating animal cells. New lines of research in the laboratory include signal transduction in macrophages under Dr. A. B. Kaulin, and cytomechanics. Dr. V. V. Malev of the laboratory is heading a group that is working on the physico chemical aspects of the organization and functioning of cytoskeletal structures, the mechanisms of potential-dependent deformations of the nerve fiber, and the spontaneous fluctuations of the cell surface.

The Biochemical Cytology and Cytochemistry Laboratory is headed by Professor S. A. Krolenko. Dr. Iurii S. Borovikov's group in the laboratory is studying the conformational changes of contractile proteins in muscle models, the role of the T-system of skeletal muscle fibers in electro-mechanical coupling, and the effects of osmotic shock, low-molecular electrolytes, and injurious factors exerted on the structure and function of the muscle cell. A second group under Dr. Iu M. Rozanov deals with fluorescent microscopy and cytochemistry and with the development of methods for quantitative fluorescent microscopy of cell components. A group under Dr. A. G. Bulychev researches the biochemistry of the lysosome-vacuolar apparatus of the cell. Dr. K. A. Samoiloiva heads a group that specializes in cell photo biology and that has developed a method of ultra violet irradiated blood autotransfusion for use in medicine and in veterinary medicine.

The Molecular and Cellular Mechanisms Laboratory is headed by Dr. N. V. Tomilin. Work in the laboratory deals with functionally important elements resulting in genome stability in mammalian cells.

The Mechanisms of Genetic Instability of **Cultured Cells Research Group of the Department of Cell Culture** is headed by Dr. O. K. Glebov and its researches have suggested the concept of 'genome immunity'.

The Cell Differentiation Processes Laboratory is headed by Dr. V. A. Pospelov and is involved in the identification, cloning, and study of the functions of genes responsible for cell differentiation.

The Genetic Control of Chromosome Divergence Laboratory, headed by Dr. V. I. Larionov, studies yeast mutants with disturbed chromosome divergence identifying a new group of genes responsible for this process, and two of these new genes have been cloned.

The Structural Peculiarities of the Mycoplasmic Genome Laboratory is headed by Dr. S. N. Borchsenius and does large-scale physico genetic mapping of genomes of several mycoplasma species, with subsequent localization on the map of all the genes available, and spacer and regulatory sequences are being carried out. Recombinant plasmids that contain unique DNA fragments of mycoplasmas have been constructed are used as diagnostic probes for the detection and identification of mycoplasmic contamination.

The Genetic Mechanisms of Differentiation and Malignization of the Cell Laboratory is headed by Dr. T. N. Ignatova. She directs the study of the factors involved in the oncogenetic transformation of cells.

The Cell Population Genetics Laboratory is headed by Professor Iurii B. Vakhtin. It conducts studies of growing (malignant tumors) and rejuvenating (stem cells of bone marrow) cell populations. Its scientists are devising a genetic theory of cell populations.

The Tumor Growth Cytology Laboratory was headed by Professor V. Ia Fel' until his untimely death in 1990. A research group under Dr. A. M. Malygin is studying the role of subpopulations of suppressor lymphocytes in the course of natural killer-cell activity during tumor growth in experiments on animals and on human clinical material.

The Radiation Cytology Laboratory is headed by Professor V. D. Zhestyanikov. Its scientists are concerned with repair processes of radiation damage in DNA. A research group in this Laboratory under Dr. V. M. Mikhelson, have studied hereditary diseases and the aging process for the application of DNA repair and replication.

The Supernucleosomal Structure of Chromatic Laboratory under Professor V. I. Vorobev conducts studies on the characteristic features of the structure of linker chromatin proteins and protein-nucleic acid interactions. A laboratory research group under Dr. I. M. Konstantinova is researching the molecular mechanisms of the regulation of gene expression by glucocorticoid hormones at the transcriptional and postranscriptional levels. These studies have led to the discovery of a small nuclear ribonucleoprotein that is closely associated with chromatin, the acceptor of the above hormones.

The Cell Morphology Laboratory was headed by Professor P. P. Rumyantsev for many years. He is an internationally known cell cardiology scientist. Dr. V. N. Parfenov headed the laboratory in 1991 that houses a number of special research groups. Drs. Parfenov and M. N. Gruzova lead a group in studying the cytology of oogenesis and early embryogenesis that is concerned with the functional organization of oocyte nuclei from different animals and with the biosynthetic activity of lamp brush chromosomes. Dr. E. V. Raikova heads a study of fish oocytes during intracellular parasitism and a study of the functional morphology of ova and placental cells of mammals headed by Dr. E. V. Zybina.

The Cytogenetics Research Group, headed by Dr. S. E. Mamaeva deals with the diagnosis, based on chromosomal analysis, of human hereditary disease and hereditary cancer. This group has prepared an Atlas of Chromosomes of Normal Cells and Constant Cell Lines in process of publication by Springer Veriag.

The Cytology of Unicellular Organism Laboratory was headed from its founding until 1989 by Professor G. I. Polyanskii, corresponding member of the Russian Academy of Sciences. Since 1989, the laboratory has been headed by Professor I. B. Raikov who leads the group on the Karyology of protozoa, studying the nature and origin of nuclear dualism and the supramolecular organization of chromatin in ciliates and the molecular organization of nuclei in trypanosomids.

The Parasitic Protozoa Research Group is led by Dr. T. V. Beyer and concentrates on the phenomenon of intracellular parasitism and the host-parasite interface with special reference to the problems of the agents of opportunistic infections of a protozoan nature.

The Protozoan Genetics Research Group, headed by Dr. A. L. Yudin is engaged in the problem of the genetics of agamous protozoa, cell recognition and compatibility, molecular genetic markers, and intrastrain diversity. (See: Ruble, Vol. I., p. 266.)



6. M. M. Shemiakin and I. A. Ovchinnikov Bioorganic Chemistry Institute in Moscow.

**Located at 16/18 Mikluho-Naikaua st. U-437, Moscow, GSP-1, 117871.
For telegrams: Moscow, U-437 Bioorganika. Fax: 310-70-07.
Directed by Academician Vadim T. Ivanov. e-mail:
anton@siobc.ras.ru**

Ivanov, Vadim T., D. Chem. S. Born in 1937 in Feodosiia, Crimean Oblast. Russian chemist. Academician of the former Biochemistry, Biophysics, and Chemistry of Physiologically Active Substances Department of the Academy since 1987. He graduated from Moscow State University in 1960. In 1963, he joined the staff of the Institute of the Chemistry of Natural Compounds of the AN SSSR--now the M. M. Shemiakin Institute of Bio-organic Chemistry. Since 1971, he has headed the Peptide Chemistry Laboratory of the institute in Moscow that was founded in 1939. His works are on the synthesis and structure of biologically active peptides and proteins and the mechanisms of their reactions. He received the Lenin Prize--with Iu. A. Ovchinnikov--in 1978. (LDA 89-89-11358.) (GSE 30, p. 463.)

Retrospect: This institute was established in 1959 to investigate the new trends in molecular biology by researching the structure and function of biopolymers and low molecular bioregulators, and by basic research in biochemistry, molecular genetics, neurobiology, immunology, cellular biology, and other fundamental problems of interest to medicine, agriculture, and various Russian industries. The institute heads the investigations into the chemical nature of living matter for the Russian Academy's Department of Biochemistry, biophysics, and Chemistry of Physiologically Active Compounds. Organized originally by Academician Mikhail M. Shemiakin, who served as its founding Director, he was succeeded by Academician Iurii A. Ovchinnikov who was its Director until his death in 1988. At the present time, Dr. Vadim T. Ivanov, D. Chem. S. is the Institute Director. The Deputy Director is Valerii M. Lipkin, C. Chem. S., since March 1988.

**(Older Material)
Structure and Personnel:**

Chemical Laboratories Division is made up of:

(Laboratory of Chemistry of Proteolytic Enzymes)

- (1.) **The Enzyme Chemistry Laboratory:** Antonov, Vladimir K., D. Chem. S., since 1969;
- (2.) **The Laboratory of Spectral Methods of Analysis:** Dr. A. S. Arseniev, D. Chem. S.;

Nuclear Magnetic Resonance Section: Dr. A. S. Arseniev, D. Chem. S.;

Mass Spectrometry Section: B. K. Rozinov, C. Chem. S.;

Optical Spectroscopy Section: Dr. I. P. Nabiev, D. Chem. S.;

Biopolymer Structure Computational Analysis Section: P. V. Kostetskii, C. Chem. S.;

- (3.) **The Neuroreceptors and Neuroregulators Laboratory:** Dr. E. V. Grishin, D. Chem. S.;
- (4.) **The Polymers for Biology Laboratory:** Dr. V. P. Zubov, D. Chem. S.;
- (5.) **The Peptide Chemistry Laboratory:** Head Ivanov, Vadim T., D. Chem. S., since 1971--since 1988, Director of the institute; Senior researchers: Fonina, Larissa, since 1978;
- (6.) **The Hormonal Regulation Proteins Laboratory** under Dr. V. M. Lipkin, D. Chem. S.

The Immunology Division under **Dr. R. V. Petrov**, D. Chem. S., academician of the Russian Academy of Sciences is composed of these laboratories;

Petrov, Rem V., D. Med. S. Born in 1930. Academician of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) since 1984. Also academician of the Academy of Medical Sciences. Vice president of the Academy for Biology since October 1988. Editor-in-Chief of Science in the USSR. In 1978, he was awarded the I. I. Mechnikov Prize in biology. In 1987, he received the I. I. Mechnikov Gold Medal in recognition of his contributions to the chemical and biological sciences. He heads the Immunology Division of the M. M. Shmiakin Bioorganic Chemistry Institute in Moscow, which has 18 laboratories. He also heads up the Science-Educational Center of the Institute.

- (1.) **The Immune System Mediators Laboratory:** Dr. A. A. Nikhailova, D. Chem. S.;
- (2.) **The Membrane Bioenergetic Systems Laboratory:** N. N. Modianov, D. Chem. S.;
- (3.) **The Human Gene Structure and Function Laboratory:** E. D. Sverdlov, D. Chem. S., Corresponding member of the Russian Academy of Sciences;
- (4.) **The Neuropeptide Receptors Laboratory:** V. I. Tsetlin, D. Chem. S.;
- (5.) **The Phyto-immuno-diagnostics Laboratory:** S. M. Ambrosova, C. Chem. S.;
- (6.) **The Prostaglandins and Leucotrienes Laboratory:** V. V. Bezuglov, C. Chem. S.;

(1997 update)
Department of Prostaglandins and Leukotrienes

Mail address:
Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry
ul. Miklukho-Maklaya, 16/10
117871 MOSCOW GSP 7
RUSSIA
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PHONE: 7(095) 330-6592
FAX: 7(095) 335-7103

The Department of prostaglandins and leukotrienes was organized in 1987 on the basis of research group of Lipid Chemistry Laboratory.

In our department we focus on investigation of the system: eicosanoid receptors-- cascade of polyenoic acids and ways of its directed modulation with modified eicosanoids (PGs and different LO products) and other lipids. It should be pointed out three main directions of investigation in the department:

study of oxidation of polyenoic acids (classic and non-traditional) in cell systems including identification of new products and determination the influence of exogeneous modulators on the cascade;

study of receptor binding processes of natural and modified eicosanoids using intact cells including searching of the new receptor sites towards lipoxygenase metabolites;

chemical modification of natural eicosanoids and related substances to synthesize new receptor agents or cascade modulators. Some of our new compounds are perspective medicinal and cosmetic preparations. We developed some new methods of eicosanoid profiling, receptor binding study and other useful analytical techniques.

STAFF

Head-- Dr. V.V. Bezuglov
A.V. Archakov
M.Yu. Bobrov
Dr. N.M. Gretskaia
G.S. Kogteva
Dr. E.V. Fomina-Ageeva
G.N. Zinchenko
A.P. Fedenyuk
Dr. D.V. Kuklev
Dr. I.V. Serkov

(7.) The Lipid Chemistry Laboratory: Head Bergelson, Lev D., D. Chem. S., since 1969; Senior researchers Diatlovitskaia (aya), E. V., since 1970, and, Molotkovskii, Iurii G., C. Bio. S., since 1970;

(8.) The Interleukin Gene Engineering Laboratory: Iurii A. Berlin, D. Chem. S.;

(9.) The Carbohydrates Structure and Synthesis Laboratory: N. V. Bovin, C. Chem. S.;

(10.) The Synthetic Vaccines Laboratory: O. M. Volpina, C. Chem. S.;

(11.) The Membrane Proteins Spatial Structure Laboratory: V. V. Demin, C. Chem. S.;

(12.) The Gene Bioengineering Laboratory: Dr. V. A. Efimov, D. Chem. S.;

- (13.) **The Light-Sensitive Proteins Laboratory:** Dr. N. G. Abdulaev, D. Chem. S.;
- (14.) **The Gene Chemistry Laboratory:** V. G. Korobko, C. Chem. S.;
- (15.) **The Transgenesis Laboratory:** O. A. Larionov, C. Chem. S.;
- (16.) **The Immuno-chemistry Laboratory:** V. A. Nesmeianov, C. Chem. S.;
- (17.) **The Protein Growth and Differentiation Factors Expression Laboratory:** E. I. Frolova, C. Chem. S.;
- (18.) **The General Methods for Protein Structure Investigation Laboratory:** O. Iurii Chertov, C. Chem. S.

The Science-Educational Center of the Institute is under the direction of Dr. Vadim T. Ivanov, Director of the institute and a full member of the Russian Academy of Sciences.

(1996 update)

The Shemiakin Institute of Bioorganic Chemistry Branch located in Pushchino

is comprised of three laboratories:

- (1.) **The Regulatory Proteins Laboratory** under V. M. Lipkin, D. Chem. S.;
- (2.) **The Protein Engineering Laboratory** under S. A. Zozulia, C. Chem. S., and
- (3.) **The Neurochemistry Laboratory** under V. N. Pashkov, C. Chem. S.

Investigations at the Branch in Pushchino are conducted in physico-chemical biology, bioorganic chemistry, and biotechnology, molecular and cellular immunology, structure and function of biological membranes, and genetic engineering.

Laboratory for Organo-metallic Compounds

Head of laboratory-- Professor Dmitrii N. Kravtsov

The laboratory was set up in 1935 at the **Institute of Organic Chemistry** of the USSR Academy of Sciences. In 1954 it became a division of INEOS. Professor A. N. Nesmeyanov (Nesmeianov) headed the laboratory from its organization until his death in 1980.

Investigations in the field of physical organometallic chemistry. Studies on the properties of univalent organometallic groups containing central atoms of transition or heavy main group metals involving π -bond polarity, comparative electro-negativity and chemical hardness as well as structure of potentially metallotropic systems. Spectral investigations of novel types of hydrogen bonding and their role in protonation of transition metal complexes and hydrides.

The Division of Biotechnology under Dr. Iurii B. Alakhov, C. Chem. S., has under its jurisdiction the

Research and Production Section "Biocenter" which is under V. B. Sadovnikov, C. Chem. S., and a

Blood Serum Factors Investigations Laboratory under O. E. Trubetskaia (aya), C. Chem. S. The institute specializes in the preparation of young research specialists. In addition to a sophisticated computer center that is used both for research and instruction, the institute maintains a library of some 100,000 volumes in the various sciences collected from world scientific centers, and its periodical scientific subscription list includes some 300 foreign scientific journals. It publishes *Bioorganic Chemistry* and *Biological Membranes*. The institute headed the Scientific Council on Problems of Bioorganic Chemistry under the old AN SSSR.

It took the lead in coordinating the development of linkages between R&D organizations and AN SSSR research institutes in 1985 by helping to establish "Biogen", which pulled together institutions of other republic academies, and the ministries of medical and the microbiological industry in Russia, and the Lenin Agricultural Academy of Sciences in joint research and development projects. These institutions reached from Novosibirsk to Ufa, Kiev, Riga, and Vilnius. The institute also maintains sub-faculties at Moscow State University and other higher educational institutions in the country. In addition to all these internal coordinating activities, institute Personnel, in 1989, were participating in research projects in Hungary, Germany, Cuba, Mongolia, Bulgaria, Poland, Vietnam, Rumania. In conjunction with "Biogen" a foreign trade self-financed firm "Vneshbio" is functioning to provide export-import operations on equipment, chemicals, and biologicals for scientific investigation. Institute scientists have, over the years, established professional relationships with fellow scientists in the United States, Great Britain, France, Germany, Sweden, Japan, and other countries. A biological station was established in Peru, for example, jointly supported by the Institute and Peruvian scientific officials.

(Information provided by a letter from Professor Dr. V. Nesmeyanov (Nesmeianov) dated in November 1991. The AN SSSR published a four-color 76-page book on the institute in 1989 in both English and Russian describing the research thrusts of the institute. Compiled by E. Dyachenko and L. Zhebeleva, the executive editor was Iurii Ovchinnikov who passed away in 1988. Shemiakin Institute of Bioorganic Chemistry, 1959-1989, AN SSSR, Vneshtorgizdat, 1989, 76 pp.)



7. V. A. Engelhardt Molecular Biology Institute in Moscow.

Located at 32 Vavilova st., U-334, GSP-1, Moscow, 117984. Fax: 135-14-05. For Telegrams: 117984 Moscow U-334 Kompleks. Directed by Academician Andrei D. Mirzabekov.

Mirzabekov, Andrei D., D. Chem. S. Born in 1937. Corresponding member since 1981, and academician and Academician Secretary to the former Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) since October 1988, and member of the Presidium of the Academy from that date. Since 1985, he has been Director of the Molecular Biology Institute in Moscow that was founded in 1959. It studies recombinant DNA and the structural characteristics of nucleic acids, proteins, enzymes, viruses, and biopolymers.

Retrospect: Founded in 1959 as the Radiation and Physico-chemical Biology Institute, in 1964 its name was changed to the Molecular Biology Institute. In 1992, the staff of the institute numbered 530 persons including engineers, technical and service Personnel. Of this total, 300 were research scientists. From 1959 to 1984 its Director was Academician Vladimir A. Engelhardt. In 1985, Dr. Andrei D. Mirzabekov, D. Chem. S., was named Director. Boris P. Gottikh, D. Chem. S. served as a Deputy Director from 1964 to 1980, and E. S. Severin, D. Chem. S. served from 1972 to 1981. Current Deputy Directors include: Aleksandr V. Zelenin, D. Bio. S., appointed in 1983; Aleksandr A. Makarov, C. Bio. S, ap-

pointed in 1985, and Timur E. Semenov, C. Bio. S. appointed in 1991. The institute was established to solve problems that include molecular gene biology; the structure and functional organization of chromosomes and chromatine; the human genome; genetic and protein engineering and biotechnology; molecular and cell oncology; the structure and physico-chemical properties of nucleic acid and proteins; the interaction of nucleic acids and proteins--recognition problems, and molecular cell biology--cell engineering, hybrid and reconstructive cells, the mechanism of enzyme action and their regulation, and polyenzyme complexes.

(Older Material)

Structure and Personnel: The institute is organized into a number of laboratories and research groups. In the list that follows, the items headed by "1997 update" were taken from the Institute's 1995 Annual Report. All other material came from correspondence from the institute secretary.

(1.) The Functional Enzymology Laboratory has been headed since 1959 by the Academician Professor Aleksandr A. Baev, D. Bio. S., who graduated from the Kazan' Medical Institute in 1927, worked at the A. N. Bakh Institute of Biochemistry from 1935 to 1959 before coming to the institute. He is a councilor to the Presidium of the Russian Academy of Sciences, having been born in 1903. His interests are in the human genome, molecular biology and genetics. Tatiana V. Venkstern, D. Bio. S., is also a member of this Laboratory. He graduated from Moscow State University's Biology Department in 1941, and defended his thesis on the enzymatic systems of the retina in 1949. He joined the institute in 1958 as a senior research scientist. He defended his dissertation on the primary structure of tRNA^{Val} from *Saccharomyces cerevisiae* in 1969. His current interests are in the structure and function of nucleic acids, and nucleic acid modifying enzymes ribozymes.

(2.) The Molecular Organization of Chromosomes Laboratory under Academician Professor Andrei D. Mirzabekov, D. Biochem. S., joined the institute as a laboratory assistant in 1962. He had graduated from the Institute of Fine Chemical Technology's Department of Drugs and Aromatic Compounds in 1961, defended his thesis on the primary structure of t-RNA, Oligonucleotides of valine t-RNA ribonucleases hydrolysates in 1965, and in 1972, he defended his dissertation on Valine t-RNA I--the structural bases of recognition. His current interests are in molecular biology, chromatin structure, protein complexes, DNA sequencing, and the human genome.

(1997 update):

MOLECULAR ORGANIZATION OF CHROMOSOMES

Head Professor Andrei D. Mirzabekov, Ph.D., D.Sc., Member of the Russian Academy of Sciences and Academia Europaea

In 1995 Dr. V. L. Karpov who supervised chromatin studies in the Laboratory became Head of Laboratory of Structure and Function of Chromatin, whereupon our research has become concentrated exclusively on the development of the sequencing by hybridization with oligonucleotides microchips (SHOM) method and its potential applications. This work is conducted within the framework of the joint Human Genome Project, EIMB-Argonne National Laboratory, USA, and in a close collaboration with several other Laboratories of EIMB, chaired by Drs. Yu. Lysov, V. Florentiev, M. Livshits and A. Zelenin. In the past year, 8 members of our laboratory and 4 other staff scientists of the Institute went to Argonne on 3 to 9

month-long working visits which resulted in obtaining some very important new results and essential general progress in the SHOM research. At the current state of SHOM development, our work is focused on the following crucial tasks:

- manufacturing of microchips bearing thousands of immobilized oligonucleotides;
- various methods for preparing fluorescently labeled DNA and RNA probes followed by their hybridization with oligonucleotides microchips;
- measuring simultaneously the hybridization data from thousands of microchip elements by means of a specially devised fluorescent microscope.

Within the scope of our interests are also various potential applications of SHOM, including identification of genetic mutations, gene polymorphism studies, identification in probes of both known and unknown microorganisms, quantitative expression studies of genes aimed at partial and full sequencing and mapping of DNA, manufacturing of "immunomicrochips". Recently we have constructed an improved version of our robot for manufacturing microchips with immobilized oligonucleotides. At present, the robot performs 300 acts of application of a drop of oligonucleotide solution per hour, with further improvement the productive capacity of the robot should increase upto 6000 applications per hour. In 1995 we developed a number of chemical procedures for fluorescent labeling of DNA and RNA. An efficient new method has been worked up for micromatrix preparation by photopolymerization of polyacrylamide gel. We are working up a CSH technique which enables one to "elongate" the effective hybridization length of the immobilized oligonucleotide by means of so-called "contiguous stacking hybridization" (CSH) whereby DNA is additionally hybridized to one or two fluorescently labeled pentanucleotides that stack with the immobilized oligonucleotide to form an extended duplex. An experimental procedure has been suggested which allows to use effectively iust five rounds of additional hybridization with pentamers containing all four bases (A, C, T, G) or a single universal base with differently positioned oligonucleotides marked by different labels instead of very cumbersome stacking hybridization with all possible (=1024) pentamers. High efficiency of SHOM has been demonstrated for medical diagnostics of hereditary diseases and for gene polymorphism studies. We have also manufactured first mircoorganism-specific microchips and worked out a SHOM-based procedure which allows to identify microorganisms. The following patent applications were filed at the US Patent Office on April, 7:

1. A method for preparing matrices to detect mismatches by G. M. Yershov, A. D. Mirzabekov et al.
2. Method for immobilizing water-soluble bioorganic compounds onto a capillary-porous carrier by G. M. Yershov, A. D. Mirzabekov et al.
3. Method and device for microdispensing of aqueous solutions of substance onto a carrier by G. M. Yershov, A. D. Mirzabekov et al.

1997 update: STRUCTURE AND FUNCTION OF CHROMATIN

Head Vadim L. Karpov, Ph.D., D.Sc., Professor

In 1995 we continued our study on mapping and identification of nonhistone proteins along the yeast genome. Using the method of DNA-protein crosslinking in vivo we detected two polypeptides that most probably correspond to core subunits of yeast RNA-polymerase II in the coding region of the transketolase gene (TKL2). Several non-histone proteins were detected which bind to the upstream region of TKL2,

and intergenic spacer between calmodulin (CMD1) and mannosyl transferase (ALG1) genes. The apparent molecular weight of these proteins was estimated. Using the method of DNA-protein crosslinking in vitro, the aminoacidic residues of Lac-repressor which interact with DNA were found. Only Lys-33 crosslinks with the Lac-operator in a specific complex. Additionally to Lys-33, the protein N-terminal region is involved in a nonspecific crosslink formation. We demonstrate that in the presence of an inducer the repressor's N termini crosslink to the operator's outermost nucleotides. We suggest that the inducer binding changes the Lac-repressor DNA-binding domain orientation to the opposite one comparatively to that found for specific complex. Mapping and comparative analysis of distribution of the DNAaseI hypersensitive sites in the peripherine gene chromatin isolated from different tissue cells have been finished. The distribution of these sites along the peripherine gene domain is tissue-specific. (This study was carried out in the frames of French-Russian cooperation). A simple and rapid method for generating the G+A sequencing ladder was described. This protocol could be applied in a wide spectrum of assays such as localization of transcription initiation site, DNA-protein interactions. (The study was done in collaboration with Lars Wieslander, Karolinska Institutet, Stockholm).

1997 update: MOLECULAR BASES OF DIFFERENTIATION AND DEVELOPMENT Head Alexander V. Belyavskii, Ph.D.

In 1995, the research in three basic directions was continued. Molecular biology of hematopoiesis (in collaboration with Dr. I. W. M. Visser, New York Blood Center, USA, and Dr. W. E. Fibbe, University Hospital Leiden, The Netherlands) Studies of molecular mechanisms of hematopoietic stem cell differentiation were continued. Based on the previously isolated genomic copy of non-receptor tyrosine kinase BHK, a chimeric gene was constructed for gene knockout using the loxP-Cre technology. Two genetically modified ES cell lines were obtained. In the first one, catalytic tyrosine kinase domain of the BHK is flanked by loxP sites, whereas in the other the catalytic domain is deleted. Generation of the mosaic mice bearing mutated genes is in progress (in collaboration with Dr.H. Gu, National Institute of Allergy and Infections Diseases, NIH). Near full-length cDNA copies of four genes expressed at early stages of hematopoiesis were isolated. One of the genes was sequenced completely and found to be similar to the members of the myeloid antibacterial cathelin protein family. Molecular biology of *Xenopus laevis* Using the "gene expression fingerprinting" approach developed by us earlier, an attempt was made to identify the mRNA sequences differentially distributed along the axes of frog embryo at the gastrula stage. A gene expressed in the marginal zone, but not at the animal and vegetal poles, was identified. The gene was found to be identical to the previously reported gene 1A11. Thus, although the method is in principle suitable for this object, the approach sensitivity is evidently not sufficient for identification of rare differentially expressed mRNAs. To overcome this limitation, a novel variant of the method increasing the sensitivity more than 10-fold, was developed. In addition, a two-dimensional variant of the procedure dramatically improving the resolution, was developed. Molecular neurobiology of grape snail (in collaboration with Drs. P. M. Balaban and I. S.Z akharov, Institute of Higher Nervous Activity and Neurophysiology, Russian Academy of Sciences). The searches of genes preferentially expressed in the snail serotonergic neurons were performed. Totally eight genes were identified; in addition three of them were found to be expressed in sensory neurons as well. Detailed studies of the identified gene expression patterns in the snail ontogenesis were performed using the whole mount in situ hybridization. Some genes were found to be expressed in specific subsets of neurons at the early stages of CNS development. Near full-length cDNA copies of

five genes were isolated. Sequencing of one such gene has demonstrated the similarity of the encoded protein product with the marine mollusk *Aplysia californica* pedal peptide. Synthetic peptides corresponding to the putative mature products, encoded by the command neuron-specific genes HCS1 and HCS2 cloned earlier, were obtained. At least one of these peptides exhibited potent stimulatory activity on the motoneurons innervated by the command neurons.

(3.) The Nucleic Acid Biosynthesis Laboratory under Academician Professor Georgii P. Georgiev, D. Bio. S., who graduated from the First Moscow Medical Institute in 1956, went to work at the A. N. Severtson Institute of Animal Morphology of the Academy, and in 1963 became Head of The Nucleic Acid Biosynthesis Laboratory of the Institute of Molecular Biology of the Academy. He defended his dissertation on the ribonucleoproteins of the cell nucleus in 1961. His principal interests at present are in genome organization, chromatin structure, ontogenesis, mobile genetic elements, and control of gene expression. His work is in molecular biology. He discovered in animal cells a new type of ribonucleic acid-nuclear RNA, similar to DNA--the predecessor of messenger RNA in 1961. He discovered informosomes, particles in the cell nuclei that contain messenger RNA, and he decoded their structure in 1964.

1997 update: NUCLEIC ACIDS BIOSYNTHESIS

Head Professor Georgii P. Georgiev, Ph.D., D.Sc., Member of the Russian Academy of Sciences and Academia Europaea

Genes controlling tumor metastasis (G. P. Georgiev and Ye. A. Dukhanina) During 1995, the work on the *mts-1* gene involved in the control of tumor metastasis continued (in collaboration with the Institute of Gene Biology and Danish Cancer Society). The effect of the *mts-1* over-expression on the behaviour of human mammary carcinoma cells MCF-7 was studied. They are relatively benign. Their growth in athymic mice is absolutely estrogen-dependent and occurs only after transplantation into mammary glands. MCF-7 cells expressing the *mts-1* gene and synthesizing Mts-1 protein grow even after subcutaneous transplantation and in the hormone-independent way. The growth at the transplantation site becomes invasive and tumor begins to induce single lung metastases, that never happened with original MCF-7 cells. Thus, *mts-1* expression transforms relatively benign human carcinoma cells into much more malignant ones, in particular, able to metastasize. Earlier, Kriaievska, Grigorian, Georgiev and Lukanidin showed the Mts 1 protein ability to bind with the nonmuscle myosin (HCNM) heavy chain, that might be responsible for the *mts-1* effect on cell mobility. In 1995, we found the protein interaction with carboxyl-terminal domain of HCNM. To show this, the constructions able to express HCNM lacking different peptides were prepared. The Mts 1 binding strongly inhibited serine 1917 phosphorylation by protein kinase C in HCNM. According to other authors, this phosphorylation plays an important role in myosin functioning. Studies of human genome (P.L.Ivanov) The joint Russian-American project has been developed in 1995 for detailed molecular genetic analysis of the emperor Nicolai II genealogy to establish the mechanism of mutations in the human mitochondrial genome. A unique heteroplasmic mutation was detected in the course of analysis of mitochondrial DNA obtained from Georgii Romanov, the brother of Nikolai II. It was analogous to that earlier detected in mitochondrial genome isolated from the putative remnants of Nicolai II. This coincidence proved with a very high probability the identity of the found remnants with the real remnants of Nicolai II. Control of *Drosophila* esterase gene expression (P. V. Sergeev and M. R. Kopantzeva) The esterase S gene expression was performed using transgenic *D. melanogaster*. Tissue-specificity and stage-specificity of est S

expression was shown to be determined by a short sequence within an upstream regulatory region of the gene. The intron sequences had no effect. The data obtained are in agreement with in vitro experiments. The tissue-specificity of the *D. virilis est S* gene expression is conserved in *D. melanogaster*. This means that the sequences involved in transcription control are conservative in two species.

Transgenic animals (G. P. Georgiev and M. A. Grashchuk) In 1995 the experiments were continued on the att. regulatory element effect on transcription of several transgenes in rabbits and fish (carp, sturgeon). The att. element is the 1,7 kb long DNA fragment from the chicken γ -globin domain responsible for matrix-attachment. Microinjections of recombinant DNA (pNTbGHatt, pQSVbGHatt) were performed in the Moscow University. The screening of 220 fish DNA samples recovered 20 transgenic animals (15 carps and 5 sturgeons). In three cases studied in more detail the tandem head-to-tail orientation of inserted genes was detected. The RT-PCR demonstrated the transcription of foreign DNA in all three cases. New recombinant constructions containing different enhancers and att-element were prepared and used for microinjection into the fish fertilized eggs. **Mobile genetic elements (O. P. Samarina and T. P. Tikhomirova)** In collaboration with the Institute of Gene Biology, the authors obtained the data on the existence of novel cis-regulatory elements. Study of several derivatives of highly unstable y^{+} s and y^{+} ns mutations (induced by a new chimeric element) showed the existence of mutations with an abnormal response to *su(Hw)* and *mod (mdg 4)* mutations. The comparison of molecular changes in different alleles with the phenotype made it possible identification of an element (1 kb long), that strongly modifies insulation induced by *su(Hw)* protein. This protein is converted (transformed) from the insulating factor to the transcription activator. Another discovered cis-regulatory element alters the *mod (mdg 4)* protein effect on the target gene. **Studies on yeast telomere (N. S. Vassetzky)** The author studied telomeres of *Schizosaccharomyces pombe*. In the crude protein extract (TBP) a factor was found that specifically binds the dsDNA telomeric repeat of *S. pombe*, non-specifically binds ssDNA, and does not bind RNA. Biochemical data that describe this DNA-protein interaction were obtained.

(4.) The Molecular Bases of Ontogenesis Laboratory under Lev L. Kisselev, D. Biochem. S., who graduated from Moscow State University in 1959 and defended his thesis on the secondary structure of soluble ribonucleic acids in 1964, and in 1972, he defended his dissertation on regulation problems on the specific interaction between transfer RNA and aminacyl-tRNA synthetase. He became a laboratory assistant in the institute in 1959. His current research interests center on protein biosynthesis, the human genome, nucleic acid-protein interactions, oncogenes and anti-oncogenes.

1997 update: MOLECULAR BASES OF ONCOGENESIS

Head Professor Lev L. Kisselev, Ph.D., D.Sc., Corresponding Member of the Russian Academy of Sciences and Academia Europaea

Principally new results were obtained concerning polypeptide chain termination in eukaryotic cells. In 1994 we have predicted the existence of a second eukaryotic polypeptide chain release factor (eRF) besides the first one (eRF1) identified and sequenced in our laboratory in 1994. This new factor termed eRF3 was successfully cloned and sequenced from *Xenopus laevis* cDNA library. The clone was then expressed in *E. coli*, and a method allowing one to purify preparative amounts of the homogenous protein was elaborated. The motifs common for the G (GTP-binding) proteins were detected in the eRF3 structure. eRF3 binds with GTP, but not with other ribotriphosphates. In the presence of GTP eRF3 enhanced

in vitro the eRF1 activity increasing its ability to bind to the stop codons. The eRF3 structure was found to be similar to both prokaryotic RF3 and other G proteins involved in translation in pro- and eukaryotes. Thus, the dogma claiming the existence of only one RF in eukaryotes was rejected. It was concluded that the translation termination mechanisms in pro- and eukaryotes were much more similar than thought earlier. Now a molecular background is established for the further detailed studies of translation termination in eukaryotes. In collaboration with Laboratoire de Genetique du Developpement, Universite Rennes 1, France, and Department of Genetics, St. Petersburg University. Important data were obtained for physical mapping of the human chromosome 3. We have generated 5 contigs covering more than 8 Mbp, i. e., more than a half of the 3p21 region. The clones from these contigs were successfully used for the detailed mapping of the regions containing deletions related to the lung cancer. The MLH1 gene was precisely mapped, and the orientation of the APEH-UBE1-GNAI2-2pK region was described. 60 new NotI-STS (sequence-tagged sites) were mapped with the high-performance FISH procedure; 35 of them were comapped with double-colour FISH. Computer analysis of the DNA from 51 new clones has revealed 11 genes and 9 regions homologous to the cDNA. Five candidate genes considered as tumor suppressor genes were identified. In collaboration with Karolinska Institutet, Stockholm, Sweden, Institute of Cytology and Genetics, Siberian Branch of the Russian Academy of Sciences, and the Group of Human Genome Mapping, Group of Human Genome Sequencing and Mapping, and Laboratory for Functional Morphology of Chromosomes. For the first time the structure of the euchromatin-heterochromatin border of the human chromosome 21 was established using sequencing and computer analysis. Both the centromeric -satellite region and unique sequences of the studied fragment have complex organisation and are enriched with multiple dispersed L1 and Alu repeats. In collaboration with Russian Center of Mental Health, Russian Academy of Medical Sciences.

1997 update: THE RUSSIAN NATIONAL HUMAN GENOME PROGRAM

Head Professor Lev L. Kisselev, Ph.D., D.Sc., Corresponding Member of the Russian Academy of Sciences, Member of Academia Europaea

Active development of the Russian National Human Genome Program was initiated in 1989 by academician A. A. Bayev (died in 1994) with financial support of the Russian Ministry of Science. During the next 5 years more than 300 papers were published under this Program, many of them in International journals. Currently the Program combines 100 independent research groups from various organizations (Russian Academy of Sciences, Russian Academy of Medical Sciences, Universities, Medical Institutes, National Centers) from Moscow, Novosibirsk, Pushchino, St. Petersburg, Tomsk, and other Scientific Centers. The main goals of the Program are physical and functional mapping of the human genome, molecular diagnosis of hereditary diseases and malignant tumors, computer analysis of the genome structure, the search for new human genes and identification of their functions. The most important results obtained within the Program during last three years include the project on using nucleic acid hybridization on solid templates both for molecular diagnostics of various diseases and for genome sequencing. This work is headed by A. D. Mirzabekov, member of The Russian Academy of Sciences and is performed as a joint project with Argonne National Laboratory (USA). An important success was achieved with the physical and functional mapping of the human chromosome 3 under the joint project with Karolinska Institute (Stockholm, Sweden), more than half of the chromosome is mapped, new genes are identified, including those controlling tumor growth, more than 100 chromosome markers are obtained using high-resolution in situ hybridization and

more than 200 markers of the NotI restriction sites (project headed by Lev Kisselev, corresponding member of The Russian Academy of Sciences). An original approach is developed for the transcription mapping of the human chromosome 19, many functional regions are mapped along this chromosome. This work is headed by Evgeny (Evgenii) Sverdlov, corresponding member of The Russian Academy of Sciences. It is performed as a joint project with the scientists from Germany and USA. Russian researchers have significantly contributed to the development of new computer programs to study the human genome. These programs are used both in Russia and abroad. Satellite communications are established between the Informational Human Genome Center in Moscow and those in Europe and in the USA. The Siberian Regional Center for genome information is being created now. Some methods for molecular diagnostics of common human hereditary diseases including those during the prenatal period were developed and practically tested. A search for the disease genes is under way. The Conference on the Human Genome took place in January 1996. At this Conference the results of 1995 and the ways to improve the program were discussed. Although the financial support of the Program in Russia is much lower than in many other countries, the Program succeeds owing to the following three factors: 1) high qualification of Russian researchers, their original ideas and approaches; 2) wide international cooperation with the leading laboratories in Europe and the USA in which all the participants are equally interested; the existence of the HUGO office in Moscow, allowing stable contacts with the International Genome Programs; 3) competition for the projects and well-organized research and cooperation.

(5.) The Physics of Biopolymers Laboratory under Mikhail V. Volkenstein, D. Bio. S., corresponding member of the Russian Academy of Sciences, and Head of the laboratory since 1967. He graduated from Moscow State University's Physical Department in 1935 with theses (1937) and a dissertation (1942) in the theory of the Raman spectra. His present scientific interests are in molecular biophysics, and the theory of biological evolution and ontogeny (ontogenesis). Other scientists include: Georgii V. Gurskii, C.P.M S., graduate of Lomonosov Moscow State University's Physical Department in 1961, and whose interests were in resonance energy transfer in one-dimensional systems. He began work at the institute in 1964 as a Union research scientist. His present scientific interests are in sequence-specific DNA-binding molecules, stereo-chemical and thermodynamic aspects of interactions between sequence specific ligands and DNA. Professor Valerii I. Ivanov, D. PM. S., graduated from the Department of Physics of the Moscow State University, and joined the institute as a Union research scientists in 1961. He defended his thesis on a molecular mechanism for Aspartate Transaminase as revealed by optical methods in 1968, and in 1980, he defended his dissertation on Information of DNA. His present scientific interests are in the estimation of three-dimensional molecular mechanisms and energetics for nucleic acids and proteins (enzymes) functioning by combination of experimental and theoretical approaches. Professor Iurii A. Sharonov, D. Bio. S., graduated from the Leningrad Polytechnical Institute's Physical and Mechanical Department in 1957, defending his thesis on calorimetric investigation of polymer softening and annealing in 1963, and his dissertation on magnetic optical activity and its use for studies of hemoproteins in 1980. He joined the staff of the institute as a senior scientist in 1968. His present interests are in the structure and functioning of hemo-proteins and enzymes, room temperature and in low-temperature magnetic circular dichroism (MCD) spectroscopy.

1997 update: PHYSICS OF BIOPOLYMERS
Head Mikhail A. Livshits, Ph.D., D.Sc.

Experimental evidences for formation of intramolecular Py-Pu-Pu triplexes with parallel orientation of identical d(AG)_n strands were obtained. Thermodynamic parameters of their formation were estimated and compared with those for the conventional antiparallel triplexes formed by two d(AG)_n and one d(TC)_n strands under the same experimental conditions. Significant stabilization of the parallel triplexes with a mixed nucleotide sequence upon propidium iodide intercalation was obtained. Dimers formed by two oligonucleotides with a regular repetitive nucleotide sequence folded into intramolecular triplexes were observed. Model oligonucleotides with specific sequences able to form APC-structure were synthesized. The existence of the APC-structure was suggested from the evidences, obtained upon distamycine binding. The SLS-DNA and SLS-RNA conformations were calculated, and atomic models of these structures were designed. The side loop pairing in SLS-structure was proved experimentally. The existence of three different forms of reduced lactoperoxidase was shown and the heme electronic structures of these forms were characterized. The resolving powers of different electrophoretic systems: capillary zone and gel electrophoresis in single buffer and in a discontinuous buffer system were measured and compared. For this purpose the automated gel electrophoresis apparatus HPGE-1000 with intermittent scanning of fluorescently labeled gel patterns was specially tested and used. The band spreading was shown to be defined mainly by the factors other than diffusion.

(6.) The Chemistry of Enzymatic Regulation Laboratory. Professor Dr. Radii M. Khomutov, D. Chem. S., who graduated from the Moscow State University Chemistry Department in 1952, joined the institute as a senior research scientist in 1959. In 1955, he defended his thesis on the interaction of salts and oxide of mercury with viniesters and ethers, and in 1966, he defended his dissertation on the chemistry and mechanism of biological activity of antibiotic cycloserine. His current interests are in the chemistry of physiologically active compounds and enzymology.

1997 Update: CHEMISTRY OF ENZYMATIC REGULATION

Head Professor Radii M. Khomutov, Ph.D., D.Sc., Corresponding Member of the Russian Academy of Sciences

Earlier unknown PLP aldimines with a set of organophosphorus analogs of amino acids were synthesized and investigated in our laboratory. These unnatural aldimines exhibited properties similar to those of PLP aldimines with the substrate amino acid derivatives. Isotope-labelled organophosphorus analogs of amino acids were synthesized using a new technique based on the -ketophosphinic acid conversion into -aminophosphinic ones. The peculiarities of the biogenic amine spermidine isosteric hydroxylamine-containing analog transport into mammalian cells were investigated. Low cytotoxicity of these analogs was demonstrated. These results stimulated the investigation of the above analog interactions with transformed cells.

1997 update: ENZYMOLOGY OF TRANSCRIPTION

Head Sergei N. Kochetkov, Ph.D., D.Sc., Professor

In 1995 the Laboratory was involved in three main projects: Studies of the mechanisms of transcription catalyzed by bacteriophage T7 RNA polymerase (T7 RNAP) The studies of functional role of 555-575 region in T7 RNAP were continued. The participation of this region in the interaction with promoter was demonstrated. The substitution of res. Asp569 results in complete inactivation of T7 RNAP while the enzyme-promoter interaction is not violated. In this connection Asp569 is supposed to play a catalytic role. The studies of T7 RNAP mutants with "double" (RNA and

DNA polymerase) specificity continued. "DNA polymerase" reaction of mutant T7 RNAP was shown to have an increased quantity of mismatches. The kinetic parameters of the reaction were determined; the effectiveness of the reaction was shown to decrease as follows: $4rNTP > 3rNTP > 1dNTP > 2rNTP > 2dNTP > 1rNTP > 3dNTP > 4dNTP$. The mutant interactions with different templates were studied: the low-level reverse transcriptase activity of the mutants was demonstrated. The preparative synthesis of mixed RNA/DNA polynucleotides was demonstrated. Studies of HIV-1 reverse transcriptase Earlier we obtained 15 RT mutants bearing amino-acid substitutions conferring the resistance to azidothymidine (AZT). In 1995 the final stage of the mutant-catalyzed reaction studies was carried out. The effective termination of the nascent DNA chain synthesis by AZTppp was observed with all the mutants tested both on the RNA and DNA templates. The detailed comparison of kinetic parameters of the mutants was carried out; the effect of the mutation position on the RT-catalyzed reactions was estimated. The mutations were shown to have different effects on the inhibition of the RNA- and DNA-dependent DNA synthesis. The mutation at position 215 is essentially independent of the type of the template used while the mutation at position 219 affects only the RNA-dependent DNA synthesis. Cloning and sequencing of the DNA polymerase gene from *Sulfolobus acidocaldarius* (a joint project with the Institute of Molecular Biology and Biophysics, Tbilisi, the Republic Georgia) The DNA polymerase-encoding gene from the thermoacidophilic archaeon *Sulfolobus acidocaldarius* was cloned and sequenced. This DNA polymerase was shown to belong to the DNA polymerase A family, the conserved structural motifs characteristic of this family were revealed.

(7.) The Chemistry of Protein Biosynthesis Laboratory under Professor Dr. Vladimir I. Florentiev, D. Biochem. S., graduated from the Chemistry Department of the Moscow State University in 1959 and joined the institute as a Union research scientist in 1967. He defended his thesis on the synthesis and properties of pyrodoxal phosphate analogs of nucleosides, nucleotides and oligonucleotides in 1980. His present interests are in the synthesis of modified analogs of nucleosides, nucleotides and oligonucleotides, structures of non canonical forms of DNA, and the sequencing of DNA. Senior research scientist: Leonid V. Abaturov, C. Bio. S., graduated from the biology Department of the Moscow State University in 1960 and became a laboratory assistant in that same year. He defended his thesis on the hydrogen exchange in peptide groups of globular proteins in 1971. His present interests are in the dynamic properties of the structure and its functional role.

1997 update: CHEMISTRY OF PROTEIN SYNTHESIS

Head Vladimir L. Florentiev, Ph.D., D.Sc., Professor

The main scientific orientations of the Laboratory in 1995 were: physico-chemical and computer investigations of noncanonical forms of DNA: triple-stranded helices and chimeric complexes between oligoamides and oligodeoxyribonucleotides; elaboration of a new method of DNA sequencing by hybridization with an oligonucleotide matrix (SHOM); The research group of L.V. Abaturov investigated physico-chemical properties of normal and mutant human hemoglobins. The following new results were obtained. Thermodynamic parameters of formation of intramolecular antiparallel triplexes $3'-(dAG)5-L-(dGA)5-L-(dTC)5-5'$, $3'-(dA)10-L-(d')10-L-(dT)10-5'$ and $3'-(dA)10-L-(dA)10-L-(dT)10-5'$, as well as of parallel triplexes $3'-(dAG)5-L-(dCT)5-L-(dAG)5-5'$, $3'-(dT)10-L-(dA)10-L-(dT)10-5'$ and $3'-(dA)10-L-(dT)10-L-(dA)10-5'$ were obtained. Thermal stability dependence on the Na^+ , Mg^{2+} and Mn^{2+} contents was determined. The "mismatched" triplex $3'-(d')10-L-(dA)10-L-(dT)10-5'$ was registered; its higher

stability compared to the "homologous" 3'-(dT)₁₀-L-(dA)₁₀-L-(dT)₁₀-5' related to the problem of fidelity of the double helix recognition by oligonucleotide. Thermodynamic data obtained show that the triplex parallel form stability is essentially lower comparing to the "classical" antiparallel ones. Some ways to increase the stability of parallel triplexes were proposed: binding of intercalative drugs (for example propidium iodide) leads to dramatic increase of melting temperature of parallel triplexes. UV and fluorescence spectroscopy, CD, chemical modification, and enzymatic digestion were used in structural investigations. Computer conformational analysis was also performed (in collaboration with the Laboratory of physics of biopolymers). To estimate sequence selectivity of specially designed hybrid oligomeric constructions composed of oligonucleotides with oligoamide inserts, molecular mechanical calculations of (dA)₄(dT)₂(dA)₄(dT)₃(pT)₄(dT)₃ and (dT)₅(pT)₅ were performed (pT is an aminoethylglycine unit with thymine attached by the methylenecarbonyl group). The results show that mispairing causes crucial distortions in the helices and destabilizes structures thus the probability of mispairing is low. For this reason, the proposed oligomeric constructions seem to be very perspective in creation of new agents with antisense properties. The acrylamide based matrix was prepared that contained activated carboxyl groups for immobilization of 3'- or 5'-aminooligonucleotides. Experiments were performed on 100 nm layers of acrylamide copolymer with N-(2-aminoethyl)acrylamide hydrochloride. Modification of this copolymer with an excess of di-N-oxysuccinimidylglutarate in pyridine-formamide mixture provides a matrix of activated esters. The excess of functionalities on the matrix will decrease upon background hydrolysis during hybridization. After introduction of functional groups the matrix can be dried by acetone and stored for several hours under inert atmosphere. Immobilization of aminooligonucleotides may be carried out in an aqueous buffer. Thus, we have developed an approach, based on acrylamide copolymerization with aminoalkylacrylamides. This work was carried out in the frames of the Russian National Human Genome Program (in collaboration with the Laboratory of Molecular Organization of Chromosomes). Using the CD and fluorescence spectroscopy along with the proteolytic susceptibility method, Abaturon and coworkers have shown that active Hofmeister anions increase conformational mobility of ferrihemoglobin and destabilize intersubunit contacts of ferrohemoglobin ligand in parallel with the changes of deoxyhemoglobin oxygen affinity. Those changes of functional and structural-dynamical properties of ferrohemoglobin are not based on the changes of secondary and tertiary protein structures. The same active anions promote the ferrihemoglobin transformation to the low spin hemichrome.

- (8.) **The Functional Morphology of Chromosomes Laboratory** under Professor Dr. Aleksandr V. Zelenin, M. D. and D. Bio. S., who graduated from the Second Moscow Medical School in 1954 and joined the institute as a senior research scientist in 1960. His interest at the medical school was on the effects of thyroid gland denervation on its structure (1958), and in 1969, he defended his dissertation on the interaction of amino-acridines with the cell. His current interests are in cell engineering (cell hybridization), chromosome structure and bending, and in the human genome. Senior research scientist: Igor A. Prudovskii, D. Bio. S., graduated from the Biology Department of Moscow State University in 1975--joining the institute as a postgraduate student that same year--defended his thesis on the reactivation of quiescent nuclei in reconstituted cells in 1979, and his dissertation on the blockage of DNA synthesis in terminally differentiated cells in 1991. His present interest is in cell differentiation and proliferation and in carcinogenesis.

1997 update: FUNCTIONAL MORPHOLOGY OF CHROMOSOMES

Head Alexander V. Zelenin, M.D., Ph.D., D.Sc., Professor

In 1995 the research in the Laboratory proceeded in the following directions: 1. Studying the cell proliferation mechanisms. 2. The transfer of foreign genes into plant and animal cells and investigation of transgenic cells and organisms. 3. Studying the cereal plant chromosomes and chromosomal analysis of these plants. 4. The study of human chromosomes in the framework of the Russian National Human Genome Program. The following basic results were obtained: It has been shown on mouse cell cultures that the reverse transcriptase inhibitors azidothymidine and carbovir impair the function of telomerase, the enzyme responsible for maintenance of telomeres. These experimental data provide new opportunities for elucidation of the cell senescence mechanisms. The study of karyotype formation in the interspecies and intervariety hybrids of cereals continued. The chromosome polymorphism of wild *Egylops* wheat species was investigated using the differential C-banding and fluorescent DNA hybridization in situ. A method for C-like banding of barley chromosomes was developed. This method opens new possibilities for investigation of this cereal genome. We also continued the work on localization of a number of cosmids, YAC and NotI clones on human chromosomes 3 and 13 using the fluorescent hybridization in situ (FISH). The results obtained were used for physical mapping of these chromosomes in the framework of the respective projects of the Russian National Human Genome Program. A contig overlapping an area of the chromosome 13 partially lost in B-cell chronic leucosis was created. Tissue specific expression of the *estS* gene was demonstrated for transgenic *Drosophila*. The development of new devices for the analysis of hybridization kinetics of fluorescently labelled DNA using oligonucleotides immobilized on microchips continued. This project combines the efforts of several laboratories of the Institute interested in developing of a new method for DNA sequencing and molecular diagnostics.

(9.) The Genome Mobility Laboratory under Iurii V. Il'in, D. Chem S., who graduated from the Moscow State University Chemistry Department in 1966, and defended his thesis on the study of the structure of the chromatine deoxynucleoproteids in 1970, and defended his dissertation on the mobile elements of the *Drosophila* in 1981. He joined the institute in 1966. His scientific interests at present are on genome organization, mobile genetic elements, and the control of gene expression.

1997 update: GENOME MOBILITY

Head Professor Yurii V. Ilyin, Ph.D., D.Sc., Member of the Russian Academy of Sciences

The functional role of *D.melanogaster* retrotransposon gypsy virus-like particles as an infectious factor was revealed. The gypsy ability to invade *D. hydei* cultured cells was shown. An unusually long-term stability of extrachromosomal gypsy plasmid constructs in transformed *D. hydei* cells was demonstrated. These results may be applied in the experiments on gene expression in the systems using such vectors. A complete nucleotide sequence of the full-length copy of *D. melanogaster* retrotransposon *mdg3* was determined. It has been shown that this element belongs to the gypsy group. It contains one ORF, which includes the protease, reverse transcriptase, RNase H and integrase domains. The structure of a short variant of *mdg3* was also identified. Such elements have a deletion of the retrotransposon internal part and completely lack the reverse transcriptase and partly the RNase H

domains. The existence of such defective elements still able to transpose in vivo was demonstrated for the first time. Double reversions of cut and forked mutations in the genetically unstable *D. melanogaster* strain are associated with the precise excision of this element from the corresponding loci. The regulatory heat shock element binding to the regulatory heat shock sequence in lizards was investigated. Two forms of the factor interact differently with the regulatory sequence owing to the organism's heat resistance and the level of its HSP 70 expression. The site specificity of transient action of the mobile element Penelopa different variants and the Ulysses transposition in unstable *D. virilis* strains were revealed. The regulation of Penelopa activity includes usage of antisense RNA. A book about the *Drosophila* retrotransposons was published (Arkhipova I. R., Lyubomirskaya N. V., Ilyin Y. V. *Drosophila* retrotransposons. 1995. Molecular Biology Intelligence Unit. R.G. Landes Company. Austin, Texas, USA).

1997 update: HUMAN GENOME MAPPING

Head Dmitry (Dmitrii) A. Domninskii

(10.) The Stereochemistry of Enzymatic Reaction Laboratory under Sergei N. Mikhailov, D. Biochem. S., graduated from the Chemistry Department of Moscow State University in 1971, defended his thesis on the synthesis and properties of oligonucleotide analogs in 1976, and his dissertation on the synthesis and properties functionally competent analogs of nucleosides and nucleotides in 1989. He joined the institute as a postgraduate student in 1971. His present interests are in the chemistry of nucleic acids components, the synthesis of modified nucleosides, nucleotides and oligonucleotides, biological activity, physico-chemical studies, and substrate properties of these analogs in enzymatic reactions.

1997 update: STEREOCHEMISTRY OF ENZYMATIC REACTIONS

Head Sergei N. Mikhailov, Ph.D., D.Sc.

A general method for the preparation of 2'-O-ribofuranosyl-nucleosides, minor tRNA components, has been developed. Their conformational properties were investigated by NMR spectroscopy. *hosphonate analogs of glucose-6-phosphate and galactose-6-phosphate were synthesized. They were shown to be weak inhibitors of 1L-myo-inositol-1-phosphatase. In collaboration with the Turku University (Finland) the kinetics of chemical hydrolysis of isomeric cytidyl-(3'-5')-5'-C-methyluridines was investigated. As in the case of enzymatic hydrolysis by ribonucleases, D-allo diastereomer was cleaved more effectively than L-talo isomer. A method for the recombinant RNase A and its mutant purification was developed. The RNase A mutants (His12Asn, His119Asn and His12Asn/His119Asn) were obtained in homogeneous forms. The steady-state kinetic parameters in the poly (C) and CpA hydrolysis reactions were measured for the obtained mutants. The bovine brain RNase gene was cloned in *E.coli*. The system developed was successfully used for different RNase (from brains of giraffe, sheep and camel) gene cloning. Glutamate decarboxylase from *E.coli*: the enzyme overproduction and isolation were elaborated, slow substrate analogs were found. Theoretical analysis of the RNase A intramolecular interactions with its substrate analogs has shown that the hydrogen bonds established for the enzyme three-dimensional structure are conservative in the proteins of RNase A superfamily concerning the invariant residues only. The system of hydrogen bonds formed in RNase A by the residues of ,2 center (the recognition site of the second base) will not be conservative in the superfamily proteins.

(11.) The Chemical and Biological Analysis of Biopolymers and Cells Laboratory under Professor Dr. Aleksandr A. Krayevskii, D. Biochem. S., member of the Russian Academy of Sciences, graduated from the Moscow Institute of Fine Chemical Technology in 1955. His thesis dealt with the synthesis of polyenic aliphatic fatty acids in 1963, and he defended his dissertation on peptidyl transferase center of ribosomes: substrate specificity and mechanism of action in 1976. His present interests are in the molecular mechanisms of enzymes action including DNA dependent and RNA dependent DNA polymerases, and the strategy of synthesis of selective inhibitors of HIV reproduction.

(Krayevskii (Kraievskii), Aleksandr A., D. Biochem. S., Academician of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy in 1993. He is head of the Chemical and Biological Analysis of Biopolymers and Cells laboratory of the Molecular Biology Institute in Moscow. He graduated from the Moscow Institute of Fine Chemical Technology in 1955. His thesis dealt with the synthesis of polyenic aliphatic fatty acids in 1963, and he defended his dissertation on peptidyl transferase center of ribosomes: substrate specificity and mechanism of action in 1976. His present interests are in the molecular mechanisms of enzymes action including DNA dependent and RNA dependent DNA polymerases, and the strategy of synthesis of selective inhibitors of HIV reproduction.)

1997 update: CHEMICAL AND BIOLOGICAL ANALYSIS OF BIOPOLYMERS AND CELLS Head Professor Alexander A. Krayevskii, Ph.D., D. Sc., Member of the Russian Academy of Sciences

The study of the Laboratory subject "Development of the concept of design, synthesis, and investigation of modified nucleosides and nucleotides in the cell-free systems with DNA polymerases" continued in several aspects. It was shown that deoxyoligonucleotides with a-configuration of nucleic bases reasonably stable in human blood could serve as primers for the DNA synthesis catalyzed by calf thymus terminal deoxynucleotidyl transferase. The properties of a-deoxyoligonucleotide allow studying the biological role of this poorly investigated enzyme. A new group of 2'-deoxynucleoside 5'-triphosphates modified at g-, b,g-, or a,b,g-phosphate residues were synthesized. These compounds were shown to be highly specific inhibitors of retroviral reverse transcriptases. The molecular mechanism of their action was studied and the g-phosphate replacement by g-phosphonate was shown to be an additional step of selection which increases the specificity of such compounds towards HIV reverse transcriptase as compared with human DNA polymerases. Their stability in human serum is increased 10-50-fold. Besides, their hydrophobicity sharply increases. It seems promising to evaluate the ability of these compounds to protect human cells from HIV infection.

(12.) The Molecular Genetic Immunology Laboratory under Oleg L. Polanovskii, D. Bio. S., who graduated from the Biology Department of Moscow State University in 1952, joined the institute as a Union research scientist in 1959. He defended his thesis on the biosynthesis of tryptophan in plants in 1960, and his dissertation on the structure and functions of aspartate-transaminase in 1968. His present concerns are for the structure and regulation of expression of immunoglobulin genes, the transcription of factors, and the construction of artificial immunoglobulins.

1997 update: MOLECULAR GENETIC IMMUNOLOGY
Head Oleg L. Polanovskii, Ph.D., D.Sc., Professor

Antibody engineering The work on the construction of chimeric antibodies containing mouse variable and human constant domains continued. By this time, heavy- and light-chain recombinant genes have been constructed and expressed under the cytomegalovirus promoter control in chinese hamster ovary (CHO) cells. (In collaboration with S.M.Deyev, a recently organized new Laboratory of Antibody Engineering). Regulation of immunoglobulin gene expression Two new projects have been started in 1995. 1. The role of definite amino acid residues of POU domain in protein-DNA recognition, particularly, the contribution of Val-47 residue, located in alfa helix-3 of the inferred POU homeodomain, in the DNA target recognition has been under investigation. 2. The approaches to the regulation of oct-1 and oct-2 gene expression have been developed.

(13.) The Instrumental Methods of Analysis Laboratory;

(14.) The Chemical Bases of Biocatalysis Laboratory under Aleksandr A. Gabibov, C. Biochem. S., graduated from the chemistry Department of Moscow State University in 1977, and joined the institute in that same year. In 1981, he defended his thesis on the interaction of cAMP-dependent protein kinase with substrates and effectors. His principal interests are in enzymology, fast kinetics, PLP-dependent enzymes, protein phosphorylation, DNA metabolizing enzymes (topoisomerases), and catalytic antibodies.

1997 update: CHEMICAL BASES OF BIOCATALYSIS

Head Alexander G. Gabibov, Ph.D., D.Sc.

The investigations of the DNA-abzyme specificity continued. The detailed kinetic analysis of the reaction catalyzed by DNA-abzymes was carried out. The investigations were performed on purified autoantibodies and BV04-01 monoclonal antibodies. The purification scheme for the single chain Fv antibodies was designed. Preparative quantities of the expressed product were obtained. Kinetic investigation of the site-directed mutants of monoclonal DNA-abzymes was carried out. TYR 32 was shown to play critical role in the abzyme activity. The model of abzyme-oligonucleotide interaction based on the X-ray data was designed. A novel effective method of the DNA-abzyme purification from the sera of patients with lymphoproliferative diseases was developed. The statistical analysis of these DNA-abzyme activities (160 cases) was performed. The DNA-abzyme activity was found in the sera of patients with various types of B-cell chronic lymphocytic leukemia: B-CLL, follicular lymphoma, spleen lymphocytoma, and mantle cell lymphoma. No DNA-abzymes was observed in the cases of acute B-cell leukemia and T-cell lymphoma. The analysis of 24 AIDS patients has supported our previous results that the DNA-abzyme activity is characteristic of the 3-rd and 4-th stages of the disease. By analogy with autoimmune diseases, autoimmune diseases the DNA-abzyme production in B-CLL was suggested due to the immunocompetent cell inability to undergo apoptosis. A number of phosphorus analogs were investigated as potential inhibitors of tyrosine phenol-lyase. The kinetic analysis of site-directed mutants was performed. Data were collected from crystals of quinonoid complex of tryptophanase with oxindolyl-L-alanine at 2.7 resolution. The three-dimensional structure of this complex was solved and refined at 3.0 resolution. Mutant forms of tryptophanase were obtained by site-directed mutagenesis.

(15.) The Molecular Bases of Embryo genesis Laboratory under Gennadii I. Iakovlev (Yakovlev), D. Chem. S., who graduated from the Kazakh State University's Physical Department in 1960. He defended his thesis on NMR

spectroscopy in moving samples in 1967 and his dissertation on the molecular mechanism of specificity and action of RNA depolymerases in 1985. His present interests are in the molecular mechanism of nuclease action, the role of stereo electronic effects in RNA-ase catalyzed reactions, and the base of ribose action.

1997 update: ENZYMOLOGY OF NUCLEASES

Head Gennady I. Yakovlev, Ph.D., D.Sc., Professor

The main direction of our investigations was studying the enzyme and substrate structure-function relationships responsible for different kinds of RNA-depolymerase specificity. In 1995 studying the mechanisms of the double-stranded RNA degradation by the pancreatic type ribonucleases continued. The structure of dsRNA in canonic form, with Watson-Crick base-pairing, protects this RNA species from cleavage by RNases. However, the efficiency of dsRNA cleavage by RNases depends on the RNase type. The mechanism of RNase action on dsRNA has not been studied yet. To elucidate the matter, the kinetics parameters of ssRNA and dsRNA depolymerization by bovine RNase A, bovine seminal RNase, and human seminal RNase have been studied. Rather low levels of RNase activities towards dsRNAs were shown to be due to their binding with single nucleotides, wound off the double-helix upon thermal fluctuations. An increased rate of dsRNA degradation under low ionic strength conditions could be ascribed to the RNase binding to the single-stranded RNA sequences transiently exposed from the RNA double-helix. The binding constants and thermostability of the *Bacillus intermedius* RNase complexes with the protein inhibitor barstar and its double mutant Cys40,82Ala were studied. The binding constant values for barstar and its mutant were found to be equal to 10⁻¹² M. This value is only 5 and 43 times, respectively, higher than those for the *Bacillus amyloliquefaciens* RNase complexes where barstar is a natural intracellular inhibitor. The complex formation of the *Bacillus* RNases with the barstar fragments containing the residues 23-54, 12-54 and 1-54 was studied. Although these fragments contain all amino acid residues involved in the barstar interaction with the *Bacillus* RNases, they did not form any specific complex with RNases.

(16.) **The Electron Microscopy Researches of Biopolymers and Cellular Structure Laboratory** under Vladimir I. Popenko, C. Bio.S., graduated from the Moscow Physical Technical Institute's Molecular and Physical Department in 1976, joining the institute as an assistant in that same year. He defended his thesis on the electron microscopic study of the structure of active ribosomal and non-ribosomal genes in 1981. His present interests are on the structure and function of the order chromatin structures and human chromosomes, localization chromosomal proteins, enzymes in protein biosynthesis, and immuno-cytochemistry.

(17.) **The Molecular Spectroscopy Laboratory** under Professor Dr. Iurii V. Morozov, D. PM. S., graduated from Moscow State University's Physical Department in 1955. He defended his thesis on the investigation of the probabilities of radioactive and radiation-less transitions in monomeric and dimeric molecules of organic dyes in 1963 and his dissertation on the optical properties, electronic structure and photo chemistry of B6 vitamins and their derivatives in 1974. He was appointed a senior researcher to the institute in 1960. His current scientific interests are in the electronic and space structure interrelations for organic molecules, their spectroscopic and spectra-polarimetric properties, reactivity and functional specificity.

1997 update: MOLECULAR SPECTROSCOPY

Head Yurii V. Morozov, Ph.D., D.Sc., Professor

The investigations of interrelations between electronic and space structure of biologically active molecules as well as those between their spectral properties and reactivity have been continued by Molecular spectroscopy unit in 1995. Among the most interesting results are the following. The dynamics of cyclophosphate (CP) formation during P-O bond disruption by RNase has been investigated in the frames of quantum-chemical approximation CNDO/BW by modelling the conformational changes resulting from RNA interactions with the respective RNase moiety. The dinucleotide conformation necessary for CP formation, is realized when the torsional angle of C2'-C3' bond rotation varies approximately within the limits of 40. The distance between the phosphorus atom and O2'-H group, if the proton is withdrawn from the contact zone, varies from 2.06 to 1.78 under these angle variations. Under such conditions, the energetic barrier for the O-R group withdrawal and O2' atom attachment, equal to 0.45 eV at the distance of 2.06 , practically disappears at the distance of 1.78 and the CP molecule is formed, while O-R group is separated. It has been also shown that during the reaction the phosphate group modifies its conformation as follows: being a tetrahedron at the beginning, it gradually becomes flatter up to the bipiramide formation at 1.78 , and, finally, when CP is formed, the phosphorus atom locates at the vertex of a new tetrahedron-like structure. When a ionized phosphate group becomes neutral, the CP formation is also possible but energetically it is less probable. For the first time the possibility of formation of pyridoxal-5'-phosphate aldimines with -, -, and -phosphonous and phosphonic analogues of Val, Asp and Glu was shown. Spectral properties of pyridoxal-5'-phosphate aldimines with Val-phosphoanalogues were shown to be close to those of natural Val-aldimines, while their tautomeric and conformeric properties differ drastically.

(18.) The X-Ray Crystallography Laboratory under Lucy V., Malinina, C. PM. S., who graduated from the Moscow Physical-Technical Institute in 1973 as a physicist, defended her thesis on the study of DNA structure in DNA-RNase A complexes by means of formaldehyde in 1978. She joined the institute as a leading research scientist in 1989. Her present interests are in X-ray analysis of DNA and DNA-protein complexes.

1997 update: X-RAY CRYSTALLOGRAPHY

Head Lucy V. Malinina, Ph.D.

The single crystal x-ray structure of the hexamer CGCGCG in three different crystal forms has been solved and refined. On the contrary to the popular idea of the structural rigidity of Z-DNA, our results clearly demonstrate that Z-DNA is rather flexible. Crystal structure of Z-DNA strongly depends on the environment. As a result, sequentially identical molecules of CGCGCG appeared to be structurally different due to different contacts with the neighbours. In two crystal forms of CGCGCG a new crystal packing mode of Z-DNA has been found. Analysis of this mode allowed us to conclude that a convex surface of the double helix is an essential structural feature of Z-DNA. The single crystal x-ray structure of the first nonspecific cro/DNA complex has been solved with the duplex (GT)₄.(AC)₄ as a nonspecific DNA fragment. It appeared that the structure of a nonspecific complex is very different from that of the specific one. None of amino acid residues of the recognizing helix contact with DNA. The protein forms 4 hydrogen bonds with the sugar-phosphate DNA backbone. The mobility of DNA fragment in the crystal of the complex has been found. Other structural features of the complex allow us to draw several hypotheses both about the process of the cro-dimer one-dimensional

diffusion along DNA and the recognition initiation. Two structural forms of chymosin (active and nonactive), and the transition to the active form induced by the enzyme interaction with a fragment of its specific substrate have been found. This structural transition is the basis of the enzyme specificity. Such an activation is a result of the chymosin allosteric-like interactions with a fragment of its specific substrate. The allosteric-like activation of a monomeric proteolytic enzyme was observed for the first time. The single crystal x-ray structure of conformationally restricted nucleoside analogs with an additional modification at 4'-position has been determined with 4'-hydroxymethyl-2',3'-lyxoanhydrocytidine and 4'-hydroxymethyl-2',3'-riboanhydroadenosine as such analogs. The conformational similarity of these compounds with the native analogs (2',3'-lyxoanhydrocytidine HIV inhibitor, and 2',3'-riboanhydroadenosine) has been found. An explanation of the lack of antiviral activity of conformationally restricted nucleoside analogs with an additional modification at 4'-position has been developed.

(19.) The Computer and Structural Analysis of Biopolymers Laboratory under Vladimir G. Tumanyan, D. Bio. S., graduated from the Lomonosov State University Physical Department in 1962 and joined the institute upon graduation as a postgraduate student. He defended his thesis on some aspects of RNA secondary structure: interconnection between primary and secondary structure in 1966, and his dissertation on the structure of fibrous biopolymers: polymorphism and the problem of biologically significant structure in 1986. His current interest is in the primary and secondary structure of nucleic acids and proteins, the interrelations between them, the molecular mechanic calculations of collagen and DNA structure, and computer graphic methods of sequence analysis.

1997 update: COMPUTER AND STRUCTURAL ANALYSIS OF BIOPOLYMERS Head Vladimir G. Tumanyan, Ph.D., D.Sc., Professor

Studies of proteins and nucleic acids on various levels of their organization continued along with the development of suitable methods. Creation of matrix Fourier-analysis method for searching the periodicities in nucleotide sequences has been accomplished for matrix similarity of common form. To reveal periodical patterns, the study of coding and noncoding sequences has been initiated. On the basis of periodicities discovered in the collagen primary structure conclusions were drawn concerning both self-symmetry of the molecule and symmetry of molecular complexes. A more accurate scheme of polypeptide stabilization hydration shell adopting Polyproline II conformation was constructed. Statistical criteria for estimation of compatibility between primary structure and reduced representation of tertiary structure have been improved. Characteristic discrepancies in contact zone for the lac-operator-lac-repressor complex have been found for specific and nonspecific interactions with DNA. In the course of drug design studies the modelling of human alcohol dehydrogenase interactions with substrates and inhibitors have been carried out by molecular mechanic methods. Programs of molecular graphics, estimation of physical characteristics, and energetic domains in proteins were improved and enlarged.

1997 update: ELECTRON MICROSCOPIC STUDIES OF BIOPOLYMERS AND CELLULAR STRUCTURES

Head Vladimir I. POPENKO, Ph.D.

The main directions of our studies in 1995 were the following: Higher order structural organization of chromatin We studied chromatin structure in the ciliate *B. truncatella* macronucleus. Inactive macronuclear chromatin is organized in 0.1-0.2 μm

compact chromomere-like chromatin bodies. After formamide treatment and spreading on the hypophase surface they looked like aggregates of smooth fibres attached to the structures of granules 30-70 nm in size. The presence of binding or "anchoring" complexes in macronuclear chromomeres was demonstrated. Electron microscopic in situ hybridization(EMISH) and human metaphase chromosome mapping Using probes towards repetitive sequences of centromeric chromosomal regions, we have demonstrated that EMISH allows us to achieve more than double resolution comparing to that of the standard FISH procedure. The possibility of the cosmid-size DNA mapping on the chromosomes have been demonstrated. The work on the mapping of closely located sequences in human chromosomes is in progress. Cell biology. The dynamics of the cyst wall formation, ultrastructure of the cytoplasm and cytoplasmic organelles in the ciliates at the cyst stage The ultrastructure of *B. truncatella* resting cysts of different age (24 hours one-month-old) was studied. The data obtained allowed us to suggest that the material necessary for endocyst formation is first accumulated in the cytoplasmic regions adjacent to the cytoplasmic membrane, and then is consumed for endocyst formation. A complete reorganization of the cytoplasm and the cyst wall formation take a long time (no less than a week). An unusually high-order ("crystallized") distribution of ribosome-like particles on the cyst mitochondria surface was discovered. The role of the human immunodeficiency virus structural proteins in the viral genome replication The distribution of several HIV-1 structural proteins in the infected MT4/IIIB cells in the acute and chronic infection was studied by immunocytochemistry on the ultrathin sections. The investigations were supported by the Russian National Human Genome Program, Russian Foundation for Basic Research, Russian State Programme "National Priorities in Public Health. AIDS".

(20.) The Genetic Engineering of Peptide Hormones Laboratory under Peter M. Rubtsov, D. Bio. S., who graduated from the Moscow State University Biology Department in 1972 and defended his thesis on the study of the metabolism of high-molecular weight polyphosphates and light-dependent biosynthesis of pyrophosphate in a green algae *Acetabularia* in 1977, and stood for his dissertation on the synthesis of peptide hormones by the methods of genetic engineering in 1987. He joined the institute as a junior researcher in 1976 and was named Head of the Genetic Engineering Laboratory in 1987. His present scientific interests are in the cloning and analysis of the structure and expression of genes encoding the growth hormone and prolactin receptors, the expression of human and animal hormones by the recombinant DNA methods, and protein engineering of hormones and receptors. Vladimir S. Prassolov, C. Bio. S., graduated from the Department of Biology of Moscow State University in 1970, joining the institute as a postgraduate student that same year. He defended his thesis on the structure and function of tryptophanyl-tRNA-synthetase in 1976. His current interest is in the expression of eucariotic genes, oncogenes and anti-oncogenes, gene therapy and gene transfer.

1997 update: HORMONES AND RECEPTORS

Head Peter M. Rubtsov, Ph.D., D.Sc., Professor

Structure and expression of genes coding for the growth hormone and prolactin receptors
The growth hormone (GH) receptor genes contain several promoters from which alternative mRNA variants differing by the 5'-untranslated sequences are transcribed. The alternative 5'-untranslated exons of human, rat, and rabbit GH receptor genes were amplified by single-sided PCR, cloned and sequenced. Fragments containing the 5'-untranslated and coding regions of GH receptor gene were isolated from human genomic library. One clone is supposed to contain a

putative promoter and 5'-noncoding exon highly homologous to those of rat and ovine GH receptor genes. Rat growth hormone receptor gene contains at least two promoters. One of them functions in many tissues of male and female rats and appears to be a part of the CpG-island. The other one functions only in liver, and its activity is much higher in female than in male. The data obtained suggest that this promoter is regulated by the sex-specific pattern of GH secretion. The donor pituitary gland transplantation under renal capsule of males that increases the basal GH level in serum induces hepatic expression of the female-specific GH receptor mRNA. The rat genomic fragment containing regulated promoter of GH receptor gene is PCR-amplified and cloned. Using several complementary approaches like 5'-RACE, cloning and sequencing, reverse transcriptase-PCR, and RNase protection assay, multiple isoforms of prolactin receptor mRNA were identified and studied in rat and rabbit liver. The genomic fragments spanning the prolactin receptor gene exon-intron junctions were cloned and sequenced. A scheme for alternative splicing of prolactin receptor transcripts was proposed. Genetic engineering of hormones and receptors The work on the baculoviral expression system for eucaryotic genes was in progress. The roller cultivation of insect cells infected with recombinant baculoviruses was developed. Immunodetection has shown that insect cell lines producing alpha and beta subunits of human chorionic gonadotropin and CD4 receptor of HIV-1, were obtained. The work on designing vectors incorporating promoters of p10, p39, and polyhedrin genes of nuclear polyhedrosis virus suitable for simultaneous expression in insect cells of several genes is carried out. Design and study of ribozymes The gene *ermC* with a modified leader sequence bearing the target for ribozyme was constructed and cloned in *Bacillus subtilis*. The product of *ermC* gene methylase determines the resistance of *B. subtilis* to antibiotic tylosin. A vector for inducible expression of mutant ribozymes was constructed. A modified *B. subtilis* strain expressing *ermC* RNA, the target for ribozyme action, was transformed by vectors containing different ribozyme-encoding sequences, and the tylosin effect on the transformant growth was studied. The system for selection of the ribozymes efficiently functioning in living cells is proposed.

- (21.) **The Diffractometry Laboratory** under Aleksandr S. Zdanov, C. PM. S, who graduated from the Physical Department of Moscow State University in 1978 joined the institute as a postgraduate student in 1978. He defended his thesis on pepsin structure at 2A resolution in 1984. His current interests are in X-ray analysis, protein crystallography, protein and nucleic acid structures.
- (22.) **The Analytical Chemistry of Proteins Laboratory** under Tsezi A. Egorov, D. Chem. S., graduated from the Moscow State University Chemistry Department in 1959 and defended his thesis on the comparative study of the primary structure of mammalian myoglobin in 1965, and in 1989, he defended his dissertation on new approaches to the determination of the primary structure of proteins. He was appointed a senior research scientist in the institute in 1989 and his current scientific interest are in the identification of proteins encoded by expressing genes by means of micro-sequencing and the study of covalent structure--including three-dimensional--of alcohol-soluble seed storage proteins (prolamins). A research team from the Vavilov General Genetics Institute was moved to the Molecular Biology Institute in 1989 and established in this laboratory where the methods of isolation and structural analysis of prolamins--extremely polymorphic proteins--were developed for the first time. Senior research scientist: Sergei V. Shlyapnikov, D. Biochem. S., graduated from the Mendeleev Chemical-Technology Institute in 1962 and joined the institute as a laboratory assistant upon graduation. His interests include molecular biology, enzymology, and protein structure.

1997 update: ANALYTICAL CHEMISTRY OF PROTEINS AND PEPTIDES
Head Tsezi A. Egorov, Ph.D., D.Sc., Professor

In 1995, the research was performed in the following areas: Identification of human proteins encoded by the expressed genes Together with Dr. Shishkin and his colleagues from the Research Center of Medical Genetics, Russian Academy of Medical Sciences, using two dimensional electrophoresis and microsequencing, the identification of human myocardium proteins continued. Three new proteins were identified. In collaboration with Dr. Karpova and her colleagues from the Novosibirsk Institute of Bioorganic Chemistry, Russian Academy of Sciences, Novosibirsk, and Dr. B. Wittmann-Liebold from the Max-Delbrück-Center of Molecular Medicine in Berlin the study of human ribosomal proteins was carried out. All 60S ribosomal subunit proteins were isolated. Their identification is in progress. This work is supported by the NATO grant. Covalent structure of prolamines We continued our research focused on the covalent structure of cereal seed storage proteins. Crystals of an oat storage protein avenin were obtained. The procedures for the separation and analysis of wheat glutenin oligomers by electrophoresis in agarose gels in the presence of SDS and gel chromatography have been developed (the Royal Society Grant) in collaboration with Dr. D. Lafiandra and colleagues (Toscana University). The dimer of the glutenin D subunit has been isolated by preparative isoelectrofocusing and identified. (This work was supported by the Research Center of Italy). In collaboration with Dr. M. Belozerskii (Moscow State University), the complete amino acid sequence of protease inhibitor from buckwheat seeds was determined. Peptide mapping of bovine tryptophanyl-tRNA-synthetase The analysis of the enzyme post-translational modifications is in progress. One possible phosphorylation site is located. Chimeric RNases of directed action The first step of the investigation is to work out a versatile chemical approach to introduce into RNase A a new specific ligand binding domain for oligonucleotides, in particular, and to study properties of a chimeric protein thus obtained. Chimeric enzymes, produced upon covalent modification of proteins by oligonucleotide probes, combine the properties of highly efficient biocatalysts of the RNA phosphodiester bond hydrolysis and their address activity towards specific complementary sites of attacked substrates. By now, an analog of the RNase A S-peptide containing Nle for Met-13 and Cys for Ala-20 substitutions was synthesized and coupled via the disulfide exchange reaction with the 3-thiopyridyl-derivative of pentadecathymidylate d(T)15. The resulting conjugate d(T)15pO(CH₂)₃-S-S-(Nle, Cys)S-peptide and S-protein were shown to form a functionally active chimeric RNase S. Catalytic properties of such and unmodified RNases were compared and an essential increase in the efficiency of the polyriboadenylic acid transesterification reaction for chimeric RNase was found.

(23.) The Sequencing and Mapping of the Human Genome Laboratory under Vladimir M. Zakharyev, D. Biochem. S., who graduated from the Chemistry Department of the Moscow State University in 1974 joined the institute in that same year. He defended his thesis on the study on the region of initiation transcription of the ribosomal operon S. Serevisine in 1980, and in 1990, he defended his dissertation on the construction of transgenic plants, resistant to virus infection by methods of recombinant technology. His present scientific emphasis is on the sequencing and mapping of the human genome (chromosome 3 and 13), and the study of the structural and functional organization of high organisms' genes.

(24.) The Computer Analysis of Nucleic Acids Laboratory and the Bioinformatic Center under Iurii P. Lysov, C. PM. S., who graduated from

the Department of Mathematics of Moscow State university in 1971 and joined the institute as a postgraduate student that same year, defended his thesis on the conformational possibilities of irregular sites of DNA in 1980. His main interests are in conformational analysis and the sequencing by hybridization. The institute has, in the last few years, developed new research groupings of its scientists to solve major scientific problems.

1997 update: THE HUMAN GENOME STRUCTURE INFORMATION CENTER Head Yuri P. Lysov, Ph.D., D.Sc.

The investigations on the nucleic acid structure continued. At the same time the work was concentrated on developing the programs to support biological data-processing supply under the Russian National Human Genome Program. Additional means were created to form compressed databases and procedures for quick access to and analysis of information present in these databases. The works on development of a method for sequencing by hybridization with an oligonucleotide matrix continued. A detailed study of the stacking hybridization usage for the probe effective length increase was carried out to obtain information about the DNA regions under investigation. If an octanucleotide matrix is used for stacking hybridization, pentanucleotides may help in sequencing DNA regions of several thousand nucleotides in length. The limits of the method application for different lengths of immobilized oligonucleotides are determined. We are studying the method effectivity for stacking hybridization on a matrix containing oligonucleotides with the internal degeneration regions able to form duplexes of a random base sequence at these regions. We have proposed an increase of sequencing effectivity by measuring several distances between regions of the fragment under investigation. Such procedure makes possible an unambiguous reconstruction of the fragments even in the presence of internal repeats. The works on creation and improvement of equipment for luminescent monitoring the hybridization with an oligonucleotide matrix are in progress. Necessary mathematical and program supports are developed. The results obtained were presented at different international and Russian conferences.

1997 update: PROTEIN-DNA RECOGNITION
Head Georgii V. Gurskii, Ph.D., D.Sc.

A search of new structural motifs to design the sequence-specific DNA-binding and DNA-cleaving ligands was carried out using computer modelling, synthesis of new compounds, and DNA-binding studies. The new type synthetic elongated DNA-binding ligands composed of N,4-substituted mono- and diphthalimide units and containing positively charged groups at both ends of the molecules were synthesized. These ligands exhibit fluorescence at 460 nm upon excitation at 340 nm. The ligand incorporating a phthalimide fragment connected by a flexible chain to a dipyrrolicarboxamide group upon binding is localized in the DNA narrow groove and covers 5 base pairs. If a ligand consists of phthalimide fragments only then no binding in the narrow DNA groove occurs. In this case a slightly fluorescent outside binding type of the complex is formed which is saturated when one ligand molecule is bound per two base pairs. An unusual 3:1 stoichiometry for a complex formed by elongated bis-netropsins and their binding sites on DNA was observed. CD measurements revealed two types of bis-netropsin complexes with poly[d(A-T)].poly[d(A-T)]. The first is characterized by 1:1 saturation ratio of bound ligand molecules per 10 base pairs. The cooperative binding of two additional bis-netropsin molecules to the first type of the complex results in the second type complex formation. Unlike the results obtained for binding to

poly[d(A-T)].poly[d(A-T)], only the 1:1 complex is formed when the ligand binds to the homopolymer poly(dA)úpoly(dT). The DNA binding to peptides and netropsin-peptide conjugates using a double-stranded motif for sequence recognition in the minor groove was studied. The studies on the DNA binding with peptides implicated in the DNA-binding domains of regulatory proteins continued. Effects of sibiromycin, distamycin A, and its analogs on DNA and poly(dA).poly(dT) binding by a synthetic 23-residue zinc-binding peptide, a part of the DNA-binding domain of the transcription activator Gal-4 were studied. Using circular dichroism and fluorimetric methods, we have found that the synthetic peptide and two distamycin A analogs compete for binding sites on DNA and poly(dA).poly(dT). The antibiotic sibiromycin forming a covalent bond with the guanine 2-amino group in the minor DNA groove can displace the peptide from the 19 bp self-complementary oligonucleotide, a specific target site for Gal-4 protein. The peptide binds to the glucosylated phage T2 DNA, but its affinity to this DNA is lower, than that to calf thymus DNA under the same conditions. The binding isotherms of distamycin analogs obtained in the absence and in the presence of synthetic peptide were used to determine both binding constant and site size for the peptide to poly(dA).poly(dT). The binding constant is found to vary from $1.4 \cdot 10^7$ to $1.8 \cdot 10^7$ M⁻¹ in the presence of 0.1 M NaCl.

1997 update: ANTIBODY ENGINEERING

Head Serguei M. Deyev, Ph.D., D.Sc.

The laboratory was organized in 1995 to design of unnatural antibodies and to develop appropriate systems for their biosynthesis. In 1995 the experiments were carried out in two main directions. The first is the full size chimeric mouse/human immunoglobulin synthesis in eucaryotic (lymphoid and nonlymphoid) cells. The second one deals with the design of single-chain antibodies and their production in procaryotic cells. A new solid phase immunoanalysis method, group selective immunoassay was developed.

1997 update: PROTEIN INHIBITORS OF CELLULAR PROCESSES Head Iuri V. Kozlov, Ph.D., D.Sc., Professor

Our studies have focused on the structure of the ribosome-inactivating toxins and their transport into the cytosol of target cells. Like some plant ribosome-inactivating toxins, Shiga toxin causes death of eukaryotic cells upon penetrating into their cytosol. The enzymatically active part of the toxin (A subunit), acting as a highly specific N-glycosidase, removes the sole adenine from ribosomal 28S RNA, leading to the protein synthesis inhibition and following cell death. Cellular proteases split the Shiga toxin A subunit into two disulfide-bound polypeptides during its transport and translocation. To elucidate the effect of A subunit splitting on toxin transport to the target ribosome and, as a result, on the cytotoxicity, the substitutions and deletions were inserted into the site of hypothetical splitting of A subunit. The wild-type toxin was much more efficient than the mutants in provoking rapid intoxication of the cells. However, ultrastructural analysis of toxin tagged with horseradish peroxidase demonstrated that the wild-type and mutant toxins were transported from endosomes to the trans-Golgi network and further through the Golgi cisterns to the endoplasmic reticulum. The cells were able to cleave both wild-type Shiga toxin and mutants, but cellular location for cleavage appears to differ. The wild-type toxin was cleaved in the endosomes or in the trans-Golgi network. The mutant toxin (where the trypsin-sensitive site was replaced by that sensitive to cytosolic endoprotease calpain) was not cleaved in the presence of brefeldin A, indicating that the cleavage can occur only when the toxin left the trans-

Golgi network and reached the cytosol. The crystal structure of Shiga toxin, an AB5 hexamer, has been determined at 2.5 resolution. The A subunit interacts with the B pentamer via C-terminal helix and a four-stranded mixed β -sheet. The fold of the rest of the A subunit is similar to that of A chain of plant toxin ricin; both are N-glycosidases. However, the active site in the bacterial holotoxin is blocked by a segment of polypeptide chain. These residues of A subunit would be released as a part of the toxin activation mechanism.

1997 update: CELL ENGINEERING

Head Vladimir S. Prassolov, Ph.D., D.Sc.

In 1995 our efforts were focused on the creation of new vectors with the cloned gene regulated expression in mammalian cells, including human ones. A self-inactivating retroviral vector containing polylinker and conveying the resistance to antibiotic G418 was constructed. Based on this construct, a retroviral vector has been made that contains p53-responsive element modulating the hygromycin resistance gene expression. We suppose that the introduction of this vector into the cells bearing the wild type p53 will provide the resistance to hygromycin, whereas the cells carrying mutant p53 will die. The development of this approach seems to be promising for gene therapy. The analysis of p53-binding elements from p53-responsive genes has been carried out. Recombinant plasmids were constructed in which expression of a reporter gene of chloramphenicol-acetyl transferase is under control of a promoter containing p53-responsive elements. The p53-responsive elements from different genes were shown to display very different p53-dependent enhancer activity in CAT assays. The p53-responsive elements from human WAF1 and ADA genes exhibited the highest enhancer activity. This work was done in collaboration with the Laboratory of cell proliferation. As a part of the project dealing with the study of neuropathologic lesions induced by different murine leukemia viruses the cell lines were created able to produce recombinant retroviruses. These viruses were constructed on the basis of Moloney murine leukemia virus and contained a mutant LTR and an amphotropic env gene. The kinetics of the CNS lesion development is modulated by Freund leukemia virus in the case of co-infection with the above-mentioned viruses. These studies are carried out in cooperation with the Department of Virus and Cell Genetics, Heinrich-Pette Institute of Experimental Virology and Immunology, University of Hamburg, Germany. In 1995 studying the mechanism of eukaryotic cell electrotransfection continued in cooperation with E. S. Tsybalyuk, A. N. Frumkin Institute of Electrochemistry, RAS, Moscow. The method of electrotransfection of the support-anchored cells by the double-impulse electrotransfection technique was further developed, and this allowed us to increase the effectivity till standard parameters of the single-impulse electrotransfection. On the other side, the earlier described electrotransfection by the low-voltage (nonporing) impulse action on the preliminarily electroporated anchored cells was demonstrated both for COS-1, and CHO, and HeLa cells. In this case the electrotransfection level comparable with that in control (electrotransfection by the exponentially lowering impulse) allows us to state that we were the first in the world who managed to separate electrotransfection process into two steps: 1). electroporation of the cells and 2). plasmid DNA seizure into electroporated cells caused by the low-voltage field (this step is equivalent to the low-voltage part of exponential impulse). The above results were presented at the 23d FEBS Meeting, August 13-18, Basel, Switzerland.

1997 update: CELL PROLIFERATION

Head Peter M. Chumakov, M.D., Ph.D., D.Sc.

In 1995 studies in the Cell Proliferation Laboratory have been carried out in three main directions: 1. Studies on the novel biological activities acquired by p53 mutants continued. Upon introduction into the cell lines devoid of endogenous p53 gene expression the mutant forms of p53 are able to increase frequency of gene amplifications. The subtraction cloning was been carried out to identify novel genes activated in response to mutant p53. A library of cDNAs expressed in response to His175 mutant p53 was constructed and analyzed. Four types of cloned genes most frequently represented in the library were identified and sequenced. The first type corresponds to the gene coding for nucleolar protein No38. The second corresponds to the gene encoding p21, the translationally-regulated protein characteristic of some transformed cells. The third gene was, previously cloned and sequenced from the brain cDNA library, although the product coded by this gene is still unknown. The fourth gene was not previously identified or analysed. Northern hybridization has shown that the expression of all four types of mRNA is activated in response to mutant p53s, although some of them are also expressed upon the wild-type p53 hyperexpression. At present a search for the corresponding response elements mediating induction of these genes is under way. Besides, the studies of biological activities of the full-length cDNAs of the newly identified genes are in progress. 2. To identify functionally important domains of p53 gene the screening of Genetic Suppressor Elements (GSEs) from the library of short random fragments of p53 cDNA expressed as a part of a retroviral construct was carried out. Such short fragments are able to interfere with p53 functions due either to short peptides acting in a dominant-negative fashion, or to anti-sense RNA. Several types of GSEs have been selected that are capable to immortalize primary fibroblasts, and confer the resistance to the DNA-damaging drug etoposide. The GSEs were mapped along the p53 cDNA. Four discrete functionally significant regions on the p53 cDNA were identified in these experiments. At present further studies of cell lines expressing these types of GSEs are carried out along with the elucidation of the mechanisms of their action. 3. The cells transformed by activated oncogene N-ras express elevated levels of p53 protein. This elevation is due to transcriptional activation of p53 gene. In primary cells such increase level causes arrest of the cell cycle. In immortalized cells elevation of p53 has no effect on growth parameters. Therefore, p53 gene may have a safeguard function by restriction of growth of the cells with activated oncogenes. At present, studies on the effect of other dominant oncogenes on p53 gene activity are in progress.

In 1992, there were at least five major research groups or units--a number which exceeded seven in 1997:

(1.) The Genome Molecular Organization Group under Nikolai A. Tchurikov, D. Bio. S., graduated from the Stavropol Medical Institute in 1972, and joined the institute as a probationer in 1972. He defended his thesis on the detection and properties of the gene Dm225--the mobile dispersed Drosophila element in 1977. His current interest are in the molecular and genetic analysis of mobile elements, 5' and 3' regulatory elements in the expression of Drosophila genes, higher order structure in Drosophila and human chromosomes, and in the physical and biological analysis of parallel DNA.⁹

1997 update: GENOME ORGANIZATION

Head Nickolai A. Tchurikov, M.D., Ph.D., D.Sc.

Our work in 1995 was mainly concerned with two current projects: The study of domains in eukaryotic chromosomes Earlier we described in Drosophila, human and plant cells regular domains incorporating 50-150 kb DNA stretches (forum-domains,

Tchurikov, Ponomarenko, Proc. Natl. Acad. Sci., 89, 6751-6755, 1992). The domains were observed after spontaneous degradation of chromosomes upon cell death in the low melt agarose blocks. To elucidate the nature of forum-domains we have started studying the *Drosophila* DNA big segment containing the cut locus. The junction of two neighboring domains was mapped in the central part of the locus. Each domain is more than 100 kb in length. Partial sequencing of the 12 kb region where DNA is attacked during spontaneous degradation of chromosomes was performed. Similarly, the junction of two forum-domains in an anonymous genomic region was mapped and sequenced. To characterize domains further we suppose to map looped domains, repetitive and transcribed sequences in these genomic regions. The role of retroelements in evolution The study of suffix retroposon in *Drosophila* genome continued. Most suffix copies are independent and rather conservative, whereas the others are incorporated in different *Drosophila* genes. In the latter case the suffix forms the last exon as in mature mRNA, just before poly(A) stretch (that is why the element was denoted as suffix, Tchurikov et al., Cell 28, 365-373, 1982). Analysis of the suffix in different genes allows us to conclude that the element occurs in one and the same orientation and is involved in maturation of 3' domain of different mRNAs, thus specifying precise excision, splicing, and polyadenylation (Tchurikov et al., EMBO J., 9, 2341-2347, 1986). So, suffix presents the only known example of mobile element with known cellular function. That is why it was attractive for us to study evolution of its sequences using computer search of current nucleotide data bases. We observed the homology between the central domain from plus strand of the element and 16S ribosomal RNA stretches in a group of bacteria. These bacteria have close association with eukaryotic cells and are capable of growing only inside eukaryotic cells (so-called endosymbionts). They are mainly associated with arthropods or other invertebrate hosts. The data suggest the origin of this domain of the suffix from DNA or RNA sequences of microbial organism by horizontal transfer. The suffix was found to appear in opposite polarity comparing with the coding sequence in F and DOC *Drosophila* retroelements, specifying the reverse transcriptase C-domain and supplying the elements with both stop codon and polyadenylation signal. Thus, the suffix incorporates an ancient domain and in different orientations it functions as a regulatory or coding sequence in the nuclei and cytoplasm. The data on evolution of this retroelement are clearly inconsistent with the selfish DNA paradigm. Really, the retroelements may suit as the material for genome evolution.

1997 update: CYTOMETRY AND CHROMOSOME ISOLATION

Head Andrei I. Poletaev, Ph.D.

The work of the Unit was focused on the problems of human genome studies at the chromosomal level. These problems can be formulated as "chromosometry". During the past few years the works on quantitative analysis of human chromosomes (Kravatskii, Poletaev, *Molekularnaya Biologiya*, 28, 887-899, 1994; Kravatskii, Kuznetsova, Nasedkina, Poletaev, *Molekularnaya Biologiya*, 30, 192-208, 1996) by laser flow cytometry have been carried out. The experimental results (flow karyotypes) obtained along with the developed procedures of computer data analysis can reveal small differences in chromosomes size (0.3-0.5%, 200-500 kb), that cannot be achieved by other methods. Such quantitative analysis of karyotypes makes it possible to get the highest accuracy in determination of the size of chromosomes and to trace the minimal structural rearrangement in karyotype. The elaboration of a new technology for investigation of human chromosomes, "the cell-by-cell flow analysis of chromosome sets" is under way. Unlike traditional studies of metaphase chromosome suspensions obtained from millions of mitotic cells, the principal features of the approach are based on the preparation of mitotic

cells with intracellular staining of chromosomes and single cell membrane rupturing prior to flow fluorescence analysis. This approach combines the high performance of flow cytometry (quantitation and high throughput) with the advantages of image analysis (cell to cell karyotype analysis and skill of trained cytogeneticist) (Zenin, Aksenov, Shatrova, Klopov, Cram, Poletaev, DOE Human Genome Program, Contractor-Grantee Workshop V, Santa Fe, New Mexico, 112, 1996). This work is carried out within the frames of international cooperation with the laboratories of the USA, France, and Netherlands. In addition, the development of a new approach to the high-rate isolation of individual human chromosomes, "optical sorting" able to provide the 30-50-fold increase of the rate of individual chromosome material isolation as compared with other existing methods, is also under way. The work is also carried out within the frames of international cooperation with LANL (USA). To localize short DNA-probes on chromosomes or interphase chromatin a new technology of hybridization in situ is developed as well. This work is based on the usage of photo-anchored nucleotide analogues (Poletaev, Nasedkina, Malkov, Godovikova, Knorre; Abstr. of French-Russian Symp. on Regulation of Gene Expression 1995 (1-5 July), Novosibirsk, p.16). 'ovalent bonds between the probe and a homologous fragment of genomic DNA make possible visualisation of the probe location on genomic DNA using massive "molecular antenna". The aim of the work is to map the short (50-200 bp) unique probes on genomic DNA. The group is also involved in supplying other laboratories of the Institute with cytometric measurements such as studying the cell cycle, phenotyping of cells and analysis of their viability. The group is supported by grants of the Russian National Human Genome Program, INTAS, and OHER DOE USA.

(2.) The Immuno-chemistry and Hybridomas Group under Timur E. Semenov, D. PM. S., graduated from the Physical Department of Moscow State University in 1984 and joined the institute as a postgraduate student that same year. He defended his thesis on electron microscopic studies of DNA complexes with synthetic oligopeptides in 1988. His current interests are in DNA compaction: structural organization and biological role, development of immuno-chemical and immuno-cytochemical methods of detection of biological macromolecules in the cell, and immunological approaches in the study of DNA-containing structure.

1997 update: IMMUNOCHEMISTRY AND ELECTRON MICROSCOPY
Head Timur E. Semenov, Ph.D.

In 1995 the group continued electron microscopic investigations of DNA interaction with peptides having different types of secondary structure. The structure of DNA associates within complexes with groups of peptides modelling DNA-binding domains of transcription repressors and activators (groups of peptides Iun and Ioc incorporating characteristic -structure motifs). The organization of unusual compact structures formed are described, the distinctions in the cyclic and linear peptide interactions with DNA are revealed. The work is supported by Russian Foundation for Basic Research grant and is carried out in collaboration with the Laboratory of DNA-Protein Recognition. Formation of a new type of DNA homo- and heteroquadruplexes upon trivalent oligomer binding was studied using electron microscopy and optical methods. Evidently, homoquadruplexes of this type are stabilized by nucleic-nucleic interactions. These investigations are focused at modelling the processes happening with DNA during cell division and genetic recombination (in cooperation with S.A. Streltsov, Laboratory of Physics of Biopolymers). The isolation and characterization of proteins bound to the *Crithidia fasciculata* kinetoplast DNA and involved in its intracellular functioning is carried out within the frames of studying the DNA and DNA-protein complex compaction.

Protein fractions bound to kinetoplast DNA were studied by chromatography and electrophoresis. Some of them exhibited pronounced topoisomerase and endonuclease activities. Compact fractions of kinetoplast DNA formed upon its interaction both with H1 histone from rat liver and calf thymus, and with the kinetoplastid nuclear fraction enriched with histones were also studied. The work was supported by the ISF grant (the grant supervisor L.P. Martinkina). The Group member S.M. Vorob'ev in cooperation with V.I. Popenko (Group of Electron Microscopy) studied functioning of some structural proteins of HIV-1 during the viral genome replication. During 1995 members of the Group published four reports in the Proceedings of international scientific conferences, and two articles were prepared for foreign journals.

(3.) The Condensed State of Nucleic Acids Group under Dr. Iurii M.

Yevdokimov, C. Biochem. S., graduated from the chemistry Department of the Moscow State University in 1961, and joined the institute as a postgraduate student in 1962. In 1967, he defended his thesis on thermodynamic and kinetic parameters of DNA denaturation in H₂O and D₂O. In 1991, he defended his dissertation on lyotropic liquid crystals of the double-stranded nucleic acids.

1997 update: CONDENSED STATE OF NUCLEIC ACIDS

Head Yuri M. Yevdokimov, Ph.D., D.Sc., Professor

A theory of abnormal optical properties of liquid-crystalline dispersions formed from the linear double-stranded DNA molecules was established. According to the theory, the abnormal optical activity, displayed as an intense band in CD spectrum, depends on such experimentally important parameters of the liquid-crystalline dispersions as the particle size, the sign and direction of the cholesteric helical pitch, in particular. The development of general principles regulating application of the liquid-crystalline dispersions formed by the DNA molecules complexed with coloured compounds as sensing elements (biosensing units) for biosensor devices continued. A new type of biosensing units based on the liquid-crystalline dispersions formed from the DNA molecules "crosslinked" by natural or synthetic polycations has been created. These "crosslinks" are "targets" for different biologically active compounds important for practical application. In preliminary experiments this type of biosensing units revealed a high (10⁻¹²-10⁻¹⁴ M) sensitivity in respect to some enzymes.

(4.) The Enzymology of Transcription Group under Sergei N. Kochetkov, D. Biochem. S. is Head of this research group that was formed in 1986 and that studies the mechanism of transcription by bacteriophage T7 RNA polymerase, and the cloning and expression of HIV-1 reverse transcriptase.

(5.) The Eukaryotic Gene Expression Group under Sergei A. Nedospasov, D. Biophysics S., who joined the institute in 1985 and graduated from the Physical-Technical Institute's Molecular Biophysics Department in 1976. He defended his thesis on the structure of virus-specific nucleoprotein complexes from the cells infected with Simian Virus 40 in 1980. In 1990, he defended his dissertation on approaches to the study of structure and function of eukaryotic genes and their chromatin organization: (i) Genes coding for tumor necrosis factors; ii) Mini-chromosome of the SV40 in 1990. He headed the Laboratory of Molecular Biology of Cytokines before this group was formed.

1997 update: MOLECULAR BIOLOGY OF CYTOKINES

Head Sergei A. Nedospasov, Ph.D., D.Sc.

In 1995 the group continued studies of the regulatory elements and proteins responsible for the Tumor Necrosis Factor (TNF) gene inducible transcription in macrophages. Complex functional organization of human TNF promoter that allows different levels of activation in response to variable stimuli has been determined. In addition, an enhancer located downstream of TNF gene has been characterised. Population studies revealed TNF alleles associated with the insulin-dependent diabetes (IDDM). However, this approach didn't allow to discriminate between the contribution of TNF polymorphism and that of the linked MHC genes. Functional analysis of the TNF promoter constructs in macrophages didn't reveal differences between the two natural alleles. The study of the TNF receptor allele distribution in several ethnic groups revealed two alleles associated with the systemic lupus erythematosus (SLE) in North American population. The investigation of tissue-specific expression and transcriptional regulation of lymphotoxin-beta (LT-beta) gene resulted in the detection of adult and embryonal mouse tissues constitutively expressing LT-beta gene and in functional characterization of LT-beta promoter in lymphocytes. Beginning from 1994, a new project aimed at the developing mouse strains with the TNF gene family deletions has been initiated. By the end of 1995, homozygous mice with targeted deletion of LT-beta and LT-alpha genes were obtained and preliminarily characterized. In addition, breeding of mice with deletions of all three TNF genes was initiated.

6.) Isotope Investigations Group under Dr. R. N. Maslova was organized in 1986 on the basis of the Isotope Methods Laboratory of the institute. The group investigates the structural peculiarities of the double stranded polynucleotides, the genome DNA inheritance in some parthenogenetic reptile species, and the structural and energetic parameters of biological molecules by mass-spectrometric methods.

1997 update: ISOTOPIC INVESTIGATIONS

Head Raissa N. Maslova, Ph.D.

The conditions for additional purification and stabilization of ^{32}P -dATP aqueous solutions, suitable for multiprime systems, were developed. A large scale determination of control figures specifying the quality of these preparations was carried out. The method developed allows us to obtain the preparations exhibiting for a fortnight in a concentrated aqueous stabilized solution such high quality parameters as ^{32}P -labeled high molecular weight (over 50 bp) product the fraction of which in the multiprime system is no less than 50%. The usage of the plasma desorption mass-spectrometer MSBX allowed us to study compounds of different classes synthesized or isolated by the scientists of our Institute. They include intermediate products of the fluorescence labelled and termination substrates of polymerase reactions (of purine series), DNA-binding dyes, as well as anti-HIV drugs, the structures of which were confirmed. In addition, molecular mass values of some peptides, proteins, nucleotides and oligonucleotides were estimated. Over 500 analyses were done. The investigation of highly repetitive DNA regions both by the restriction endonuclease mapping (DNA taxoprinting) and PCR-RAPD method continued. The main attention was paid to establishing the molecular genetic relations of parthenogenetic and some bisexual species in the group of Caucasian rock lizards. The results are in favour of the hypothesis of hybridogeneous origin of parthenoclones from bisexual species determined by us. A preliminary phylogenetic tree for about 20 Lacertidae species was suggested on the basis of comparison of taxoprints obtained with more than 10 restriction endonucleases. Two papers were published and two prepared for publication.

(7.) The Protein Engineering Group under Dr. M. P. Kirpichnikov who leads this team of researchers who focus on DNA-protein interaction and DNA-binding proteins; protein engineering of the growth hormone and ribonucleases; gene construction and expression of de novo proteins with desired properties, and the theoretical analysis of protein sequences of hormones and viruses. The institute also houses the Russian Human Genome Office, the Russian Academy's Scientific Council on Molecular Biology, and the Russian Biochemical Society.

1997 update: PROTEIN ENGINEERING

Head Professor Mikhail P. Kirpichnikov, Corresponding Member of the Russian Academy of Sciences

In 1995 the Group continued the work on the engineering and investigation of de novo proteins with predesigned properties. New plasmid vectors have been constructed for expression of the first biologically active protein albebetin incorporating an interferon fragment. This protein activates the thymocyte blast transformation at a concentration as low as 10⁻¹¹ U. A modified version of albebetin including the isoleucine residue ahead of the active fragment has been constructed and obtained in sufficient amount. Biological testing of the modified albebetin is in progress. Physical investigation of albebetin revealed temperature transition similar to the cold denaturation of natural proteins. Structure-functional investigations on human growth hormone continued. Using an original "homologue recombination" method, more than 30 different hybrid growth hormones composed of human (hGH) and porcine growth hormone (pGH) fragments were obtained. New efficient vectors for the hybrid genes overproduction in E. coli were constructed. To obtain water soluble forms of the hormones suitable growth conditions were developed: the hormone overproducing E.coli strains were grown in enriched culture mediums with or without induction in the interval from 80 °C to room temperature. The introduction of mutations alters the on GH chromatographic behavior, for this reason appropriate purification procedures for each mutant were developed. The hybrid GH mitogen activity was measured in the Nb2-11C lymphoma cells test. The variant (1-11)hGH-(12-35)pGH-(36-191)hGH retains full mitogen activity. At the same time, the activity of the hybrids (1-11)hGH-(12-95)pGH-(96-191)hGH and (1-144)hGH-(145-191)hGH was not detected in the test. Using the same "homologue recombination" method, a set of hybrid bacterial RNases barnase(Ba)\binase(Bi) was obtained. New efficient vectors for the RNase overproduction of in E.coli were constructed and original purification procedures were developed. All the hybrid RNases (1-24)Ba(25-110)Bi, (1-72)Ba(73-110)Bi, (1-24)Ba(25-72)Bi(73-110)Ba and (1-72)Bi(73-110)Ba were purified in preparative amounts. Preliminary thermodynamic and kinetic characteristics of the hybrids were determined.

(Information provided by a letter dated February 14, 1992, and enclosed materials from Dr. Emma Tolosa, Head of the information Department of the Molecular Biology Institute in Moscow. See also: Institut Molekuliarnoi biologii imeni V. A. Engel'gardta, 1959-1989. Moscow: Institute of Molecular Biology, 1990, 146 pp.)



8. Mathematical Problems of Biology in Puschino
(Formerly: Computer Center in Pushchino.)

Located in Puschino in the Moscow region, 142292. Directed by Professor Albert M. Molchanov.

Jointly subordinate to the Information Science, Computer Technology and Automation Department of the Academy. No date for founding given in source--probably established in the late '60s. Provides computer support for the Pushchino biological science research complex. Director Molchanov, Albert M., D. PM. S., since 1973.



9. Biochemistry and Physiology of Microorganisms Institute in Pushchino.

Located in the Moscow region at Puschino, 142292. For telegrams: Moscow region, Puschino, 142292. Fax: 923-36-02. Directed by Corresponding Member Aleksandr M. Boronin.

Boronin, Aleksandr M., D. Bio. S. Born in 1937. Corresponding member of the Geochemistry, Geophysics, and Chemistry of Physiologically Active Compounds Department of the Academy in 1993. Since 1979, he has headed the Extrachromosomal Heredity of Microorganisms Department and within that he has led research in the Plasmid Biology Laboratory. studies the proliferation, functional significance, the classification, and the structure and evolution of Gram-negative bacterial plasmids, mostly of fluorescent pseudomonads. Scientists under his direction study the genetics of microbial degradation of organic compounds and the genetics of cellulose biodegradation. They also investigate the genetics and physiology of rhizospheric pseudomonads with the result of increasing crop yields. Since 1988, he has been Director of the Biochemistry and Physiology of Microorganisms Institute in Puschino, which was established in 1964 and is subordinate to the former Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department of the Academy).

Retrospect: Founded in 1965. headed by academician Georgii K. Skriabin from 1968 to 1988, the institute grew from the three departments of Biochemistry, Biophysics and Chemistry of Physiologically Compounds to departments which in 1991, incorporated some four laboratories and a pilot plant, 14 independent laboratories, a patent office, a department of international cooperation, a computer center, and an editorial and publishing group. In 1988, Professor Aleksandr M. Boronin was named Director of the institute. Altogether institute personnel numbered a total of 760 persons of whom some 250 were research scientists. Major research thrusts of the institute are in molecular biology and molecular genetics of microorganisms, biotechnology, microbial metabolism and its regulation, the physiology of microorganisms, the use of microbial potential for environmental protection, and the microbial genofond. Some important activities and responsibilities of the institute include: environmental protection--microbial degradation of xenobiotics and industrial wastes; the development and maintenance of the All-Union Collection of Microorganisms; investigation of the biosynthesis of enzymes, proteins and lipids by microorganisms including strains obtained by genetic engineering; the construction of vectors, recombinant DNAs, useful microbial strains, transfer of genetic material in to plants, and overproduction of enzymes and metabolites; the monitoring of microbial cultures using physico-chemical and chemical methods of analysis; and the development of equipment for cultivation and disintegration of microorganisms. In their work, institute scientists use NMR, IR-and UV-

spectroscopy, mass-spectrometry, electron microscopy and other advance scientific instrumentation. The institute scientists maintain wide international contacts involving collaborative research and exchanges.

(older material)

Institute Structure and Scientific Personnel: Director Boronin, Aleksandr M., D. Bio. S., 'September '88--in 1979, he headed the Extra Chromosomal Heredity of Microorganisms laboratory, and in 1990 he headed the laboratory of Plasmid Biology Laboratory of the institute; Deputy Directors for science: Vasili K. Akimenko, D. Bio. S.--also Head of the Anaerobic Processes Laboratory; and, Iurii N. Mshenskii, D. Bio. S.,--also in charge of the Biotechnological Research Center of the institute; Aleksei B. Davidov (for management); Chief Engineer Aleksandr V. Lomakin; and Institute Scientific Secretary Dr. Viktor A. Bondar, D. Bio. S.

Department of "All-Union Culture Collection": Under Professor L. V. Kalakutskii, D. Bio. S., corresponding member of the AN SSSR Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) since 1987. The department presently houses about 25-- microbial species (8000 strains), and is the main source for providing pure cultures for research and educational institutes, laboratories and enterprises of ministries and institutions. Over 4000 strains are issued each year. The "Collection" operates under the Budapest Treaty in the international arena, and is currently establishing a data bank of microbial strains of the collections of the former Comecon countries. In its research stress is place on improving methods of maintaining and identifying microorganisms, and solving taxonomic problems. The staff numbers 37 leading researchers, senior researchers, researchers, and junior researchers.

Kalakutskii, Lev V., D. Bio. S. Born in 1932. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy since December 1987. Since 1977, Chief of the Microbial Ontogenesis Department of the Biochemistry and Physiology of Microorganisms Institute in Puschino--now the "All-Union Collection of Microorganisms" (VKM) Department of the Biochemistry and Physiology of Microorganisms Institute in Pushchino. The department collects, studies, maintains and supplies non-pathogenic and non-quarantine microorganisms for various institutions and scientists. Its research program provides original descriptions of a number of microbial genera and species. It was the first institute in Russia to work with nitrogen-fixing symbiants of non-pulse plants. The staff of the department numbers about 40 scientists.

The Regulation of Biochemical Processes in Microorganisms Laboratory: Under Professor I. S. Kulaev, D. Bio. S., corresponding member of the AN SSSR Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) since 1987. The research staff numbered 16 in 1990, who studied the biogenesis and mechanisms of translocation via the microbial cell envelope of enzymes and other physiologically essential molecules as well as low-molecular metabolites and ions, and the energetics of these processes, the role of membranes in their regulation; and, investigated the properties of secreted proteins and polyenzyme complexes of practical importance.

Kulaev, Igor S., D. Bio. S., Born in 1930. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy since December 1987. In 1990, he was head of Regulation of Biochemical Processes Laboratory of the Biochemistry and Physiology of Microorganisms Institute of the Russian Academy of Sciences in Pushchino, which studies the molecular bases of biogenesis and the mechanisms of translocation of proteins, enzymes, polyenzyme complexes and other biopolymers via the microbial cell envelope. Its scientists have discovered new reactions of biosynthesis of the yeast envelope components (mannoproteins, polyphosphates) and the regulatory function of ATP in coordination of these reactions. It has cooperated with the Institute of Organic Synthesis of the Latvian Academy of Sciences in developing the technology for the production of a lysoamidase drug used to treat wounds, burns and other skin defects, infected by Gram-positive cocci, first of all by staphylococci. (LDA 89-11378.)

The Plasmids Biology Laboratory: Under Professor A. M. Boronin, D. Bio. S. With a staff of 13 researchers, the laboratory researches the organization of genetic degradative systems and the development of a basis for designing bacterial strains capable of effective degradation of xenobiotics; the genetic organization of plasmids with the broad bacterial host range; genes and transposons of drug resistance; and, genetics of rhizospheric and phytopathogenic pseudomonads.

The Genetic Enzymology Laboratory: Under V. I. Tanyashin, D. Bio. S. Research personnel numbered 17 scientists who study the structure and function of the genes of microbial enzymes combining the methods of molecular cloning, directed mutagenesis, and the sequencing and synthesis of DNA.

The Genetic Engineering Laboratory: Under I. I. Fodor, D. Bio. S. The 11 scientists of this laboratory research cloning and the expression of key genes of Raus sarcoma retrovirus, human immuno-deficiency as well as hepatitis B, and the functional and antigen properties of recombinant virus proteins; develop novel systems of heterologous gene expressions in the eukaryotic cell using virus nature vectors (smallpox vaccine, adenovirus etc.); and develop novel approaches to genetic engineering of the E. Coli cell.

The Molecular Genetics of Plant-Microbe Interaction Laboratory: Under Professor Ia. I. Buryanov, D. Bio. S. With a research staff of 12 persons, the laboratory conducts molecular and genetic research into agrobacteria and associated works on plant genetic engineering; into nodule bacteria and associated works on constructing rhizobial strains for agriculture; into DNA enzymatic methylation and construction of the strains superproducing modification and restriction enzymes--alto the end of understanding the interaction of between these essential microorganisms and plants.

The Enzymatic Degradation of Organic Compounds Laboratory: Under Professor L. A. Gologleva, D. Bio. S. The laboratory's nine researchers study the regularities of microbial interactions with foreign compounds--the development of the scientific basis for using microorganism (including those produced by gene engineering methods) in degrading persistent pollutants; the prolonged effect of xenobiotics on natural microbiocenoses; and the revelation of the micro-flora shifts at the selective pressure of a toxicant--the enzymology of the decomposition of the persistent hard-to-degrade natural polymer lignin by the fungi *Panus tigrinus* and *Coriolus*--and the biosynthesis of the biological means of plant protection using microorganisms (its regulation and optimization.)

Laboratory of Immobilized Microorganism headed by Dr. K. A. Koshcheenko, D. Bio. S., who, also heads the "Transformation of Organic Compounds by Immobilized Cells Group" The laboratory has some nine researchers whose studies deal with the physiological-biochemical and physiological-morphological basis of

the regulation of the enzymatic activity of free and immobilized microorganism transforming various steroid and indole compounds as well as transforming glucose to 1-keto-D-gluconic acid and D-sorbitol to D-sorbitol.

The Anaerobic Processes Laboratory: Under Dr. V. K. Akimenko, D. Bio. S. Its nine researchers study the development of the theoretical basis of the plant's raw material direct conversion by anaerobic bacteria in order to produce cellulolytic enzymes and ethanol; are establishing a collection of methanogenic bacterial strains and their consortia for studying the physiological basis of syntrophic relationships in a methanogenic community in an effort to optimize methanogenesis processes; and are elucidating the regulatory features of oxidative and energy metabolisms in microorganisms for improving control over intermediate and metabolite over synthesis.

The Microbial Physiology Laboratory: Under Professor Evgeni L. Golovlev, D. Bio. S. The 18-member research staff studies the mechanisms of regulation of the basic physiological processes in microorganisms--the rate and efficiency of culture growth, enzyme biosynthesis, synthesis of reserve substances, the transformation and degradation of foreign compounds.

The Oxidative Processes Laboratory: Under Dr. T. V. Finogenova, D. Bio. S. With a small staff of six researchers, the laboratory studies the functioning and compartmentalization of oxidative and energy metabolism enzymes in the cells of various types of yeasts--fomenting and non-fomenting--and their dependence on the carbon source in the medium and the growth-limiting factor.

The Biochemistry of Membrane Processes Laboratory: Under Dr. L. A. Okorokov, D. Bio. S. Its five scientists study the mechanisms of transport via microbial membranes; methods of transport energization; mechanisms of transfer and realization of signals at the level of the membrane; activity regulation of the transport systems; and mechanisms of the involvement of the membranes, their lipids and proteins (ion pump and channel carriers, receptors, regulatory proteins and enzymes) in the microbial cell metabolism and its regulation.

THE DEPARTMENT OF MICROBIAL TECHNOLOGY: Under Dr. V. A. Ezhov, D. Tech. S. The department is comprised of the Laboratory of Microbial Technology and the pilot plant of the institute. The basic work of the department is the development of biotechnological processes of obtaining practical valuable products using microorganisms. The pilot plant produces high purity microbial metabolites and biomasses for medico-biological and scientific research by other units of the institute.

The Microbial Technology Laboratory: Under Dr. Vladimir A. Ezhov, D. Tech. S. In 1990, this was a department of the institute. Its researchers work closely with the pilot plant in the development of technologies of commercial substances from microbial production.

The Pilot Plant: Under Irina E. Luzina. Its workers, together with scientists from the laboratories of the institute, develop the technologies of microbial metabolites production which includes: the development of a complex of lytic enzymes to control infection of human mucous membranes and wounds; the production of a human growth hormone using a E. Coli recombinant strain; the production of ergot alkaloid elimoclavine using submerged cultivation of the *Calviceps* species saprophyte culture; and the production of yeast invertase for sugar inversion.

The Fermentation Microbiology Laboratory: Under Professor Valeri K. Eroshin, D. Bio. S. The laboratory had 12 researchers in 1990. The main research conducted in the laboratory deals with the establishment of the regularities of microbial growth in continuous cultures.

Department of Physico-chemical and Chemical Methods of Research: Under Dr. A. G. Kozlovskii, D. Bio. S. (listed as a senior researcher in the Bioorganic Chemistry Laboratory in 1975 and Deputy Director of the institute in 1983.) This department--with a research staff of 20 scientists includes two laboratories and the Instrumental Research Methods Group. The laboratories are:

The Biosynthesis of Biologically Active Compounds: Under Dr. Anatoli G. Kozlovskii, D. Bio. S. With a research staff of eight the laboratory concentrates on searching out previously unknown fungi producing novel as well as already known physiologically active compounds, including alkaloids and establishing their structure.

The Laboratory of Mass Spectrometric Monitoring: Under Dr. A. M. Zyakun, D. Chem. S. Its four researchers develop methodological approaches to the determination of kinetic characteristics of microbial cultivation, identification and establishing of structure of microbial biosynthesis products based on isotope and organic mass-spectrometry.

Instrumental Methods of Research Group: There are six researchers in this group which has been responsible for developing a method of quantitative determination of the content of some intracellular metabolites in microorganisms using high resolution NMR spectroscopy, and for the wide use of gas chromatography, high resolution liquid chromatography, and methods of FTIR and UV automatic absorption spectroscopy in the analysis of products of microbial transformation of biologically active compound.

The Radioactive Isotopes Laboratory: Under Dr. Iurii A. Trotsenko, D. Bio. S. In addition to providing radioactive and stable isotope work for the other units of the institute, the six scientists of this laboratory conduct research associated with the features of the biology and metabolism of methylotrophic microorganisms grown on methane, methanol or methylated amines.

Biotechnological Research Center: Iurii N. Mshenskii, C. Bio. S. and Assistant Head on design and technology: Iurii V. Redikultsev. The primary tasks of this center involve the physiology of microorganisms performing processes of microbial degradation and biotransformation, the development of a scientific basis for prospective biotechnological processes, the development of algorithms and electronic systems for controlling these processes, and working out technologies and models of fermentation equipment at the pilot level. The institute has organized a "Task Team" and a number of "Task Research Groups" which permits greater concentration of a particular research area with a wider collaborative research approach.

The Microbial Metabolism of Xenobiotic Compounds Task Team headed by Dr. I. I. Starovoytov, D. Bio. S., is comprised of six researchers who work on establishing a collection (bank) of microorganisms which decompose xenobiotics, study the metabolism of xenobiotics, study the genetic control of xenobiotics' metabolism, develop the structural and functional profiles of metabolic plasmids, develop the scientific basis of the biotechnology of industrial waste water purification, and establish a data bank on microbial metabolism of aromatic compounds.

The Biochemistry of Secretion Processes in Bacteria Task Research Group: Under Dr. M. A. Nesmeyanova, (Nesmeianova) D. Bio. S. This group studies the mechanism of protein secretion across membranes in bacteria.

The Molecular Biology of Bacterial Immuno-modulators Task Research Group: Dr. N. P. Kuzmin, D. Bio. S. The group concentrates on cloning and

identifying genes of bacterial cytolysins, investigates the creation of vaccines and immuno-modulators based on bacterial cytolysins, studies the mechanisms of functioning of biologically active protein molecules, studies the cytolysin immuno-modulating properties for various types of immune system cells in vitro, and studies the development of immune responses at viral and bacterial infections by mathematical modeling. It is developing evaluation methods for determination of human immune status.

The Cytology and Biochemistry of Membrane Processes Group: Under Dr. A. B. Tsiomenko, C. Bio. S. The group studies the secretion of proteins and macromolecular complexes in microorganisms, and uses electron microscopy in the study of localization and mechanisms of intracellular transport of proteins and other biopolymers.

The Engineering and Technical Center: Under A. E. Golubitskii. The Center develops and makes devices, and models of pilot patterns of new research equipment and keeps all equipment in working order.

The Computer Center: Under S. V. Lysakov. The center develops data banks--the Central Information Bank of Microorganisms; develops software for ;mathematical processing of information by research equipment; assists in the development of automation of the fermentation units; and is developing a multi-channel communication system with the National Information Retrieval Center and with the organizations and institutes of the Research Center in Pushchino.

The Nutrient Media Laboratory: Under Ninel I. Santsevich. The laboratory provides sterilized nutrient media for cultivation of microorganisms and cell cultures using membrane microfiltration and works on the construction of novel nutrient media to meet the growing needs of the research scientists of the institute.

Patent Department: L. C. Beliakova. The department gathers patent information on inventions in the field of microbiology, biochemistry, and molecular biology in the world; conducts patent studies jointly with research units of the institute; provides legal protection of inventions of institute personnel in the USSR and abroad; and helps to introduce and license institute inventions at home and abroad. In accomplishing these ends, the institute uses the computerized biotechnology-information retrieval system "Parol" which was developed in the department together with the Computer Research Center of the AN SSSR. The system "Parol" services over 400 users from 75 organizations of the USSR, academies of the Union Republics, the Ministry for Medical and Biological Industry, and other agencies by providing them with patent information published after 1980.

International Scientific and Technical Cooperation Department: L. V. Tsvetnitskii. The institute has worked out and signed direct agreements with research institutions from Hungary, Germany, Bulgaria, Poland, and Czechoslovakia, India, and Finland. Specialists of the department organize conferences, workshops and symposia with the participation of foreign scientists.

Editorial and Publishing Group: Dr. V. A. Bondar, D. Biol. S. This group draws up the editorial and publishing schedule of the institute; prepares papers, monographs, proceedings, information bulletins, and other printed material for the institute; and, using computerized and automated database systems processes printed material and publications of the institute's researchers over the period since 1965.

(Institute of Biochemistry and Physiology of Microorganisms USSR Academy of Sciences, Puschino: Biological Center Institute of Biochemistry and Physiology of Microorganisms, 1990. 47 pp.)



10. Protein Research Institute in Pushchino.

Located in the Moscow region at Puschino, 142292. Fax: 924-04-93. Tel. 3-05-42 (P.) Directed by Aleksandr S. Spirin. Tel. 924-04-93.

Spirin, Aleksandr S., D. Bio S. Born in 1931 in Kaliningrad, Moscow Oblast. Russian biochemist. Academician of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the AN SSSR (now the Physical and Chemical Biology Department) and the RAN since 1970. He graduated from Moscow State University in 1954, where he studied under A. N. Belozerskii. From 1962 to 1967, he was head of a laboratory at the A. N. Bakh Institute of Biochemistry of the AN SSSR. Since 1967, he has been director of the Pushchino Protein Research Institute that was established in 1967 as one of four institutes comprising the Science Research Center at Pushchino. It conducts research on protein structure and the biosynthesis of polypeptide chains. Since 1974, he has also been Chief of the Mechanisms of Protein Biosynthesis laboratory of the institute. His works are in the biochemistry of nucleic acids and the biosynthesis of proteins. Lenin Prize, 1976. (GSE 24, p. 426.)

Retrospect: The institute was founded in 1967 to develop fundamental research on problems of protein. In 1991, the institute was comprised of nine laboratories and 13 research groups. It had a computer center, a scientific information department and several auxiliary support units. Total staff numbered 340 of whom 77 were research scientists and 50 were post graduate students--the balance being engineers, laboratory assistants, and technical and service Personnel. A Scientific Council develops the main research programs, reviews research proposals, hears progress reports, and determines the structure of the institute.

(Older material)

Structure and Scientific Personnel: Director Aleksandr S. Spirin, D. Bio. S., since '67--academician of the AN SSSR; Deputy Directors: Professor Lev P. Ovchinnikov, Iurii V. Mitin, D. Chem. S., since '74; Oleg B. Ptitsin, D. PM. S., since '74; Vitali N. Shaklunov, since '74; Scientific Secretary: Aleksandr V. Efimov, C. Chem. S.

The Laboratory of Mechanisms of Protein Biosynthesis under Aleksandr S. Spirin, D. Bio. S.; Alexei G. Riazanov, D. Bio. S., senior researcher; Vladimir I. Baranov, C. PM. S., senior researcher; Lubov' A. Riabova, C. Bio. S., junior researcher; Oleg B. Iarchuk, C. Bio. S., junior researcher, and Viacheslav A. Kolb, junior researcher--the lab studies ribosome structure and function concentrating on bacterial ribosomes.

The Laboratory of Regulation of Protein Biosynthesis under Lev. P. Ovchinnikov, D. Bio. S., and corresponding member of the Russian Academy; Waldemar B. Minich, C. Bio. S., Elena K. Davidova, C. Bio. S., Albert S. Sitikov, C. Bio. S., and Oleg N. Denisenko, C. Bio. S. are all researchers in this laboratory whose main area of research includes the organization and functioning of

the translation apparatus of eukaryotes with special attention being paid to mRNP particles (informosomes), to elongation factors EF-1 and EF-2 and to ribosomes.

Ovchinnikov, Lev P., C. Bio. S., Born in 1943. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical Chemistry and Biology Department) of the Academy since December 1987. Since 1974, he has been a senior researcher in the Protein Biosynthesis Laboratory of the Protein Institute in Pushchino. In 1991, he was a Deputy Director of the Protein Research Institute and head of the Regulation of Protein Biosynthesis Laboratory of the institute whose main area of research includes the organization and functioning of the translation apparatus of eukaryotes with special attention being paid to mRNP particles (informosomes), to elongation factors EF-1 and EF-2 and to ribosomes.

The Laboratory of Molecular Genetics under Nicholas I Matvienko, D. Bio. S.; Daria P. Vorozheikina, C. Bio. S., researcher--studies the translation mechanism components in thermophile organisms utilizing gene engineering methods and monoclonal antibodies. The regulation of gene activity at the transcription level and the biological role of "anti-sense" RNA is being studied.

The Laboratory of Cell Biology under Vladimir I. Gelfand, D. Bio. S.; Eugene A. Vainberg, C. Bio. S. and Fatima K. Gioeva, C. Bio. S. are researchers in this laboratory which studies the cytoskeleton and mechanisms of cell motility. The Laboratory of Peptide Chemistry under Iuri V. Mitin, D. Chem. S.; Nina P. Zapevalova, C. Chem. S., Vera S. Grechishko, C. Chem. S., Viacheslav N. Medvedkin, C. Chem. S., and Elena Iurii Gorbunova, C. Chem. S. are researchers in the laboratory which develops methods of peptide synthesis, does synthesis of biologically active peptides, does peptides modeling of the secondary structure of proteins, and modifies proteins by methods of peptide chemistry.

The Laboratory of Protein Physics under Oleg B. Ptitsin, D. PM. S., was organized in 1967 at the same time as the institute; Valentina E. Bychkova, C. PM. S, Aleksei V. Finkelstein, C. PM. S, and Gennadi V. Semisotnov, C. PM. S. are researchers who are developing the theory of protein three-dimensional structure and the algorithm for the calculation of protein 3D-structure from its amino acid sequence, are investigating the main stages of the process of protein self-organization in the three dimensional structure from the completely structureless polypeptide chain, and in protein engineering are creating and studying new proteins with a given three-dimensional structure.

The Laboratory of Protein Thermodynamics under Peter L. Privalov, D. PM. S.; Sergei A. Potekhin, C. PM. S, Iuri V. Griko, C. PM. S, and Elizabeth I. Tiktopulo, C. PM. S. are researchers whose work involves the elucidation of the physical principles of folding and stabilizing of unique three-dimensional structures of biological macromolecules, proteins and nucleic acids. The ultimate goal is the creation of artificially stable protein structures.

The Laboratory of Protein Structure Analysis under Iuri N. Chirgadze, D. PM. S., professor of molecular biology; Stanislav V. Nikonov, C. PM. S., Natalia A. Nevskaiia (aya), C. PM. S., and Evgenii V. Brazhnikov, C. PM. S, are researchers studying the structural principles of the functioning of 3-D globular proteins at a high resolution using X-ray structure determination of proteins in the crystalline state.

The Laboratory of Nucleoprotein Physics under Igor N. Sterdiuk, D. PM. S.; Aleksandr A. Timchenko, C. PM. S., Mikhail Iurii Pavlov, C. PM. S., and Aleksandr M Gutin, are researchers in the laboratory who study the large-scale mobility of the ribosome in the process of translocation. They also study the internaflexibility of biological macromolecules in the process of functioning in a real-time scale as well as the process of RNA self-organization.

The Group of Protein Chemistry under Iulii B. Alakhov, D. Chem. S., and including Alexei N. Fedorov, C. Bio. S., and Ludmila P. Motuz, C. Chem. S. was organized in 1972 to study the protein primary structure and the connection between their structure and function.

The Electron Microscopy Group under Viktor D. Vasiliev, D. Bio. S., and including Sergei N. Riazantsev, Olga M. Selivanova, C. Bio. S., and Nikolai N. Kalnin, C. PM. S. concentrate on the structural organization of ribosomes using electron microscopy.

The Group of Functional Topography of Ribosomes under Aleksandr S. Girshovich, D. Chem. S. and including Elena S. Bochkareva, C. Chem. S., Nikolai M. Lissin, and Dmitri E. Bochkarev study the topography of ribosome functional centers and the dynamics of the interactions between the substrates and ligands of the translation mechanism and the ribosome. They are also investigating the mechanisms of molecular chaperon functioning.

The Group of Stereochemistry of Proteins and Nucleic Acids under Valerii I. Lim, D. Bio. S. with Andrei V. Kaiava, C. Bio. S. concentrate on determining the protein 3-D structure by its primary structure and do stereochemical studies of the ribosome elongation cycle and the translocation of proteins through membranes.

The Group of Protein Preparative Biochemistry under Maria B. Garber, C. Bio. S., concentrates on isolating and producing homogeneous proteins for experimental purposes--such as myoglobin, hemoglobin, cytochrome c, alkaline phosphatase and actin.

The Protein Spectroscopy Group under Sergei Iurii Veniaminov, C. PM. S. was taken from the Laboratory of Structural Analysis in 1976 and focuses its study on the structure and structural rearrangements of proteins, nucleic acids and their complexes in solution.

The Group of Supramolecular Protein Structure under Oleg V. Fedorov, C. PM. S. along with Alla S. Kostiukova, C. Bio. S., studies the formation of supramolecular protein structures and the mechanisms of structural rearrangements in molecular complexes.

The Group of Cellular Organization of the Protein-Synthesizing Apparatus under Lidia P. Gavrilova, D. Bio. S. with Aleksandr A. Minin, C. Bio. S. branched off from the Laboratory of Mechanisms of Protein Biosynthesis in 1984 and investigates the intra-cellular organization of the protein-synthesizing apparatus of eukaryotic cells, studying in the process the distribution of ribosomes and the translation factors in the cell and their possible interrelationship with the cell cytoskeleton structures.

The Group of Biochemistry of Viral RNA under Aleksandr B. Chetverin, C. Bio. S. together with Leonid A. Voronin, C. PM. S. and Aleksandr V. Munishkin, C. Bio. S. direct their research toward a new and promising field, the construction of

cell-free systems of autocatalytical RNA replication and extra cellular template engineering.

The Protein Engineering Group under the guidance of Anatolii T. Gudkov, D. Chem. S., together with Olga I. Griaznova, Natalia V. Murzina, C. Bio. S., and Mikhail G. Bubunenkov, C. Bio. S., focus their work on targeting replacements of amino acids in proteins for studies of structural and functional relationships in enzymes and other functional proteins.

The Ribosome Structure Group under Marat M. Iusupov, C. Bio. S., with Sultan Ch. Agalarov, C. Bio. S., and Vladimir A. Shirokov were created from the Laboratory of Mechanisms of Protein Biosynthesis in 1989. They concentrate on the ribosome structure using crystallographic methods of analysis (X-ray).

The Group of Organic Synthesis under Kim H. Zikhermann synthesizes currently unavailable or new compounds with a prescribed structure for the laboratories of the institute, producing, in particular the synthesis of diepoxybutane, a reagent widely applied in studying cross-linking techniques.

The Group of Cell-Free Biotechnology under Vladimir V. Filimonov, C. PM. S. along with Tamara N. Tsalkova, C. PM. S. was created in 1991 with the aim of developing both the cell-free system of protein synthesis and the application of this method in institute research.

The Scientific Information Department under Ariel G. Raiher provides a broad field of personalized informational, editorial and advisory services for institute scientists. (*Institute of Protein Research. Pushchino: Edited and published by the Department of Scientific and Technical Information of the Pushchino Scientific Center, 1991, 116 pp.*)



11. The Chemistry Institute in Gorkiy was established in 1969.



12. Molecular Genetics Institute in Moscow.

Located at 46 Akademika Kurchatova sq., D-182, Moscow, 123182. Fax: 196-02-21. Directed by Evgenii D. Sverdlov.

Retrospect: Created in 1977. Researches molecular structure of biopolymers and the enzymology of primary genetic processes. Since 1986, the Director has been Lev Iurii Budantsev, D. Bio. S. Since 1983, the Deputy Director has been Nikolai F. Miasoyedov, D. Chem. S.

(1996 Update)

Institute of Molecular Genetics

Russian Academy of Sciences

Colleagues

Doctor Valeri P. SHEVCHENKO

Laboratory of Isotopically Labeled Physiologically Active Compounds

Moscow, Russia

Professor Vladimir A. MAKAROV
Laboratory of Pathology of Hemostasis

Hematology Scientific Center
Russian Academy of Medical Sciences,
Moscow, RUSSIA

Professor Gennadii A. BUZNIKOV
Laboratory of Embryogenesis

Institute of Developmental Biology
Russian Academy of Sciences
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13. Biochemistry and Physiology of Plants and Microorganisms Institute in Saratov

Located at 13 Entuziastov ave., Saratov, 410015. Directed by Professor Vladimir U. Ignatov. Tel. 44-38-28, 44-73-03.

Retrospect: The institute was established in 1980. In early 1992, the staff of the institute numbered 160 specialists of whom 45 were research associates. Its scientists study the molecular bases of plant-microorganisms interactions, nitrogen soil-fixing microorganisms for improving yields in cereals, the plant cytoskeleton, the functional organization of the bacterial chemo-sensor systems, polysaccharides and complex biopolymers produced by non-pathogenic and phyto-pathogenic microorganisms, genosystematics of microorganisms--the taxonomic study of original strains isolated from cereals of the Saratov region--and, the microbial metabolism of anthropogenic compounds that contaminate the environment. Institute scientists are developing plant-bacterial systems for soil purification from herbicides and their residues and are creating Agricultural products that are free from contamination of herbicides. The Director of the institute is Professor Vladimir V. Ignatov, D. Bio. S., born in 1935, graduated from Saratov Medical Institute in 1960; received his Candidate degree in 1964, his doctorate in Biochemistry in 1975, and he has been a professor since 1976. His scientific interests are in studying the molecular aspects of plant-microbe interaction. The Deputy Director is Evgenii E. Fedorov, C. Chem. S. The Scientific Secretary is Larisa I. Krapivina, C. Biochem. S.

(older material)

Structure and Personnel: The institute is organized into seven laboratories--some with "groups"--two independent interdisciplinary groups, and in "service" divisions. The laboratories in 1992 were:

- (1.) The Biochemistry Laboratory** under Vladimir V. Ignatov, D. Biochem. S. with two groups: the group of plant biochemistry and **the group of biochemistry of microorganisms.** The Head of the plant biochemistry group is Galina I. Stadnik, C. Biochem. S. She graduated from the biological faculty of Saratov State University in 1967, receiving her candidate degree in biochemistry in 1983. Her field of scientific interest is studying plant proteins

participating in response adaptation reactions of plants to the interaction with various microorganisms.

the biochemistry of microorganisms group is headed by Liudmila P. Antoniuk, C. Biochem. S., who graduated from the biological faculty of Saratov State University in 1979, receiving her candidate degree in biochemistry in 1984. Her scientific interests cover the area of molecular mechanisms of plant and soil microorganism interactions, and the transmembrane signal transfer in cells of procaryotes.

(2.) **The Genetics of Microorganisms Laboratory** under Valerii I. Panasenko, D. Microbio. S., born in 1937, he graduated from the faculty of physics of Saratov State University, receiving his D. Microbiology S. in 1990. His interests are in the biophysics of microbial cells. The laboratory has two research groups:

the genetics of microorganisms group under Valerii I. Panasenko and **the soil microbiology and biological nitrogen group** (organized in 1989) under Mikail Chumakov, C. Micro. Bio. S., born in 1958, graduated from the biological faculty of the Saratov State University, receiving his candidate of sciences degree in microbiology in 1988. His professional interests are in the genetics of nitrogen-fixing bacteria, associative interactions with non-leguminous plants, monocotyledonous plants transformation, non-pathogenic agro-bacteria, and bacterial fertilizers.

(3.) **The Microbiology Laboratory** under Valentina E. Nikitina, C. Biochem. S., who graduated from the biological faculty of Saratov State University in 1968, receiving her candidate degree in biochemistry in 1977. Her scientific interests are in bacterial lectins of nitrogen-fixing microorganisms.

(4.) **The Physical Chemistry of Cell Structures Laboratory** (organized in 1984) under Sergei Iurii Shchyogolev, C. PM. S., who was born in 1946, graduated from the faculty of physics of Saratov State University in 1968, receiving his candidate degree in 1981. His interests are in the methods of physico-chemical and immuno-chemical analysis of microbial and viral molecular structure as applied to the problems of plant-microbe interaction and to the problems of diagnostics of human and animal diseases. The laboratory has three groups:

the biophysics group under Nikolai G. Khlebtsov, who was born in 1949, graduated from the faculty of physics of Saratov State University in 1972, receiving his candidate of sciences in physics degree in 1982. His areas of interest include optical methods for investigating structure, the aggregation and adsorption properties of biological disperse systems with random and induced orientation, and studying the fractionating properties of biological objects by light scattering methods.

the immuno-chemical and radio-isotope methods group under Larisa Iurii Matora, who graduated from the faculty of biology of Saratov State University in 1986. Her professional interests involve immuno-chemical and biochemical properties of cell surface of soil microorganisms and its dependence on molecular-genetic characteristics.

the physical chemistry of biopolymers group under Sergei A. Trushin, C. Chem. S., who was born in 1963, graduated from the chemistry faculty of Saratov State University in 1985, receiving his candidate degree in chemistry in 1990. His interests are in the surface structures of soil microorganisms and in the quantitative characteristics of their interaction with the components of plant cells.

(5.) **The Structural Methods Laboratory** under Sergei Iurii Shchyogolev, C. PM. S. The laboratory develops methods of immuno-chemical and immuno-cyto-chemical analysis as related to the problems of microbial symbiosis and plant immunity. Original theoretical and instrumental developments in spectroturbidimetry and electro-optics are carried out. Possible new approaches to the application of electro-optical effect to study electric properties of particles surfaces in diverse systems and adsorption processes, occurring on particles are being developed.

(6.) **The Plant Cell Physiology Laboratory** under Oleg I. Sokolov, C. Plant Phys. S., who was born in 1958, graduated from the biological faculty of the Saratov State University in 1980, receiving his candidate of sciences degree in plant physiology in 1988. His interests are in non-muscular forms of biological motility, and the organization and intracellular monitoring in plant cells.

(7.) **The Bioorganic Chemistry Laboratory** (organized in 1989), under Igor M. Skvortsov, D. Org. Chem. S., who was born in 1937, graduated from the faculty of chemistry of Saratov State University in 1959, receiving his doctorate of sciences degree in organic chemistry in 1990. His interests are in microbial polysaccharides and carbohydrate components of plant roots mucigel. The laboratory has two groups:

the group of polysaccharides and polysaccharide complexes headed by Igor N. Skvortsov, studies the fine mechanisms of plant-microorganisms interaction at the molecular level, and

the applied microbiology group under Valentina A. Larina, acts basically as a service subdivision for all groups and laboratories listed above. The two independent and interdisciplinary groups--both organized in 1989--are:

(1.) **The Group of Bio-energetic** under Igor B. Zhulin, C. Biochem. S., who was born in 1961, graduated from the biological faculty of Saratov State University in 1983, receiving his candidate of sciences degree in biochemistry in 1988, leads his group in studying the mechanisms of bacterial sensor reactions, and

(2.) **The Group of Genosystematics** under Valerii V. Nikiforov, C. Biochem. S., maintains an Azospirillum collection, isolated from the roots of grasses and cereals of the Saratov region containing 120 isolates that include strains with high level of nitrogen-fixing activity, strains producing biological active substances--phytohormones and lectins--are among these isolates. Since 1980, Vladimir V. Ignatov, D. Bio. S., has been Director of this institute. (**Information by letters from Professor V. Ignatov, Director, dated October 31 1991 and 27 April 1992.**)



14. Soil Science and Photosynthesis Institute in Pushchino

Located at Puschino, 142292, Moscow region. Directed by Professor Valentin I. Kefeli. Telephone: 923-35-58.

Retrospect: The institute was founded in 1982 by the combination of two research units-- the Institute of Photosynthesis (established in 1966) and the Institute of Agrochemistry and Soil Science (established in 1970).

(Older material)

Structure and Scientific Personnel: Director Professor Valentin I. Kefeli, D. Bio. S.; Deputy Directors: Valerii N. Kudeiarov, D. Bio. S.; Viacheslav V. Klimov, D. Bio. S.; Iurii E. Erokhin, C. Bio. S. The institute is organized into four major departments, each with a number of subsidiary laboratories.

(1.) The Department of Photosynthesis under Dr. Vladimir A. Shuvalov, D. Bio. S. has six laboratories:

The Primary Processes of Photosynthesis Laboratory;
The Photosynthetic Water Oxidation Laboratory;
The Carbon and Nitrogen Metabolism Laboratory;
The Bioenergy of Photosynthetic Processes Laboratory;
The Modeling of Primary Photosynthetic Reactions Laboratory.

Research in the laboratories includes the study of the ideas of mechanisms that underlie photo biological processes in order to create technological installations for light energy transformation and data storage, to carry out cell-free protein synthesis, to study the mechanisms of the action of damaging factors on the photosynthetic apparatus of plants, to evaluate the efficiency and concentration of herbicides, to fix ammonia from nitrogen of the air, and to monitor plant growth and photosynthesis.

(2.) The Department of Photo Biotechnology under Professor Dr. Ivan N. Gogotov--State Prize recipient--has three laboratories:

The Biochemistry and Biotechnology of Phototrophic Microorganisms Laboratory--under Ivan N. Gogotov, since '75;
The Hormonal Regulation of Plant Growth and Photosynthesis Laboratory, and
The Ecology and Physiology of Phototrophic Organism Laboratory.

The department also has four interdisciplinary research groups:

the kinetics of photosynthesis group,
the cell and tissue cultivation group,
the genetics of photosynthesis group, and
the oxygen transfer group.

Research among these scientists is aimed toward forming a basis for the industrial production of the biomass of phototrophic microorganisms with the final aim of obtaining valuable enzymes and physiologically active compounds to be employed in theurapeutics, agrobiotechnology and systems for solar energy bioconversion.

(3.) The Department of Agrochemistry under Dr. Valerii N. Kudeiarov, D. Bio. S., has four laboratories:

The Soil Cycles of Nitrogen Laboratory;
The Cycles of Carbon Laboratory;
The Enhancement of Crop Quality Laboratory, and
The Biogeochemistry of Agro-landscapes Laboratory.

The department also has five research groups:

the symbiotic and associative nitrogen fixation group,
the soils group,
the microbiology group,
the bioenergetic foundations of crop-growing intensification group,
the optimization of the productivity of agrocenoses group.

A separate group does chemical analyses for the department. Research in the department is attempting to solve the physico-chemical and ecological problems of the Polyfunctional character of agrochemicals that may be nutrient elements, contaminants, physiologically active compounds, and it is trying to establish the parameters of the ecologically optimal bioproductivity of the “soil-plant” system.

(4.) The Department of Experimental Soil Science under Dr. Igor V. Ivanov, D. Geol. S., has seven laboratories:

The Soil Genesis and Evolution Laboratory;
The Mass and Energy Transfer in Soils Laboratory;
The Transformation of Soil Organic Matter Laboratory;
The Soil Geochemistry and Mineralogy Laboratory;
The Soil Monitoring Laboratory;
The Soil Cryology Laboratory; and,
The Soil Cartography Laboratory.

The department also has three interdisciplinary groups:

the problems of modern soil processes group,
the physical regimes of soils group, and
modeling of biogeocenoses group.

Departmental research concentrates on the substance, process, soil body, and soil surface, following the geographic distribution of soils; studying the formation of soil over time; deciphering the mechanisms of soil processes and soil functioning in order to develop the theory of ecologically reasonable yields of different soils and of fertility improvement in agrocenoses. The institute has laid the groundwork for the development of a new scientific trend in Russia, that of experimental ecology.

Two research groups at the institute are dealing primarily with ecological problems. The institute houses the Russian Academy of Science Council on the Problems of Soil Science and Reclamation.

(Institute of Soil Science and Photosynthesis. Pushchino, : Scientific Center of Biological Research of the Academy of Sciences of the USSR, 1989, 12 pp. and Scientific Report. Pushchino, : Scientific Center of Biological Research of the Academy of Sciences of the USSR, 1990, 122 pp.) (Also see: Ruble, Vol. I., p. 285.)



15. [The Applied Molecular Biology Institute in Moscow was founded in 1985 from the Molecular Biology Institute, and Dr. Evgenii S. Severin, D. Chem. S., a Deputy Director of the Molecular Biology Institute, was named Director of the new institution that was then removed from the jurisdiction of the Russian Academy of

Sciences and subordinated to the Russian Ministry of Health. The Applied Molecular Biology Institute underwent a number of major reorganizations being combined with the Institute of Biomedical Research and Therapy, and the Institute for the Development and Introduction of Modern Methods of Molecular Diagnostics as well as a Research Production Complex of Ecological Monitoring into The Russian Research Center of Molecular Diagnostics and Therapy in 1991. In 1992, there were some 400 persons working at the center of whom some 200 were scientific researchers and of those more than 150 held doctoral degrees. The new organization in addition to becoming more interdisciplinary has broadened its scope of scientific investigations, expanded its pure biochemical research studies and developed more modern methods of diagnostic and clinical investigations and treatment. In addition to continuing to Head the Institute of Applied Molecular Biology, Dr. E. S. Severin was also made General Director of the new center upon its establishment. The Institute of Biomedical Research and Therapy is headed by Dr. A. V. Karaulov, Ph. D.; the Institute for Development and Introduction of Modern Methods of Molecular Diagnostics is headed by Dr. P. G. Sveshnikov, C. Chem. S., and the Research-Production Complex of Ecological Monitoring is headed by Dr. V. V. Pomazanov. Research at the center is conducted in the following fields: 1) the molecular and cellular mechanisms of the functioning of major organ systems and the mechanisms of disease correction with due regard to the special features of the human organism; 2) modern molecular-biological, biochemical, genetic and immunological methods for studying the effect of biologically active substances on the human individual; 3) methods of molecular diagnostics and the creation of highly sensitive and effective test systems for diagnosis of various diseases, including hereditary pathologies, and 4) the clinical use of newly created diagnostic systems, and the development of methods of analysis and recommendations for improving therapeutic uses in clinical practice. The Institute of Applied Molecular Biology is made up of nine major departments: 1) the Biomembranes Department--Professor Dr. A. S. Sobolev, Head--conducts research on the dynamics of membrane receptor proteins in the cell, lateral diffusion in the membrane, and transmembrane transfer and transport in membrane vesicles. This has led to the modeling of the viral pathway of DNA transport and to the successful transfection of a plasmid containing the gene of large T-antigen of SV40 virus into the nuclei of human hepatoma cells; 2) the Biochemistry Department--headed by Dr. Professor E. S. Severin has found new ways of directing transport of highly specific effectors for various cells such as hybrid molecules on the basis of bacterial or plant toxins and corresponding antibodies leading to the screening of receptor-specific toxins or "respeprins" and the therapeutic value of such an approach has been shown using staphylococcal enterotoxin A as such a component; 3) the Bioregulation Department--headed by Dr. A. V. Kabanov--has concentrated research on the chemical engineering of biopolymers for enhancing the efficiency of their intracellular translocation. To this end, protein molecules are modified with hydrophobic anchor groups, and artificially hydrophobized antiviral antibodies are shown to suppress virus reproduction in cells; 4) the Department of Molecular Pharmacology--headed by Dr. N. V. Porodenko--conducts basic studies on the receptors of neuro-mediators and neuro-modulators of human blood cells and other tissues; 5) the Department of Proteins and Peptides--Dr. V. P. Demushkin, Head-- studies the basis of reception, synthesis and function of biologically active peptides and products of peptide, amino acid and biogenic amine condensation within aldehydes as endogenous psychoactive and neurotoxic compounds; 6) the Neurobiology Department--headed by E. I. Melnik, C. Bio. S.--directs its efforts on the measurement of concentrations of basic mediator monoamines and their metabolites in blood, and the concentrations of endogenous ethanol in the normal state and during various

pathologies; 7) the Organic Synthesis Department--under Dr. L. N. Kryukov--develops new antidepressants, synthesizes fungicides, and studies biologically active compounds influencing carbohydrate metabolism, and various drugs, and 8) the Department of Drug Testing--headed by Dr. O. P. Plushch--is engaged in testing newly developed drug preparations, and 9) the Human Genetics Department under Dr. B. B. Safronov--studies the discrepancies in the primary structure of DNA in genes responsible for the development of a number of hereditary diseases. The Biomedical Research and Therapy Institute under Dr. A. V. Karaulov applies or maximizes the application of scientific discoveries to public health practices combining the efforts of the Clinical Department and the Clinic proper under Dr. I. E. Zykova, C. Med. S. The Department of Clinical Toxicology under Dr. A. F. Phytin develops new methods for molecular diagnosis of chemical poisoning. The Department conducts systematic investigations of the normal or background content of potentially toxic elements such as heavy metals, sulfur, arsenic, etc., in the biological media of patients, in particular in children of different ages and from different regions. The laboratory has experience in investigating causes of mass poisoning in Chernovtsy, Sillamyae, Zelenograd, and the Far East. The Institute for the Development and Introduction of Modern Methods of Molecular Diagnostics is headed by Dr. P. G. Shevshnikov. The Department of Molecular Biology--under Dr. V. I. Kiselev--searches for nontraditional approaches to the diagnosis, therapy and prophylaxis of viral infections. The Department of Cell Engineering--under Dr. S. I. Kalnov--explores the possibilities of using long proliferating lymphoblastoid B-lymphoma cell lines immortalized by Epstein-Barr virus as a model of intact lymphocytes. The Department of Biosensors--under Dr. I. N. Kurochkin--creates new biosensor systems, sensitive elements based upon electrodes, semiconductors, piezo-electric resonators with immobilized enzymes, microorganisms, antibodies, cellular organellas, intact cells and receptor preparations. The Research-Production Complex of Ecological Monitoring under Dr. V. V. Pomazanov creates medical diagnostic kits (enzyme immunoassay systems on the basis of mono- and polyclonal antibodies) that use various enzyme markers in the solid-phase enzyme immunoassay technique. The complex also investigates and develops new approaches and technical measures for the control of environmental quality and human health. These investigations are done under contracts with enterprises, and, as a result, emergency ecology analyses have been run for the presence of active substances in environmental samples taken from Ufa and Ekaterinburg (Sverdlovsk). (These materials are abstracted from materials provided by letter dated 12 February 1992 from Professor Director General E. S. Severin of the Russian Research Center of Molecular Diagnostics and Therapy in Moscow.)]



16. The Cell Biophysics Institute in Puschino

**Located in the Moscow region at Puschino, 142292. TGel. 3-90-01.
Directed by Professor Evgenii Ev. Fesenko.**

Established in 1991 in Pushchino under Evgenii E. Fesenko who had been since 1988 the Director of the Biophysics Institute from which this institute was created.



17. Theoretical and Experimental Biophysics Institute in Puschino

Located in Puschino, 142292, Moscow region. Directed by Corresponding Member Levon M. Chailakhian. Telephone 925-59-84.

The institute was established in 1991 from the Biophysics Institute and placed under the Directorship of Levon M. Chailakhian, D. Bio. S.

Chaylakhian, Levon M., D. Bio. S. Corresponding member of the Physical Chemistry and Biology Department of the Academy since 1984. He is currently head of the Theoretical and Experimental Biophysics Institute in Puschino which was established in 1991 from the Biophysics Institute.



18. Institute of Cytology in St. Petersburg

Located at 4 Tikhoretskii ave., K-64, St. Petersburg, 194064. Fax: 247-03-41. Directed by Academician Nikolai N. Nikoliskii. Telephone 247-18-29

Nikolskii, Nikolai N., D. Bio. S. Elected Academician of the former Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical Chemistry and Biology Department) of the Academy in 1993. He has been the Director of the Cytology Institute in St. Petersburg since 1988. Before the breakup of the Soviet Union, Nikolskii headed the Scientific Council of the Academy on the problems of cell biology. The Cell Cycle Physiology Laboratory of the institute, headed by Professor Nikolaskii, studies the effects of growth factors on cells--particularly the EGF--the epidermal growth factor. He is presently director of the Cytology Institute in St. Petersburg.



19. Institute of Biology in Kazan

Located at 2/31 Lobachevskogo st., user box 30, 503, Kazan, 420503. Directed by Professor Vladimir D. Dedotov. Telephone: 38-75-35.



20. Biodesign Center in Moscow

Located at 34/5, Vavilova st., U-334, GSP-1, Moscow, 117984. Fax: 135-05-71. Directed by Corresponding Member Russian Academy of Sciences Konstantin G. Skriabin.



21. Experimental Biological Instrument Building and Manufacture Institute in Puschino

Located in Puschino, 142292, Moscow region. Fax: 924-57-49. Directed by Professor Evgenii A. Permiakov. Tel. 924-57-49.



22. Genetics and Industrial Microorganisms Selection Institute in Moscow

Located at 1, 1-st Doroznii st., 113545, Moscow. Directed by Corresponding Member Vladimir G. Debabov.

Debabov, Vladimir G., Born in 1935. Corresponding member of Physical and Chemical Biology Department of the Academy since 1987. Since 1978, he has been the Director of the Genetics and Selection of Microorganisms Scientific Research Institute in Moscow which was established in 1968 to study E Coli overproducers, insecticide toxin genes, Bacillus sp., and protoplast fusion. Researches industrial interferon production. He is currently a member of the Bureau governing body of the Physical and Chemical Biology Department of the Academy. (LDA 89-11378.)



23. Gene Biology Institute in Moscow

Located at 34/5 Vavilova st., Moscow, 117334. For Telegrams: 117984 Moscow, U-334, Kompleks. Fax: 7(095)135-41-05. Directed by Academician Georgii P. Georgiev. Deputy Director Professor Nikolai V. Gnuchev. Galina L. Gorbacheva heads the Department for Foreign Affairs for the institute.

Georgiev, Georgii P., D. Bio. S. Born in 1933 in Leningrad. Russian biologist. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical Chemistry and Biology Department) of the Academy since 1970. Academician since December 1987. He graduated from the First Moscow Medical Institute in 1956, went to work at the A. N. Severtson Institute of Animal Morphology of the AN SSSR, and in 1963 became head of a laboratory of the Institute of Molecular Biology of the Academy. His work is in molecular biology. He discovered in animal cells a new type of ribonucleic acid-nuclear RNA, similar to DNA--the predecessor of messenger RNA in 1961. He discovered informosomes, particles in the cell nuclei that contain messenger RNA, and he decoded their structure in 1964. He was on the editorial board of Science in Russia. (GSE 6, p. 299.)

(Older material)

There are seven laboratories in the institute:

- 1, headed by Academician Georgii P. Georgiev (E-mail address: pavel@biogen.msk.su);
- 2 headed by Professor Korotkin;
- 3 is under S.V. Razin (E-Mail: razin@biogen.msk.su);
- 4 is directed by Professor Stanislav I. Gorodetskii (E-Mail:gorod@biogen.msk.su);
- 5 is under Professor Alstein;
- 6 Laboratory of Genome Organization is led by Professor Aleksii P. Ryskov (E-Mail: ryskov@biogen.msk.su); and
- 7 Laboratory for Regulation of Replication is headed by V. I. Bashkirov and his E-Mail address is: (bashvl@biogen.msk.su).



(1997 listing)

Institutions and Organizations of the Department: these are the latest listings of institutes under this Department:

1. Institute of Protein (IP)

Moscow region, Pushino, 142292
fax 924-04-93, tel.3-05-42(P.)
Directed by Aleksandr S. Spirin, tel.924-04-93

2. Institute of Gene Biology (IGB)

34/5, Vavilova st., V-334, Moscow, GSP-1, 117984
for telegrams: 117984 Moscow, V-334, Kompleks, fax: 135-41-05
Directed by Academician Georgii P. Georgiev, tel.135-60-89

3. Institute of Bioorganic Chemistry named after Shemiakin M.M. and Ovchinnikov I.A. (IBC)

16/10, Mikluho-Maklaia st., V-437, Moscow, GSP-1, 117871
for telegrams: Moscow, V-437, Bioorganika, fax: 310-70-07
Directed by Academician Vadim T. Ivanov, tel.330-56-38

4. Institute of Cell Biophysics (ICB)

Moscow region, Pushino, 142292
tel.3-90-01
Directed by Prof. Evgenii Ev. Fesenko, tel.925-59-84

5. Institute of Biochemistry named after Bach A.N. (InBi)

33, Leninskii ave., V-71, Moscow, 117071
fax: 954-27-52
Directed by Corresponding member Boris F. Poglazov, tel.952-34-41

6. Institute of Biochemistry and Physiology of Microorganisms (IBPM)

Moscow region, Pushino, 142292
for telegrams: Moscow region, Pushino, 142292 , fax: 923-36-02
Directed by Corresponding member Aleksandr M. Boronin, tel.925-74-48,
3-05-26

7. Institute of Biochemistry of Plants' and Microorganisms' Physiology (IBPMP)

13, Entuziastov ave., Saratov, 410015
Directed by Prof. Vladimir V. Ignatov, tel.44-38-28, 44-73-03

8. Institute of Mathematical Problems of Biology

Moscow region, Pushino, 142292
Directed by Prof. Albert M. Molchanov , tel.923-35-58

9. Institute of Microbiology (InMi)

7, build.2, 60-letia Oktiabria ave., GSP-1, Moscow, 117811
fax: 135-65-30

Directed by Academician Mihail V. Ivanov, tel.135-21-39

10. Institute of Molecular Biology named after V. A. Engelhardt (IMB)

32, Vavilova st., V-334, GSP-1, Moscow, 117984
fax: 135-14-05 for telegrams: 117984 Moscow V-334 Kompleks
Directed by Academician Andrei D. Mizarbekov, tel.135-23-11

11. Institute of Molecular Genetics (IMG)

46, Akademika Kurchatova sq., D-182, Moscow, 123182
fax: 196-02-21
Directed by Evgenii D. Sverdlov, tel.196-00-00

12. Institute of Soil Science and Photosynthesis (ISSPS)

Puschino, 142292, Moscow region
Directed by Prof. Valentin II. Kefeli, tel.923-35-58

13. Institute of Theoretical and Experimental Biophysics (ITEB)

Puschino, 142292, Moscow region
Directed by Corresponding Member Levon M. Chailahian, tel.925-59-84

14. Institute of Plant Physiology named after K.A.Timiriazev (IPP)

35, Botanicheskaja st., I-106, 127276, Moscow
fax: 482-16-85
Directed by Academician Adolf T. Mokronosov, tel.482-51-36

15. Institute of Cytology (INC)

4, Tihoretskii ave., K-64, Saint-Petersburg, 194064
fax: 247-03-41
Directed by Academician Nikolai N. Nikoliskii, tel.247-18-29

16. Kazan Institute of Biology (KIB)

2/31, Lobachevskogo st., user box 30, 503, Kazan, 420503
Directed by Prof. Vladimir D. Fedotov, tel.38-75-35

17. Center "Biodesigning"

34/5, Vavilova st., V-334, GSP-1, Moscow, 117984
fax: 135-05-71
Directed by Corresponding Member RASHN Konstantin G. Skriabin,
tel.135-73-19

**18. Institute of Biological Instrument Building with Experimental
Manufacture**

Puschino, 142292, Moscow region
fax: 924-57-49
Directed by Prof. Evgenii An. Permiakov, tel.924-57-49

19. Scientific-Research Institute of Genetics and Industrial Microorganisms Selection

(The department carries out scientific-systematic direction)

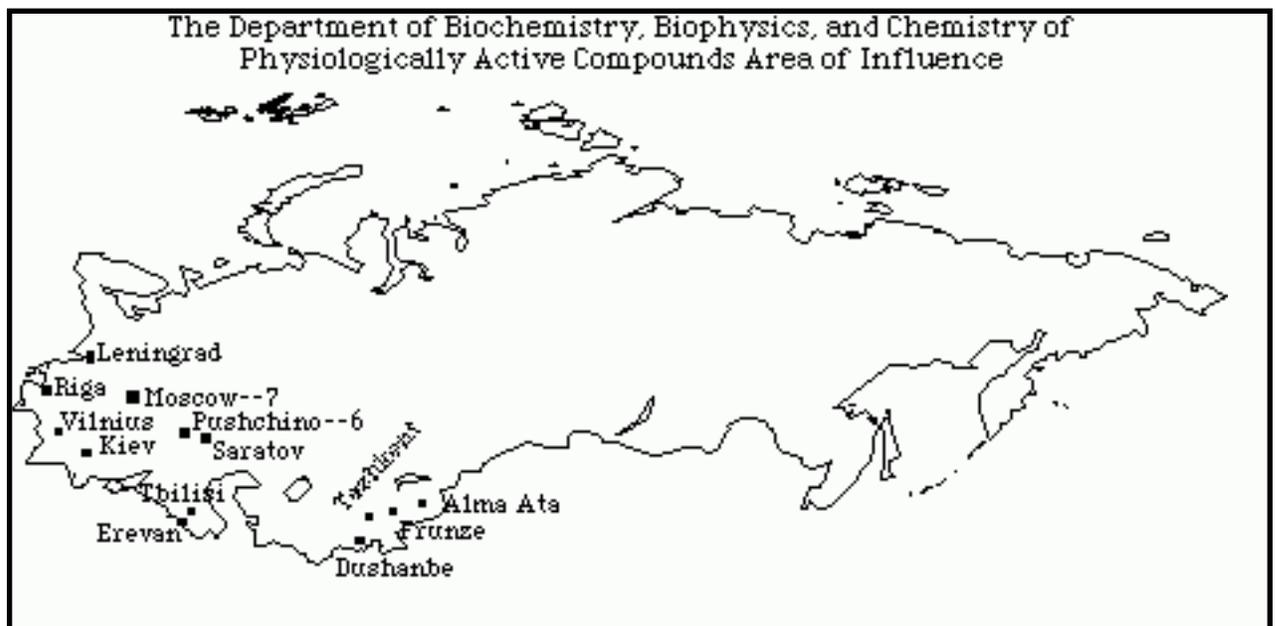
1, 1-st Doroznii st., 113545, Moscow

Directed by Corresponding Member Vladimir G. Debabov, tel.315-37-47



National Research Effort in Biochemistry, Biophysics, and the Chemistry of Physiologically Active Compounds (now Physical Chemistry and Biology):

That research interest in biochemistry, biophysics, and the chemistry of physiologically active compounds is of great significance to scientists in the former Soviet Union is borne out by the fact that, in addition to the 17 to 23 institutes in Moscow, Pushchino, and Saratov directly subordinate to the Russian Academy of Sciences Department, there are another 11 institutes of similar character located in 8 other Russian cities. The map below shows all the cities in which research of this kind is carried on in the area of the former Soviet Union.



Research in other areas of the former Soviet Union: Before 1960

1. A. V. Palladin Biochemistry Institute in Kiev. 2. D. K. Zabolotnii Microbiology and Virology Institute in Kiev. 3. Cytology Institute in St. Petersburg. 4. Microbiology Institute in Erivan. 5. Biochemistry and Physiology Institute in Frunze.

1960s

6. Biochemistry Institute in Vilnius. 7. Cryobiology and Cryomedical Problems Institute in Kharkov. 8. Physiology and Genetics Institute in Kiev (formerly the Molecular Biology and Genetics Institute).

1970s

9. R. E. Kavetskii Problems of Oncology Institute in Kiev. 10. Chemical and Biological Physics Institute in Tallinn. 11. Biophysics Institute in Krasnoyarsk.



The General Biology Department

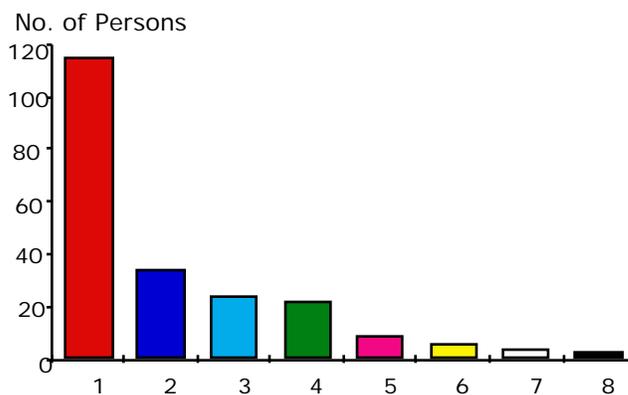
Located at 32a Leninskii ave., Moscow, 117993. Terl. 938-16-91; fax: 938-15-01. Academician Secretary of the Department is Academician Vladimir Ev. Sokolov. Tel. (938-16-91, 938-51-90.

Sokolov, Vladimir E., D. Bio. S. Born in 1928 in Moscow. Russian zoologist. Corresponding member of the General Biology Department of the Academy since 1970, and academician since 1985. Academician secretary of the General Biology Department of the National Academy of Sciences since 1985, and on the academy's Presidium since that date. He graduated from the biology Department of Moscow State University in 1950. From 1953 to 1956, he worked at the Moscow Institute of the Fish-Processing Industry. In 1956, he joined the subdepartment of vertebrate zoology at Moscow State University, becoming a professor there in 1966. Since 1967, he has been Director and laboratory head of the A. N. Severtsov Evolutionary Morphology and Ecology of Animals Institute in Moscow, that was founded in 1949 and subordinate to the academy's General Biology Department, the institute studies the evolutionary process and analyzes the transformation of living creatures. It also researches porpoises, lower aquatic animals, and soil biology. In 1973, he became President of the All-Union Theriologic Society. His works are in ecological morphology, hydrobionics, ecology, and mammalian taxonomy and chemical communication. In 1975, he received the A. N. Severtsov Prize in biology and animal morphology. He is presently director of the Evolution Morphology and Animals' Ecology Institute named after A. N. Severtsov (EMAEL) located in Moscow. (GSE 24, p. 282.)

Retrospect: The General Biology Department of the academy established its first Scientific Research Institute in 1714, and its last in 1967. In 1962, the presidium of the AN SSSR established the Pushchino Complex for Biological Research under its Director-organizer G. M. Frank. The General Biology Department itself had seven institutes directly subordinate to it in 1987. In terms of the numbers of scientific personnel assigned to the institutes subordinate to the department, the first four institutes listed in Figure 20 continue to be among the largest if not the most significant.

Figure 20

Personnel of the General Biology Department SRIs in 1980



1. Development Biology Institute in Moscow; 2. A. N. Severtsov Evolutionary Morphology and Ecology of Animals Institute in Moscow; 3. Zoology Institute in Leningrad; 4. Biology of Inland Waters Institute in Borok; 5. Paleontology Institute in Moscow; 6. Botanical Gardens in Moscow; 7. V. L. Komarov Botany Institute in Leningrad; and, 8. General Genetics Institute in Moscow.

Compiled from: CR 80-13202, pp. 190-195; 202-203; 239-242; 312; and 416-417.

Members of the General Biology Department: Of its 37 members in 1989 (11 academicians and 26 corresponding members), 16 were Directors or Deputy Directors of subordinate research institutes, one was Head of major research laboratory, one was President of the Lenin Academy of Agricultural sciences, one a Chairman of the Krasnoyarsk Affiliate of the academy, three were members of the Far Eastern Department, two were members of the Siberian Department, one a President of the Moldavian SSR Academy of Sciences, one a member of the Estonian and one a member of the Byelorussian academies, one a member of the Urals Department, one a member of the academy Presidium, one a board member of the General Assembly of the GKNT, and one a Vice President of the International Union of Biological Sciences. Academicians--age and schools: The average age of the ten academicians whose birth dates are known in 1991 was 72.5 years. The oldest academician was 85 and the youngest was 57. All academicians of this Department hold doctoral degrees, though their graduating institutions are known in only 10 cases: Moscow State University produced three; Leningrad State University, three; the Leningrad S. M. Kirov Academy of Forest Technology, one; the Tashkent Agricultural Institute, one, and, the All-Union Institute of Subtropical Crops in Tbilisi, one.

Corresponding Members--age and schools: Of the 18 corresponding members whose birth dates are known, the average age was 73, with the oldest member being 98 and the youngest 56. Only six of the institutions graduating eight of the corresponding members of the General Biology Department are known. Leningrad State University graduated three and Moscow State University graduated one. The Petrograd Agricultural Institute, the University of Irkutsk, the Leningrad Veterinary Institute, and the Far Eastern Agricultural Institute graduated one each. At the present time, only 13 of the 26 corresponding members of the General Biology Department of the Russian Academy of Sciences are identified as holding doctoral degrees. The advanced average age of both the academicians and the corresponding members of this department is testament to the ancient strength of biology in Russia. The widespread number of research institutes across the breadth of the country is also evidence of the vitality of this discipline--and yet it was the Lysenko controversy that created the most discussion about Soviet science in the last several years. Russian biologists won that debate in the end

(1996 update)

Members of the Department

Academician Secretary

Sokolov, Vladimir E., D. Bio. S.

[Sokolov, Vladimir E., D. Bio. S. Born in 1928 in Moscow. Russian zoologist. Corresponding member of the General Biology Department of the Academy since 1970, and academician since 1985. Academician Secretary of the General Biology Department of the National Academy of Sciences since 1985, and on the Academy's Presidium since that date. He graduated from the Biology Department of Moscow State University in 1950. From 1953 to 1956, he worked at the Moscow Institute of the Fish-Processing Industry. In 1956, he joined the subdepartment of vertebrate zoology at Moscow State University, becoming a professor there in 1966. Since 1967, he has been Director and laboratory Head of the A. N. Severtsov Evolutionary Morphology and Ecology of Animals Institute in Moscow, that was founded in 1949 and is subordinate to the Academy's General Biology Department, the institute studies the evolutionary process and analyzes the

transformation of living creatures. The institute has worked with several scientific councils of the former Soviet Union Academy and has cooperated in joint projects administered by the U. S. Environmental Protection Agency. The institute operates a number of biological stations and experimental bases in the Moscow, Kostroma and Krasnodar regions and in the Ukrainian and Tadzhik republics. It also researches porpoises, lower aquatic animals, and soil biology. In 1973, Sokolov became President of the All-Union Theriologic Society. His works are in ecological morphology, hydrobionics, ecology, and mammalian taxonomy and chemical communication. In 1975, he received the A. N. Severtsov Prize in biology and animal morphology. (GSE 24, p. 282.)]

Deputies to the Academician Secretary:

Tatarinov, Leonid P., D. Bio. S. Born in 1926 in Tula. Russian geologist. Corresponding member of the General Biology Department since 1974 and academician since 1981. He graduated from Moscow State University in 1949 worked at the Paleontology Institute in Moscow from 1955 heading its laboratories from 1960 to 1972, and, became its Director in 1975. He also heads the Laboratory of Lower Tetrapeds which studies Upper Paleozoic and Mesozoic reptiles, problems of terrestrial vertebrates in the Permian and Triassic areas, as well as the faunistic relations of ancient continents. The institute was established in 1930 in a merger of several departments within the former Geological Museum, the Russian Academy of Sciences' Paleontological Institute is a major center for the study of the morphology, phylogenesis, and the systematic and ecological foundations of basic animal groups. Its scientists do research in (1.) Precambrian and Cambrian biota (2.) Fossil marine invertebrates (3.) Fossil insects (4.) Fossil vertebrates and fossil plants. The institute carries out expeditions with Mongolian paleontologists, and since 1974, over 40 volumes of these expeditions have been published by the Institute. Since 1932, in fact, over 230 volumes of Transactions of the Institute have been published. The institute has published Trudy since 1932. In 1992, the staff of the Paleontology Institute and Museum totaled 250 persons, of whom scientific personnel numbered 130 persons. His work is in evolutionary zoology. He received the State Prize in 1978. He is a Deputy to the Academician Secretary of the General Biology Department of the Academy. (GSE 25, p. 412.)

Khrushchov, Nikolai G., D. Bio. S. Born in 1932. Corresponding member of the General Biology Department of the Academy since 1979; academician in 1993. Since 1976, he has been Deputy Director of the N. K. Koltsov Developmental Biology Institute in Moscow, and in the late 1980s he was named Director, replacing Dr. Aleksei V. Yablokov, D. Bio. S., who is now the Deputy Chairman of the Committee of Ecology of the Russian Government. Since 1969, Khrushchov has headed the Histogenesis Laboratory of the N. K. Koltsov Developmental Biology Institute in Moscow. Research in the institute is concentrated upon the molecular-biological and genetic mechanisms of control over gene activity in embryo genesis and cell differentiation; the development of theoretical bases and methods for controlling reproduction and sex ratios; the construction of highly productive breeds and hybrids of commercial animals; the cytological and histological mechanisms of morphogenesis, regeneration and growth, and control of proliferation in development; the control and integrating mechanisms of development--endocrine, neuro-humoral and other control mechanisms in ontogenesis. He is also one of the deputies to the Academician Secretary of the General Biology Department of the Academy.

Andreev, Lev N., C. Bio. S. Born in 1931. Corresponding member of the General Biology Department of the Academy since 1984. Since 1981, he has been Director of the Main Botanical Garden in Moscow. Founded in 1945 and opened to the public in 1959. Special collections at the gardens include native flora of Russia, trees and shrubs, ornamental perennials, tropical and subtropical plants, cacti and succulents, cultivated plants such as cereal, fruit, berry, vegetables, and medicinal plants. There are some 267,000 specimens in the herbarium, and some 16,500 specimens in the horticultural herbarium. He is currently a Deputy to the Academician Secretary of the General Biology Department of the Academy.

Rysin, Lev P. Corresponding member of the General Biology Department of the Academy in 1993. He is also currently a Deputy to the Academician Secretary of the department responsible for organizing all scientific questions. (Tel. 938-16-89.)

Members of the Bureau Governing Body of the Department

Bol'shakov, (Bolshakov) Vladimir N., D. Bio. S.

Dubinin, Nikolai P., D. Bio. S.

Isaev, Aleksandr S., D. Bio. S.

Koropachinskii, Igor Iurii, D. Bio. S.

Pavlov, Dmitrii S.

Skarlato, Orest A., D. Bio. S.

Shestakov, Sergei V.

Tikhomirov, Vadim N. x/

Professor Lev I. Budantsev

Professor Stanislav N. Drozdov

Scientist secretary to the Bureau of the department is **Dr. Alevtina G. Termeleva.**

The staff of the Department includes: Dr. Elena V. Babak; Svetlana Ev. Vorotnikova; Svetlana P. Kalinovskaia (aya); Nina Iv. Sushkova; and, Elena B. Kharitaonova.

Academicians

Bol'shakov, (Bolshakov) Vladimir N., D. Bio. S. Born in 1934. Corresponding member of the General Biology Department and of the Urals department since 1979, and academician of both departments since December 1987. Deputy Director of the Zoology Institute in Leningrad from 1971 to 1977. Since 1977, he has been Director of the Plant and Animal Ecology Institute in Ekaterinburg (Sverdlovsk). It was founded in 1948 and does research in the fauna and flora of the Urals Region, soil science, animal pathology, radio biology, and cartography. It is the leading ecological research institute in Russia. In 1986, he was given the V. N. Sukachev Gold Medal named after the famed botanist, geographer, and plant scientist for his own work in botanical research. Institute scientists concentrate upon the impact of pollutants like Strontium 90 and its migration through the soil as well as the impact of other nuclear wastes upon the environment. He is a recipient of the Order of the Red Banner Badge of Honor Medal. He is currently a member of the Bureau governing body of the General Biology Department.

Dubinin, Nikolai P., D. Bio. S. Born in 1907 in Kronstadt. Russian geneticist. Corresponding member since 1946, and academician since 1966. He graduated from Moscow State University in 1928. From 1932, he worked in a number of SRIs of the AN SSSR. He was a member of the Presidium of the Siberian Department from 1958 to 1960. Since 1966, he has been Director of the General Genetics Institute in Moscow, that was founded in 1966 and that studies plant,

animal and microorganisms selection and radiation, space and evolutionary species. His works are in problems of general and evolutionary genetics and the connection between genetics and agriculture. With Serebovskii he discovered the divisibility of the gene and the phenomenon of complementation and with Sidorov, he demonstrated the effect of gene position, elaborated the idea of the integrity and structure and function of the chromosome, and found the presence of lethal and sub lethal mutations in populations. His work includes studies of radiation and evolutionary genetics. Lenin Prize, 1966. He is a member of several foreign academies of sciences and of the British Society of Geneticists. He is currently a member of the Bureau governing body of the General Biology Institute of the Academy. (GSE 8, p. 428.)

Galazii, Grigorii I., D. Bio. S. Born in 1922 in Mechebilovo in Barvenkovo Raion, Kharkov Oblast. Russian botanist and hydrobiologist. Specialist in limnology, forestry, and geobotany. Corresponding member of the Siberian Department and of the Oceanology, Atmospheric Physics, and Geography Department of the AN SSSR from 1970, and academician since 1992. He graduated from the University of Irkutsk in 1942. In 1949, he joined researchers at the Eastern Siberian Affiliate of the Siberian Department. In 1954, he worked at the Baikal Limnology Station of the Academy, and from 1961 to 1987, he was the organizer-Director of the Limnology Institute in Irkutsk that was created to study the lakes and man-made seas in the area between the Ural Mountains and the Pacific Ocean, particularly Lake Baikal. His research is on the habitat of ligneous vegetation on the shores of Lake Baikal and adjoining mountain ranges in order to reconstruct the postglacial period's climate, water level, and topography as a means to find ways to protect and use the natural resources of Lake Baikal. He has written 287 scientific works that include eight monographs. In 1987, he was named Director of the Baikal Ecological Museum of the Irkutsk Scientific Center. He has served as Deputy Chairman of the Scientific Council on the problems of hydrobiology, ichthyology and the utilization of biological water resources. He is Vice President of the all union hydrobiological society. He also heads the Eastern Siberian Affiliate's Geographical Society. He currently is Director of the Baikal Ecological Museum on Lake Baikal which has a staff of 63 persons of whom 27 are research scientists. He is a recipient of the Order of the Red Banner Badge of Honor Medal. (GSE 6, p. 48.)

Isaev, Aleksandr S., D. Bio. S. Born in 1933 in Moscow. Biologist, Forester, Entomologist. Corresponding member since 1976, and academician of the General Biology Department of the National Academy and of the Siberian Department since 1984. He graduated from the Leningrad S. M. Kirov Academy of Forest Technology in 1954. From 1954 to 1960, he was a forest appraiser at the Moscow Unified Aviation Forest-Planning Expedition of the Ministry of Forestry of the USSR and the V. N. Sukachev Institute of Forestry and Timber of the Siberian Department of the AN SSSR in Krasnoyarsk. From 1954 to 1960 he worked with a forest protection organization, and from 1960 to 1988, with the Forestry and Timber Institute serving as its Director from 1977 to 1989. He was Chairman of the Krasnoyarsk Affiliate of the Siberian Department from 1978 to 1988. His work includes the study of biogeographic forest communities, relationships between insect pests and forests, and the population dynamics of insects. He was on the Presidium of the Siberian Branch from 1980 to 1988. He headed the Scientific Council on the Biological Sciences from 1985 to 1988. In 1988 he was made Chairman of the government committee on forestry of the national academy. He was a delegate to the 25th and 26th Congresses. He is also currently a member of the Bureau governing body of the General Biology Department of the Academy. He is also currently Director of the Wood Output Ecology Problems Center in Moscow. (GSE 30, p. 444.)

Khrushchov, Nikolai G., D. Bio. S. Born in 1932. Corresponding member of the General Biology Department of the Academy since 1979; academician in 1993. Since 1976, he has been Deputy Director of the N. K. Koltsov Developmental Biology Institute in Moscow, and in the late 1980s he was named Director, replacing Dr. Aleksei V. Yablokov, D. Bio. S., who is now the Deputy Chairman of the Committee of Ecology of the Russian Government. Since 1969, Khrushchov has headed the Histogenesis Laboratory of the N. K. Koltsov Developmental Biology Institute in Moscow. Research in the institute is concentrated upon the molecular-biological and genetic mechanisms of control over gene activity in embryo genesis and cell differentiation; the development of theoretical bases and methods for controlling reproduction and sex ratios; the construction of highly productive breeds and hybrids of commercial animals; the cytological and histological mechanisms of morphogenesis, regeneration and growth, and control of proliferation in development; the control and integrating mechanisms of development--endocrine, neuro-humoral and other control mechanisms in ontogenesis. He is also one of the deputies to the Academician Secretary of the General Biology Department of the Academy.

Koropachinskii, Igor Iurii, D. Bio. S. Born in 1928. Biologist and Dendrologist. Corresponding member of the General Biology Department of the Russian Academy of Sciences and of the Siberian Department since 1987, and academician since 1992. He has authored and co-authored 85 scientific works of which 12 are important monographs. He graduated from the Siberian Forestry Technology Institute in 1951. He was an aspirant, assistant, docent, and held the chair in Forest Culture at that institute. He was a senior researcher at the V. N. Sukachev Forestry and Timber Institute (in Krasnaiorsk) from 1960 to 1962. From 1962 to 1976, he was Deputy Director of that institute and from 1977 to 1983, he was Director of that institute. In 1983 he was named the Director of the Central Siberian Botanical Garden in Novosibirsk that was started in 1958 in order to exchange seeds and plants with other botanical gardens in Russia and abroad to enrich Siberian flora. The gardens are the leading botanical institutions in Siberia and the Far East. He has been a professor at the Siberian Technological Institute since 1982 where he has guided the work of 13 aspirants for the candidate degree. He is Deputy Chairman of the Scientific Council on the environmental problems. Since 1987, he has been Director of the Far Eastern Botanical Garden in Vladivostok. He is a recipient of the Order of the Red Banner Badge of Honor Medal. He is also currently a member of the Bureau governing body of the General Biology Department of the Academy.

Pavlov, Dmitrii S. Corresponding member of the General Biology Department of the Academy since December 1987; academician in 1993. He is also a member of the Bureau governing body of the General Biology Department of the Academy.

Shilov, Igor. A. Corresponding member of the General Biology Department of the Academy since 1984; academician in 1993.

Shumnyi, Vladimir K., D. Bio. S. Born in 1934. Biologist. Specialist in the field of experimental genetics. Corresponding member since 1979, and academician since 1992. He graduated from the Moscow State University in 1958 and joined the Institute of Cytology and Genetics of the Siberian Department upon graduation passing successively through positions as laboratory assistant, junior and senior researcher, and from 1970 to 1985, Deputy Director and in 1985, Director of that institute. He is Chairman of the Scientific Council on the Biological Sciences (1988). He joined the Presidiums of the Siberian Department and of the National Academy in Moscow in 1980. He has been a professor since 1979, holding the chair in cytology at the Novosibirsk State University. He is Chairman of the Siberian Department's V. I. Vavilov Genetics and Selection Society. The Altai International Center for Humanitarian and Biospheric Research, was established in 1991. The center will involve the collaboration of three major bodies: the United

Institute of History, Philology and Philosophy in Akademgorodok-Novosibirsk, the Cytology and Genetics Institute in Akademgorodok-Novosibirsk, and the Gorno-Altai Republican Soviet in Gorno-Altai, Russia. As Director of the Institute of Cytology and Genetics of the Siberian Department located in Akademgorodok-Novosibirsk, Dr. Shumnyi will play a major role in the development of this international research institute.

Skarlato, Orest A., D. Bio. S. Born in 1920. Corresponding member of the General Biology Department of the Academy since 1981; academician in 1993. Since 1974, he has been Director of the Zoology Institute in St. Petersburg, established in 1931 based upon the Zoological Museum that originally was founded in 1832, which, in turn was based upon the Medico-biological Museum--the Kunstkamera founded in 1714 by Peter the Great. The institute possesses a scientific collection of animals including approximately 10 million specimens. It conducts studies of Russian fauna and coordinates zoological research at other Russian institutes. It maintains two biological stations: one on the White Sea that focuses research on parasites, aquatic life, insects, birds and mammals, and the other is on the Baltic Sea that studies bird migrations. The institute maintains a Zoological Museum that has some 40,000 specimens and dioramas on exhibit. The institute publishes *Trudy. Zoologicheskii Institute. The Fauna of the Soviet Union* (now in 142 volumes); *Guide to the Identification of the Fauna of the former Soviet Union* (now in 165 volumes); *Explorations of the Fauna of the Seas* (now in 50 volumes); *Parasitological Volume* (now in 38 volumes); *Proceedings of the Zoological Institute* (now in 230 volumes). He is also currently a member of the Bureau governing body of the General Physics Department of the Academy.

Sokolov, Vladimir E., D. Bio. S. Born in 1928 in Moscow. Russian zoologist. Corresponding member of the General Biology Department of the Academy since 1970, and academician since 1985. Academician Secretary of the General Biology Department of the National Academy of Sciences since 1985, and on the Academy's Presidium since that date. He graduated from the Biology Department of Moscow State University in 1950. From 1953 to 1956, he worked at the Moscow Institute of the Fish-Processing Industry. In 1956, he joined the subdepartment of vertebrate zoology at Moscow State University, becoming a professor there in 1966. Since 1967, he has been Director and laboratory Head of the A. N. Severtsov Evolutionary Morphology and Ecology of Animals Institute in Moscow, that was founded in 1949 and is subordinate to the Academy's General Biology Department, the institute studies the evolutionary process and analyzes the transformation of living creatures. The institute has worked with several scientific councils of the former Soviet Union Academy and has cooperated in joint projects administered by the U. S. Environmental Protection Agency. The institute operates a number of biological stations and experimental bases in the Moscow, Kostroma and Krasnodar regions and in the Ukrainian and Tadzhik republics. It also researches porpoises, lower aquatic animals, and soil biology. In 1973, Sokolov became President of the All-Union Theriologic Society. His works are in ecological morphology, hydrobionics, ecology, and mammalian taxonomy and chemical communication. In 1975, he received the A. N. Severtsov Prize in biology and animal morphology. (GSE 24, p. 282.)

Strunnikov, Vladimir A., D. Bio. S. Born in 1914 in Tambov. Russian geneticist. Corresponding member of the General Biology Department of the AN SSSR from 1976, and academician since 1987. He graduated from Tashkent Agricultural Institute in 1936. He worked at the Central Asian SRI of Sericulture from 1936 to 1939 and from 1945 to 1963. He became Head of the breeding and genetics section in 1938. From 1963 to 1968, he was a professor at the University of Tashkent. Since 1968, he has headed the Laboratory of Reproduction and Sex Regulation at the N. K. Koltsov Institute of Developmental Biology of the Russian Academy of

Sciences. His works are in the genetics and selection of the silkworm. In 1981, he was given the I. I. Mechnikov Gold Medal in recognition of his contributions to Russian scientific development. He is presently leading the developmental cytogenetics and sex control research group developed in his laboratory since 1969. (GSE 30, p. 665.)

Sushchenia, Leonid M., D. Bio. S. Born in 1929. Corresponding member since 1979, and academician of the Biological Sciences Department of the Byelorussian Academy of Sciences since 1980. Academician of the Russian Academy of Sciences General Biology Department in 1993.

Takhtadzhian, Armen L., D. Bio. S. Born in 1910 in Susha, Nagorno-Karabakh Autonomous Oblast. Russian botanist. Corresponding member since 1966, and academician since 1972 of the General Biology Department of the Russian Academy of Sciences. Since 1971, he has been an academician of the Biological Sciences Department of the Armenian Academy of Sciences. He graduated from the All-Union Institute of Sub-tropical Crops in Tbilisi in 1932. From 1938 to 1948, he headed a subdepartment at the University of Erevan and from 1944 to 1948, he was Director of the Botanical Institute of the Armenian Academy of Sciences. From 1949 to 1961, he was a professor at Leningrad State University, while also serving as Head of a department of the Botanical Institute of the AN SSSR. He has been Vice President of the International Union of Biological Sciences since 1970, and, since 1973 he has been President of the All-Union Botanical Society. From 1978 to 1986, he was Director of the V. L. Komarov Botany Institute in St. Petersburg. This institute was founded in 1714 and is one of the most important in the world. It is the primary botanical research institute in Russia. His works deal with the systematics, evolutionary morphology, and phylogeny of higher plants; the origin of angiosperms, and with phyto-geography and paleobotany. He is a member of the U.S. Academy of Sciences and of many other foreign societies. V. L. Komarov Prize, 1969. (GSE 25, p. 33.)

Tatarinov, Leonid P., D. Bio. S. Born in 1926 in Tula. Russian geologist. Corresponding member of the General Biology Department since 1974 and academician since 1981. He graduated from Moscow State University in 1949 worked at the Paleontology Institute in Moscow from 1955 heading its laboratories from 1960 to 1972, and, became its Director in 1975. He also heads the Laboratory of Lower Tetrapeds which studies Upper Paleozoic and Mesozoic reptiles, problems of terrestrial vertebrates in the Permian and Triassic areas, as well as the faunistic relations of ancient continents. The institute was established in 1930 in a merger of several departments within the former Geological Museum, the Russian Academy of Sciences' Paleontological Institute is a major center for the study of the morphology, phylogenesis, and the systematic and ecological foundations of basic animal groups. Its scientists do research in (1.) Precambrian and Cambrian biota (2.) Fossil marine invertebrates (3.) Fossil insects (4.) Fossil vertebrates and fossil plants. The institute carries out expeditions with Mongolian paleontologists, and since 1974, over 40 volumes of these expeditions have been published by the Institute. Since 1932, in fact, over 230 volumes of Transactions of the Institute have been published. The institute has published Trudy since 1932. In 1992, the staff of the Paleontology Institute and Museum totaled 250 persons, of whom scientific personnel numbered 130 persons. His work is in evolutionary zoology. He received the State Prize in 1978. He is a Deputy to the Academician Secretary of the General Biology Department of the Academy. (GSE 25, p. 412.)

Zhirmunskii, Aleksei V., D. Bio. S. Born in 1921 in Leningrad. Russian biologist. Corresponding member from 1972, and academician since 1981. He is also a member of the Far Eastern Department and on the Presidium of that department. He graduated from the Leningrad State University in 1950, worked for the Institutes of experimental medicine of the Academy of Medical Sciences from 1954

to 1955; for the institutes of zoology from 1955 to 1957, and the institutes of cytology of the AN SSSR from 1957 to 1966. In 1966, he moved to Vladivostok to become founding Director (in 1970) of the Institute of Marine Biology of the Russian Academy of Sciences Far Eastern Department (then Far Eastern Scientific Center). His works are in cell physiology, the experimental ecology of Marine animals, cellular ecology, and general and comparative physiology. He was replaced as Director of the Marine Biology Institute in 1988. He holds the Chair in Marine Biology at the Far East State University. He has authored some 270 scientific works. (GSE 30, p. 741.)

Corresponding Members

Altukhov, Iurii P. Born in 1936. Corresponding member of the General Biology Department of the Academy in 1993. He has been a Deputy Director of the General Genetics Institute in Moscow since 1975. He is currently the Director of that institute, now called the N. I Vavilov General Genetics Institute.

Andreev, Lev N., C. Bio. S. Born in 1931. Corresponding member of the General Biology Department of the Academy since 1984. Since 1981, he has been Director of the Main Botanical Garden in Moscow. Founded in 1945 and opened to the public in 1959. Special collections at the gardens include native flora of Russia, trees and shrubs, ornamental perennials, tropical and subtropical plants, cacti and succulents, cultivated plants such as cereal, fruit, berry, vegetables, and medicinal plants. There are some 267,000 specimens in the herbarium, and some 16,500 specimens in the horticultural herbarium. He is currently a Deputy to the Academician Secretary of the General Biology Department of the Academy.

Andriashev, Anatolii P., D. Bio. S. Born in 1910. Russian ichthyologist and zoogeographer. Corresponding member of the General Biology Department of the Academy since 1966. He graduated from Leningrad State University in 1933 and worked there until 1939. He later worked at the Sevastapol Biological Station and in 1944, at the Zoological Institute of the Academy. He was a member of the first (1955-56) and the third (1957-58) Antarctic expeditions and served as the USSR representative on the International Committee for the Study of the Arctic. Director of the Botanical Garden in Moscow. Since 1973, he has been a senior researcher of the Laboratory of Ichthyology of the Zoology Institute. (GSE 2, p. 93.)

Chernov, Iurii I. Corresponding member of the General Biology Department of the Academy since December 1987.

Darevskii, Iliia S., D. Bio. S. Corresponding member of the General Biology Department of the Academy since December of 1987. Head of the Herpetology and Ornithology Laboratory of the Zoological Institute in St. Petersburg since 1967. In 1987, he was the recipient of the I. I. Mechnikov Prize in biology for his research work. (LDA 89-11378.)

Gorlenko, Mikhail V. Born in 1908 in Vladimir. Russian mycologist and phytopathologist. Corresponding member since 1976. He graduated from the University of Voronezh in 1930. From 1931 to 1941, he was a researcher at the Voronezh Plant Protection Station. From 1941 to 1955, he headed the laboratory of the Moscow Plant Protection Station at the All-Union Institute of Plant Protection. In 1948, he became Director of that station. He was named Head of the subdepartment of lower plants at Moscow State University in 1955. His studies are in immunity of plants to fungus and bacterial diseases and the origin and evolution of parasitism in phytopathogenic micro-organisms. (GSE 30, p. 387.)

Inge-Vechtomov, Sergei G. Corresponding member of the General Biology Department of the Academy since December 1987. (LDA 89-11378.)

Kontrimavichus, Vitautas L., D. Bio. S. Born in 1930 in Kaunas. Russian helminthologist. Corresponding member of the General Biology department and of the Far Eastern department since 1970. Academician of the Chemical,

Technological, and Biological Sciences Department of the Lithuanian academy since 1980. Academician Secretary since 1984. He graduated from the Leningrad Veterinary Institute in 1952. From 1952 to 1968, he was a graduate student and researcher at the Helminthology Laboratory of the AN SSSR in Moscow. In 1968, he became Head of the department of the Biological Problems of the North of the Northeast Complex SRI of the Siberian department of the AN SSSR. Since 1970, he has been the Director of the Biological Problems of the North Institute at Magadan which researches the structure, function and productivity of ecosystems of the northern latitudes and methods of their preservation and adaptation to the northern environments. His work is in classification, ecology, and zoogeography of the parasitic helminths of mammals. In 1987, he was given the E. N. Pavlovskii Gold Medal for his work in parasitology and zoology. (GSE 13, p. 372.)

Ler, Pavel A. Corresponding member of the General Biology department and of the Far Eastern department since 1987. (LDA 89-11378.)

Neunylov, Boris A. Born in 1908 in Dankov, Lipetsk Oblast. Russian soil scientist, Agricultural chemist, and rice-growing specialist. Corresponding member since 1970. Academician of the Academy of Agricultural sciences since 1966. Also a member of the Far Eastern Department. He graduated from the Far Eastern Agricultural Institute in 1935. He worked at the Far Eastern Rice Experiment Station and on a rice-growing sovkhos from 1935 to 1963. In 1964, he became acting Chairman and from 1966 to 1970 served as Chairman of the Presidium of the Far Eastern Department of the AN SSSR. In 1973, he was made Deputy Director for science of the All-Union SRI of Rice of the All-Union Academy of Agricultural Sciences located in Belogor'noe, Krasnodor Krai. His works are in the physical chemistry of soils, regulation of oxidation reduction conditions and acidity of rice paddy soils, and the increase of fertility of rice paddy soils. (GSE 17, p. 505.)

Rysin, Lev P. Corresponding member of the General Biology Department of the Academy in 1993. He is also currently a Deputy to the Academician Secretary of the department responsible for organizing all scientific questions.

Shestakov, Sergei V. Corresponding member of the General Biology Department of the Academy since December 1987. In August 1988, he was selected as Director of the General Genetics Institute in Moscow which was founded in 1966 to study the selection and evolutionary genetics of plants, animals and microorganisms. He is also a member of the Bureau governing body of the General Biology Department of the Academy. (LDA 89-11378.)

Tikhomirov, Vadim N. Corresponding member of the General Biology Department of the Academy since December 1987. He is also a member of the Bureau governing body of the General Biology Department of the Academy. (LDA 89-11378.)x/

Vomperskii, Stanislav Ed. E. Corresponding member of the General Biology Department of the Academy in 1993. He is also the Director of the Forest Science Institute located in the Odintsovskii district, Moscow region.

Yablokov, Aleksei V., D. Bio. S. Born in 1933. Corresponding member since 1984. Professor Yablokov in November 1991 was Deputy Chairman of the Committee of Ecology of the USSR Supreme Soviet with offices in the Kremlin in Moscow. In 1978, he received the A. N. Severtsov Prize for biology and animal morphology.

Zhuchenko, Aleksandr A., D. Bio. S. Born in 1935. Academician of the Moldavian Academy's Biological and Chemical Sciences Department since 1976. Corresponding member of the General Biology Department of the Russian Academy since 1979. President of the Moldavian academy since 1978. (LDA 89-11378.)

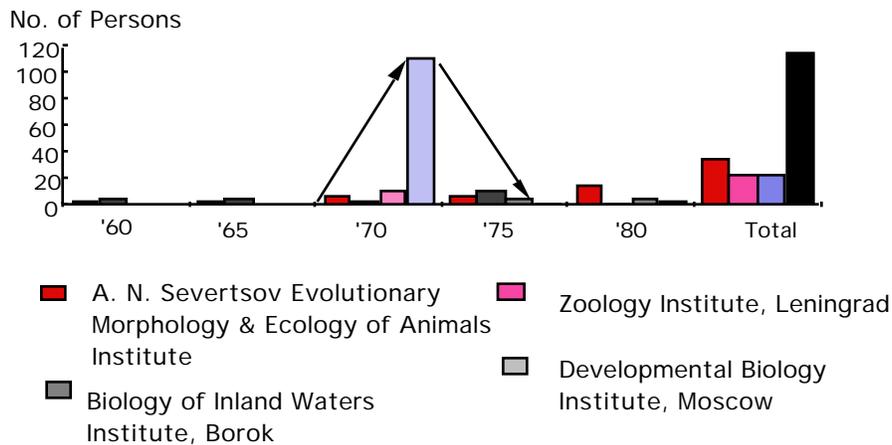


Organization of Leading Institutes under the General Biology Department:

Retrospect: A restructuring of institutes in the late 1960s accounts for the increase in personnel assigned to the Developmental Biology Institute in Moscow, which is the most complex of the eight research institutes under the General Biology Department. It has 16 laboratories and four departments; the A. N. Severtsov Evolutionary Morphology and Ecology of Animals Institute in Moscow is made up of 8 laboratories and two major field stations; the Zoology Institute in St. Petersburg maintains 10 laboratories and one zoological museum, and the Biology of Inland Waters Institute (originally called the Biology of Waters Institute) has seven laboratories and one computer center.

Figure 21

Personnel of the Top Four SRIs of the General Biology Department, 1960-1980



Note: In 1967, 13 laboratories from the former "Animal Morphology Institute and four laboratories from the General Genetics Institute were combined to form this new institute. This accounts for the large bulge in personnel assignments in 1970.

Compiled from: CR 80-13202, pp. 190-195; 239-240; and 416-417.



General Biology Department Research Institutes: The research institutes directly subordinate to the department are given below in the order of their founding:

1. V. L. Komarov Botany Institute in St. Petersburg.

Located at 2 Professor Popov's st., P-376, St. Petersburg, 197376. Tel. 234-12-37; for telegrams: St. Petersburg, BIN 22; fax: 234-45-12. Directed by Professor Lev I. Budantsev.

Retrospect: Founded in 1714. It is the primary botanical research institute in Russia and one of the most important in the world. It is a center for environmental research. Institute scientists investigate local ecosystems, the use of plants by man, and the use of land reclaimed from industrial uses. It publishes Trudy and maintains several major botanical gardens. The Institute is currently being directed by Professor Lev I. Budantsev.

The historical organization and structure of the institute is as follows:
(older material)

Structure and Scientific Personnel: From 1988 until replaced by Professor Budantsev, the Director was Evgenii D. Sverdlov, D. Chem. S. Deputy Directors were: Alekseev, Vladislav A., C. Bio. S., since '77; and Vasilievich, Vladislav, since '86. Botanical Gardens: Head Rodionenko, Georgii I., D. Bio. S., since '74; Hothouses: Head Saakov, S., D. Bio. S., since '74. (See: Ruble, Vol. I., p. 264.)(See: Ruble, Vol. I., p. 271.)



2. Zoological Institute in St. Petersburg.

Located at 1 Universitatskaia (aya) quay, U-34, St. Petersburg, 199034. Tel. 218-02-21; fax: 218-29-41, 144-04-44; for telegrams: 199164 St. Petersburg ZIN. The institute is under the direction of Academician Orest A. Skarlato.

Skarlato, Orest A., D. Bio. S. Born in 1920. Corresponding member of the General Biology Department of the Academy since 1981; academician in 1993. Since 1974, he has been Director of the Zoology Institute in St. Petersburg, that was established in 1931 and that has the primary responsibility for the study of Russia's fauna and for coordinating zoological research at other Soviet institutes. He continues to direct the Zoological Institute.

Retrospect: Established in 1931 based upon the Zoological Museum that originally was founded in 1832, which, in turn was based upon the Medico-biological Museum--the Kunstkamera founded in 1714 by Peter the Great. The institute possesses a scientific collection of animals including approximately 10 million specimens. It conducts studies of Russian fauna and coordinates zoological research at other Russian institutes. It maintains two biological stations: one on the White Sea that focuses research on parasites, aquatic life, insects, birds and mammals, and the other is on the Baltic Sea that studies bird migrations. The institute maintains a Zoological Museum that has some 40,000 specimens and dioramas on exhibit. The institute publishes Trudy. Zoologicheskii Institute. The Fauna of the Soviet Union (now in 142 volumes); Guide to the Identification of the Fauna of the USSR (now in 165 volumes); Explorations of the Fauna of the Seas (now in 50 volumes); Parasitological Volume (now in 38 volumes); Proceedings of the Zoological Institute (now in 230 volumes).

Structure and Scientific Personnel: Director Academician Orest A. Skarlato, D. Bio. S., since 1974; Deputy Directors: Corresponding member of the Russian Academy of Sciences Aleksandr F. Alimov, D. Bio. S. since 1982; Professor Vadim F. Zaitzev, D. Bio. S., since 1985. The institute consists of 12 laboratories, one department, two research stations, one group, and the Zoological Museum. They include:

- (1.) **The Laboratory of Insect Taxonomy** has been under Professor Gleb. S. Medvedev, D. Bio. S., since 1969; Senior researchers include: Kiril B. Gorodkov, D. Bio. S., since 1992, Andrei V. Gorohov, D. Bio. S., since 1991; Evelina M. Danzig, D. Bio. S., since 1982; Aleksandr F. Emelianov, D. Bio. S., since 1981; Aleksei K., Zaguliaev, since 1976; Izyaslav M. Kerzhner, D. Bio. S., since 1991; Aleksandr G. Kireitshuk, D. Bio. S.; Professor Mikhail A. Kozlov, D. Bio. S., since 1984; Professor Oleg L. Kryzhanovskii, D. Bio. S., since 1966; Professor Vladimir Kuznetsov, D. Bio. S., since 1973; Professor Emilia P. Nartshuk, D. Bio. S., since 1985; Vera A. Richter, D. Bio. S., since 1989; Vitalii N. Tanasiitshuk, D. Bio. S., since 1988; Professor Vladimir I. Tobias, D. Bio. S., since 1969; Professor Vladimir A. Triapitzin, D. Bio. S., since 1975; Professor Mark I. Falkovitsh, D. Bio. S., since 1980;
- (2.) **The Laboratory of Evolutionary Morphology** has been under Iurii V. Mamkaev, D. Bio. S., since 1985;
- (3.) **The Laboratory of Experimental Hydrobiology** has been under corresponding member Aleksandr F. Alimov, D. Bio. S., since 1979; Senior researchers include V. R. Alekseev, D. Bio. S., since 1992; V. V. Bullion, D. Bio. S., since 1987; Liudmila A. Kutikova, D. Bio. S., since 1974; Albert A. Umnov, D. Bio. S., since 1989; Semion I. Tsalolikhin, D. Bio. S., since 1987;
- (4.) **The Laboratory of Mammalogy** has been under Igor M. Fokin, C. Bio. S., since 1971; Senior researchers include: Gennadii F. Barishnikov, C. Bio. S., 80; Peter P. Gambarian, D. Bio. S., since 1969, and Marina M. Meyer, D. Bio. S., since 1985;
- (5.) **The Herpetology and Ornithology Laboratory** has been under corresponding member of the academy Ilia S. Darevskii, D. Bio. S., since 1967; The Ornithology Department has been under Vladimir M. Loskot, C., Bio. S., since 1974; the senior researcher is Viktor R. Dolnik, D. Bio. S., since 1978;
- (6.) **The Laboratory of Experimental Entomology and Biocontrol Theory** has been under Professor Viktor A. Zaslavskii, D. Bio. S., since 1981; senior researchers include Elena B. Vinogradova, D. Bio. S. since 1971; Professor Evgenii S. Sugoniaev, D. Bio. S., since 1980; Professor Vadim F. Zaitzev, D. Bio. S. has headed the group studying the principles of the introduction of beneficial insects since 1985;
- (7.) **The Laboratory of Ichthyology** has been under Aleksei V. Neyelov, C. Bio. S., since 1973; senior researcher is corresponding member of the academy Anatolii P. Andriashev, D. Bio. S., since 1952;
- (8.) **The Laboratory of Marine Research** has been under Boris I. Sirenko, C. Bio. S., since 1980; senior researchers include: Iuri D. Galkin, D. Bio. S., since 1992; Professor Aleksandr N. Golikov, D. Bio. S., since 1972; Vladimir M. Koltun, D. Bio. S., since 1979; Professor Ilia M. Likharev, D. Bio. S., since 1963; Professor

Yaroslav I. Starobogatov, D. Bio. S., since 1971, and Professor Vladislav V. Khlebovich, D. Bio. S., since 1971;

(9.) The Laboratory of Brackish Water Biology and Environment of the Aral Sea has been under Nikolai V. Aladin, C. Bio. S., since 1979;

(10.) The Parasitology Laboratory has been under Professor Iurii S. Balashov, D. Bio. S.; since 1967; senior researchers included V. S. Vashchonok, D. Bio. S., since 1984; Valentina M. Glukhova, D. Bio. S., since 1980, and Natalia A. Filippova, D. Bio. S., since 1968;

(11.) The Laboratory of Parasitic Worms has been under Oleg N. Pugachev, C. Bio. S., since 1982; senior researchers include: Professor Oleg N. Bauer, D. Bio. S., since 1962, and Professor Aleksandr V. Gussev, D. Bio. S., since 1976, and,

(12.) The Laboratory of Protozoology has been under Matislav V. Krilov, D. Bio. S., since 1967; the senior researcher is Anatolii W. Iankowskii, D. Bio. S., since 1974.

The Rybachy Biological Station has been under Kazimir V. Bolshakov, C. Bio. S., since 1978; senior research of the station is Vladimir A. Pavelvskii, D. Bio. S., since 1987;

The White Sea Biological Station has been under Professor Viktor Ia. Berger, D. Bio. S., since 1982.

The Zoological Museum has been under Professor Roald L. Potapov, D. Bio. S., since 1983.

(Updated material is from Dr. H. Dubinina, Scientific Secretary of the Zoological Institute of Russian Academy of Sciences in a letter dated 19 October 1992.)



3. A. N. Severtsov Evolutionary Morphology and Ecology of Animals Institute in Moscow.

Located at 33 Leninskii ave., U-71, Moscow, 117071. Tel. 954-75-33; fax: 954 55-34, 952-25-92. The Director of the institute is Academician Vladimir Ev. Sokolov.

Sokolov, Vladimir E., D. Bio. S. Born in 1928 in Moscow. Russian zoologist. Corresponding member of the General Biology Department of the Academy since 1970, and academician since 1985. Academician secretary of the General Biology Department of the National Academy of Sciences since 1985, and on the academy's Presidium since that date. He graduated from the biology Department of Moscow State University in 1950. From 1953 to 1956, he worked at the Moscow Institute of the Fish-Processing Industry. In 1956, he joined the subdepartment of vertebrate zoology at Moscow State University, becoming a professor there in 1966. Since 1967, he has been Director and laboratory head of the A. N. Severtsov Evolutionary Morphology and Ecology of Animals Institute in Moscow, that was founded in 1949 and subordinate to the academy's General Biology Department, the institute studies the evolutionary process and analyzes the

transformation of living creatures. It also researches porpoises, lower aquatic animals, and soil biology. In 1973, he became President of the All-Union Theriologic Society. His works are in ecological morphology, hydrobionics, ecology, and mammalian taxonomy and chemical communication. In 1975, he received the A. N. Severtsov Prize in biology and animal morphology. He is presently director of the Evolution Morphology and Animals' Ecology Institute named after A. N. Severtsov (EMAEI) located in Moscow. (GSE 24, p. 282.)

Retrospect: The institute assumed its present role and scope and name in 1967. It traces This important institute traces its beginnings back to the Laboratory Experimental Zoology founded by A. O. Kovalevskii in 1893. It also includes the academy's Laboratory of Evolutionary Morphology founded by A. N. Severtsov in 1930. In 1977, the institute was organized into 20 laboratories and several additional research groups. Studies the evolutionary process and analyzes the transformation of living creatures. The institute has worked with several scientific councils of the USSR Academy and has cooperated in joint projects administered by the U. S. Environmental Protection Agency. The institute operates a number of biological stations and experimental bases in the Moscow, Kostroma and Krasnodar regions and in the Ukrainian and Tadzhik republics. It also researches porpoises, lower aquatic animals, and soil biology.

(older material)

Structure and Scientific Personnel: Director Sokolov, Vladimir E., D. Bio. S., since 1967; Deputy Director Mamaiev, Boris M., '77;

Bioacoustics Laboratory: Chief Romanenko, Ye. V., '77; Senior researchers: Mukhametov, Lev M., C. Bio. S., '74; Sleptsov, M. M., '61; and, Supin, Aleksandr Ya., D. Bio. S., '74;

Ecology of Lower Aquatic Animals Laboratory: Chief (Unknown); Senior researchers: Lapin, Iurii Ye., C. Bio. S., '70; Reshetnikov, Iurii S., '70;

Fish Embryology Laboratory: Chief Protasov, Vladimir R., '73; Senior researchers: Basov, Boris M., '77; Krumin, V. M., '71; Kuznetsov, V. A., '71; and, Orlov, A. A., '71;

Higher Vertebrate Morphology and Ecology Laboratory;

Ovogenesis Laboratory: Koshelev, Boris V., D. Bio. S., '70;

Soil Zoology Laboratory: Chief Giliarov, Merkuril S., D. Biol. S., '58;

Bolshoi Utrish Field Station;

Kazachia Bukhta Field Station;

(See: Ruble, Vol. I., pp. 236-237.)



4, Paleontological Institute and Museum in Moscow

Located at 123 Profsouznaia (aya) st., U-647, Moscow 117647. Tel. 339-10-44; fax: 339-12-66. Directed by Professor Aleksei I. Rozanov.

Retrospect: The institute was established in 1930 in a merger of several departments within the former Geological Museum of the Soviet Union. The institute is the site of the Iurii A. Orlov Paleontological Museum which is under the direction of N. N. Kalandadze, C. Sci. The museum staff also conducts research on fossil organisms.

The Paleontological Institute is a major center for the study of the morphology, phylogenesis, and the systematic and ecological foundations of basic animal groups. Scientists in the Department of Invertebrate Paleontology study Precambrian and Cambrian biota.

Moscow is best known for sites such as St. Basil's Cathedral on Red Square. It is also home to the world's largest paleontological institute. This affiliate of the Russian Academy of Sciences has more paleontologists under one roof than any other institution in the world. They have collections from all over the former Soviet Union and the world and researchers studying such diverse questions as the origin of life, dinosaurs from Mongolia, and mammals from cave faunas in Georgia. The breakup of the Soviet Union has had both good and bad effects on the institute. The freedom to visit colleagues in other parts of the world has increased, but their budget has been slashed so that they can hardly afford to make use of this new opportunity. The University of California Museum of Paleontology has set up a long-term cooperative agreement with the Paleontological Institute, one which has resulted in several mutual visits, student exchanges and cooperative projects.

The Museum of Paleontology, which is run by the Institute, has beautiful public exhibits, largely unheard of outside of Moscow. Representing nearly every type of fossil organism imaginable, the exhibits are particularly rich in Mongolian dinosaurs, synapsids (relatives of mammals) from the Perm region of Russia, and Precambrian fossils, representing the dawn of life, from Siberia. Some of these exhibits are now touring the world, having visited Australia, Japan, Finland, and the United States. Even with this extra exposure, most of the PIN's exhibits remain inaccessible to the world. The Paleontological Institute is trying to acquire an internet line so that they can have their own on-line exhibits. Until then, they have graciously "loaned" us some of their exhibits for our own Virtual Museum.

Researchers at the PIN can also be contacted by email at pbul@paleo.msk.su with the name of the researcher in the subject line.

(older material)

Department of Invertebrate Paleontology

Research groups in the department also exist as separately organized bodies and include: the research group on echinoderms headed by A. N. Soloviev, C. Sci., and the research group on paleo-bio-geo-chemistry under V. A. Sobetskii, D. Sci.

The department had eight laboratories in 1982 that included:

- (1.) The Precambrian Paleontology Laboratory** in which fossil marine and insects invertebrates are studied is under B. S. Sokolov, academician and recipient of the A. P. Karpinskii Gold Medal in 1979;
- (2.) The Ancient Skeletal Organisms Laboratory** under A Iurii Rozanov, D. Sci. where problems relating to the development of ancient skeletal faunas, the location of their origins, and archaeos from all regions of the world are studied;

- (3.) **The Bryozoans and Corals Laboratory** under I. P. Morozova, D. Sci., researches the morphogenesis, systematics, phylogeny and stratigraphic significance of bryozoans, rugozes, corals and stromatoporoids;
- (4.) **The Laboratory of Paleocology of Marine Faunas** headed by L. A. Nevesskaia (aya), D. Sci., studies the composition, evolution and distribution of bivalved mollusks and gastropods. Work in the laboratory on the ecology of the principal benthic animals in the Paleozoic epicontinental seas on the evolution of those communities is under Professor R. Th. Hecker;
- (5.) **The Laboratory of Cephalopods** under V. I. Bogoslovskii, D. Sci., investigates Paleozoic cephalopods, mainly ammonoids, nautiloids, and related groups;
- (6.) **The Laboratory of Brachiopods** under G. A. Afanas'eva, C. Sci., does morpho-functional analysis in problems of Carboniferous and Permian biogeography as well as producing the biostratigraphy of the Carboniferous and Permian areas of Russia;
- (7.) **The Arthropods Laboratory** under A. R. Rasnitsin, D. Sci., researches in paleo-entomology of the Mesozoic biocenotic assemblages; and
- (8.) **The Laboratory of Paleontology History** under V. N. Shimanskii, D. Sci., studies the history of paleontological institutions and societies and the development of paleontological studies and investigations in Russia and the world.

The Department of Fossil Vertebrates and Fossil Plants is under L. I. Novitskaia (aya), D. Sci., and conducts studies on the fossil fishes from the Lower Paleozoic to the Neogene inclusive. The department has three laboratories in it that include:

- (1.) **The Laboratory of Lower Tetrapods** is headed by academician L. P. Tatarinov, D. Bio. S., who is also the Director of the institute. Its scientists study Upper Paleozoic and Mesozoic reptiles, problems of terrestrial vertebrates in the Permian and Triassic areas, as well as the faunistic relations of ancient continents;
- (2.) **The Laboratory of the Amphibians** under M. A. Shiskin, D. Sci. studies the anatomy and morphogenesis of labyrinthodonts and the evolution of ontogeny;
- (3.) **The Laboratory of Mammals** under V. A. Trofimov, C. Sci. is concerned with the most important and best represented fossil mammalian groups and works in the fields of paleozoogeography, paleofaunistics, and paleo-ornithology (a speciality of E. N. Kurochkin).

The institute carries out expeditions with Mongolian paleontologists, and since 1974, over 40 volumes of these expeditions have been published by the Institute. Since 1932, in fact, over 230 volumes of Transactions of the Institute have been published. The institute has published Trudy since 1932. In 1992, the staff of the Paleontology Institute and Museum totaled 250 persons, of whom scientific personnel numbered 130 persons. Leonid P. Tatarinov, D. Bio. S., was Director from 1975 until replaced by Professor Aleksei I. Rozanov, the current Director.

(Information supplied by letter dated 13 July 1992, from Director Tatarinov. See also: *Palaeontological Institute*. Moscow: Scientific Publishing House No. 3496, 1983, 36 pp.)



5. N. U. Tsitsin Botanical Garden (Main) in Moscow.

Located at 4 Botanicheskaja (aya) st., I-276, Moaxoq, 127276. Tel. 482-13-73; fax: 482-15-82. Directed by Corresponding Member Lev N. Andreev.

Andreev, Lev N., C. Bio. S. Born in 1931. Corresponding member of the General Biology Department of the Academy since 1984. Since 1981, he has been Director of the Main Botanical Garden in Moscow which is named after N. V. Tsitsin..

Retrospect: Founded in 1945 and opened to the public in 1959. Special collections at the gardens include native flora of Russia, trees and shrubs, ornamental perennials, tropical and subtropical plants, cacti and succulents, cultivated plants such as cereal, fruit, berry, vegetables, and medicinal plants. There are some 267,000 specimens in the herbarium, and some 16,500 specimens in the horticultural herbarium. An educational staff of 35 provide courses for children, courses on the environment, and a diploma course in gardening. It Develops plants for economic benefit and cross breeding. It coordinates and supplies all botanical gardens in Russia with new specimens. It operates a 360-hectare plot adjacent to the Moscow Agricultural Academy, and operates the Snegiri Experimental Base some 43 kilometers from Moscow and maintains research fields in the Altai region near the Black Sea. Since 1948, it has published *Biulleten*. Structure and Scientific Personnel: Director Andreev, Lev N., C. Bio. S., since 1981; Deputy Director Lapin, Petr I., D. Bio. S., since 1952;

Plant Immunity Laboratory: Andreev, Lev N., C. Bio. S., since 1977.
(Material provided in letter dated November 12, 1991 from Lily Ardashnikova on behalf of Director Professor Lev Andreev.) (Also see: Ruble, Vol. I., p. 244.)



6. I. D. Papanin Inner Waters Biology Institute in Borok (Formerly: Biology of Inland Waters Institute)

**Located at Post/office Borok, Nekuzsk district, Yaroslavl' region, 152742.
Fax: 225-38-45; telex: 412583 WODA SU. Acting Director is Dr. Aleksandr Iv. Kopyilov.**

Retrospect: Established in 1955. Located in the Yaroslavl region, the institute does research on the entire fresh water system, including toxic materials in water. Its primary emphasis is on the Volga River Basin.

(older material)

Structure and Scientific Personnel: From 1988, until replaced by Dr. Kopyilov, the Director was Nikolai P. Smirnov, D. Geog. S. Scientific Secretary: Rachinskii, Georgii N., C. Bio. S., since '77;

Computer Center: Head Shevchenko, Raisa M., since '70;

Hydrobiology Laboratory: Head Butorin, Nikolai V., D. Geo. S., since '70;

Ichthyology Laboratory: Head Poddubni, Artur G., since '77;

Marine Invertebrates Ecology Laboratory: Head Mordukhai-Boltovskoi, Filaret D., D. Bio. S., since '77;

Microbiology Laboratory: Head Romanenko, Vitali I., D. Bio. S., since '71;

Physiology and Parasitology of Freshwater Animals Laboratory: Head Flerov, Boris A., C. Bio. S., since '75;

Physiology of Lower Organisms Laboratory: Head Kamshilov, Mikhail M., D. Bio. S., since '70;

Zoology Laboratory: Head Vainshtein, Boris A., since '70.
(See: Ruble, Vol. I., p. 253.)



7. N. I. Vavilov General Genetics Institute in Moscow.

Located at 3 Fuvkin ar., U-333, Moscow, GSP-1, 117809. Fax: 135-12-89. Directed by Corresponding member Iurii P. Altukhov

Altukhov, Iurii P. Born in 1936. Corresponding member of the General Biology Department of the Academy in 1993. He has been a Deputy Director of the General Genetics Institute in Moscow since 1975. He is presently director of that famous institute.

Retrospect: Founded in 1966 from the Laboratory of Radiation Genetics of the Institute of Biophysics and the Institute of Genetics of the AN SSSR. It was named after the famous geneticist Vavilov in 1983. The institute operates nearly 24 laboratories engaged in genetic research. Its scientists study the selection, radiation, space, and evolutionary genetics of plants, animals, and microorganisms. In 1989 its personnel included: Sergei V. Shestakov, who from August 1988 to 1992 was the Director. Since 1992, the Director has been Iurii P. Altukhov, D. Bio. S., who from 1975 to 1992 was a Deputy Director of the institute. Deputy Director: Dr. Galina D. Zasukhina, D. Med. S., has been a Deputy Director since '74. (See: Ruble, Vol. I., p. 238.)



8. N. K. Koltsov Developmental Biology Institute in Moscow.

Located at 26 Vavilova st. U808, GSP-1, 117808. Tel. 135-33-22. Fax: 135-80-12. Directed by Academician Nikolai G. Khrushchov.

Khrushchov, Nikolai G., D. Bio. S. Born in 1932. Corresponding member of the General Biology Department of the Academy since 1979; academician in 1993. Since 1976, he has been Deputy Director of the N. K. Koltsov Developmental Biology Institute in Moscow, and in the late 1980s he was named Director, replacing Dr. Aleksei V. Yablokov, D. Bio. S., who is now the Deputy Chairman of the Committee of Ecology of the Russian Government. In 1969, Khrushchov headed the Histogenesis Laboratory of the N. K. Koltsov Developmental Biology Institute in Moscow. He presently is director of the Biology Development Institute (BDI).

Retrospect: Established in 1967 replacing the Experimental Biology Institute. Research in the institute is concentrated upon the molecular-biological and genetic mechanisms of control over gene activity in embryo genesis and cell differentiation; the development of theoretical bases and methods for controlling reproduction and sex ratios; the construction of highly productive breeds and hybrids of commercial animals; the cytological and histological mechanisms of morphogenesis, regeneration and growth, and control of proliferation in development; the control and integrating mechanisms of development--endocrine, neuro-humoral and other control mechanisms in ontogenesis. The institute journal is published in the United States under the title The Soviet Journal of Developmental Biology.

(Older material)

Structure and Scientific Personnel: Director Professor N. G. Khrushchov D. Bio. S., corresponding member of the AN SSSR from 1979 was the Deputy Director of the institute in 1976, and in the late 1980s he was named Director, replacing Dr. Aleksei V. Yablokov, D. Bio. S., who is now the Deputy Chairman of the Committee of Ecology of the Russian Government; Deputy Directors: Dr. N. V. Nechaeva, D. Bio. S., and, Dr. B. N. Manukhin, D. Bio. S. This important research institute is organized into 17 laboratories and seven major research groups. The laboratories included the following in 1992:

- 1) **Cell differentiation Laboratory:** Dr. O. G. Stoeva, D. Bio. S;
- 2) **Developmental Biophysics Laboratory:** Dr. A. I. Zotin, D. Bio. S;
- 3) **Experimental Embryology laboratory:** Dr. S. G. Vassetskii, D. Bio. S.;
- 4) **Biochemistry Laboratory:** Dr. V. S. Mikhailov, D. Bio. S.; (Senior researchers: Bukhvalov, I. B., C. Bio. S., since 1969; Ginzburg, G. I., C. Bio. S., since 1969; Kuzmina, S. N., C. Bio. S., since 1969; Loshkareva, N. P., since 1969, and Troitskaia (aya), L. P., since 1969);
- 5) **Molecular Genetics Laboratory:** Dr. G. G. Gauze, D. Bio. S., senior researcher in the Biochemistry Laboratory in 1969;
- 6) **Developmental Molecular Biology Laboratory:** Professor L. I. Korochkin, corresponding member of the Russian Academy of Sciences;
- 7) **Biochemical Embryology Laboratory:** Head Neifakh, Aleksandr A., D. Bio. S., since 1969; (Senior researchers: Abramova, N. B., C. Bio. S., since 1969; Dontsova, G. V., C. Bio. S., since 1969; Ivanchik, T. A., since 1969; Kostomarova, A. A., C. Bio. S., since 1969; Kotomin, A. V., C. Bio. S., since 1969, and, Krigsgaber, M. R., since 1969);
- 8) **Cytology Laboratory:** Head Brodskii, Vsevolod Ia., D. Bio. S., since 1969; (Senior researchers: Arefieva, A.; M., C. Bio. S., since 1969; Aizenshtadt, T. B., C. Bio. S., since 1969; Gorbunova, M. P., C. Bio. S., since 1969; Marshak, T. L., since 1969; Nechaeva, N. V., C. Bio. S., since 1969; Urivaeva, I. V., C. Med. S., since 1969);
- 9) **Histogenesis Laboratory:** Professor N. G. Khrushchov D. Bio. S. since 1969, corresponding member of the AN SSSR from 1979--(Senior researchers: Abuladze, Avgusta V., C. Bio. S., since 1969; Chernisheva, Elena V., since 1969; Gorbunov, Vladimir M., C. Bio. S., since 1969; Skurskaia (aya), M. G., C. Bio. S., since 1969, and, Sludskaia (aya), A. I., since 1969);
- 10) **the Organogenesis Laboratory:** Dr. A. T. Mikhailov, D. Bio. S.;
- 11) **the Regeneration Problems Laboratory:** Dr. V. I. Mitashov, D. Bio. S.;
- 12) **the Genetics Laboratory:** Dr. V.G. Mitrofanov, D. Bio. S.--in 1969, he was a senior researcher in the Experimental Karyology Laboratory
- 13) **the Postnatal Ontogenesis Laboratory:** Dr. V. M. Zakharov, D. Bio. S.;
- 14) **Cell Interactions Laboratory:** Dr. B. N. Manukhin, D. Bio. S.;
- 15) **Embryo Physiology laboratory:** Dr. G. A. Buznikov, D. Bio. S.;

- 16) Comparative Physiology Laboratory:** Dr. D. A. Sakharov, D. Bio. S.;
- 17) Hormonal Regulation Laboratory:** Dr. M. V. Uryumov, D. Bio. S.

In addition to these laboratories listed above, there are seven major research groups, each under the leadership of a senior scientist:

- 1) **The Studies of Gameteogenesis Regulation Research Group** under Professor B. F. Goncharov, C. Bio. S.;
- 2) **The Transgenosis Research Group** under Dr. B. A. Kuzin, D. Bio. S.;
- 3) **The Developmental Cytogenetics and Sex Control Research Group** under academician Dr. V. A. Strunnikov, D. Bio. S.--developed from the Reproduction and Sex Control Biology Laboratory headed by Dr. Strunnikov from 1969--Senior researchers: Danilova, L. V., C. Bio. S., since 1969, and, Rombe, S. M., C. Bio. S., since 1969;
- 4) **The Cytogenetics Research Group** under Dr. N. N. Vorontsov, D. Bio. S.;
- 5) **The Selection of Agricultural Plants and Herbs Research Group** under V. V. Arkatov;
- 6) **The General Physiology Research Group** under Dr. T. M. Turpaev, D. Bio. S. and corresponding member of the Physiology Department of the AN SSSR from 1972--from 1976 to 1988, he served as Director of the Developmental Biology Institute.;
- 7) **The Hydrobionts Ecology and Physiology Research Group** under Dr. M. V. Uryumov, D. Bio. S.

Biological Station Kropotova: Head Yurovitskii, Iurii G., C. Bio. S., since 1969;

Support Services Departments:

Electron Microscopy Department: Head Dmitriyeva, Natalia P., C. Bio. S., since 1969;

Ultraviolet Microbeam Methods Department: Head (Unknown); Senior researcher Komleva, N. G., since 1969; Unknown affiliation: Senior researcher Vorontsov, Nikolai N., D. Bio. S., since 1978.

(Information by letter from Professor Aleksei V. Yablokov who is now Deputy Chairman of the Committee of Ecology of the USSR Supreme Soviet, dated October 1991.) (Information provided in letter dated 21 January 1992 from Deputy Director Dr. Natalia V. Nechaeva.)



9. The Volga Region Ecology Institute in Toliyatti

Located at 10 Komzina st., Toliyatti, 445003. Tel. 23-56-85; teletype: SOSNA 290248; fax: 23-56-85. Under the direction of Professor Gennadii S. Rozenberg. Tel. 23-56-85.



10. The Parasitology Institute in Moscow

Located at 33 Leninskii ave., U-71, Moscow, 117071. Tel. 952-57-46. Directed by Professor Mark D. Sonin. Tel. 236-52-17.



11. Forest Science Institute in the Odintsovskii district, Moscow Region

Located at 143030, Uspenskoie post office, Odintsovskii district, Moscow region. Fax: 561-65-90. Directed by Corresponding Member Stanislav E.Vomperskii.

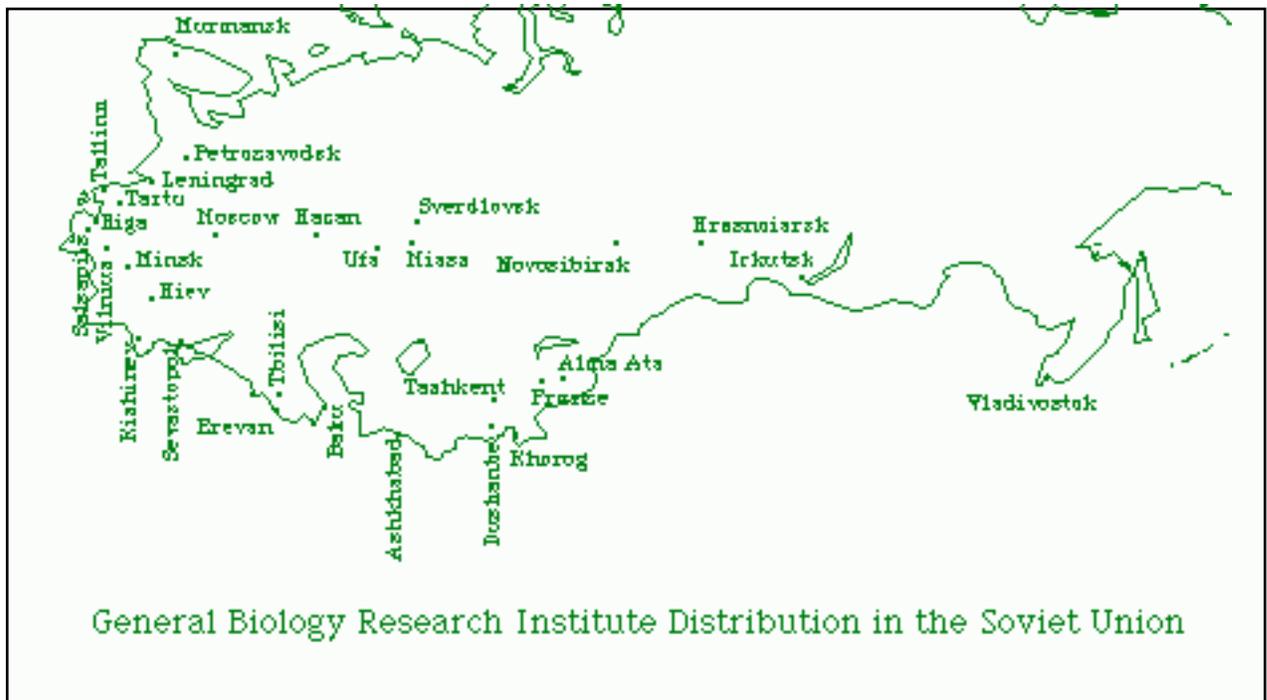
Vomperskii, Stanislav E. He is a member of the General Biology Department of the Russian Academy of Sciences and is presently director of the Forest Science Institute (FSU RAS) in the Moscow region. He has been a Corresponding member of the Academy since 1993.



12. The Wood Output Ecology Problems Center in Moscow

Located at 69 Novocheriomushkinskaia (aya) st. , Moscow, 117418. Tel. 332-21-13, 332-52-35; fax: 332-60-20; telex: 411667 KEDR SU. Directed by Academician Aleksandr S. Isaev.

Isaev, Aleksandr S. D. Bio. S. Born in 1933 in Moscow. Biologist, Forester, Entomologist. Corresponding member since 1976, and academician of the General Biology Department of the National Academy and of the Siberian Department since 1984. He graduated from the Leningrad S. M. Kirov Academy of Forest Technology in 1954. From 1954 to 1960, he was a forest appraiser at the Moscow Unified Aviation Forest-Planning Expedition of the Ministry of Forestry of the USSR. and the V. N. Sukachev Institute of Forestry and Timber of the Siberian Department of the AN SSSR in Krasnoyarsk. From 1954 to 1960 he worked with a forest protection organization, and from 1960 to 1988, with the Forestry and Timber Institute serving as its Director from 1977 to 1989. He was chairman of the Krasnoyarsk Affiliate of the Siberian Department from 1978 to 1988. His work includes the study of biogeographic forest communities, relationships between insect pests and forests, and the population dynamics of insects. He was on the Presidium of the Siberian Branch from 1980 to 1988. He headed the Scientific Council on the Biological Sciences from 1985 to 1988. In 1988 he was made chairman of the government committee on forestry of the national academy. He was a delegate to the 25th and 26th Congresses. He is presently director of the Wood Output Ecology Problems Center in Moscow. (GSE 30, p. 444.)



Other National Biological Research:

It must be emphasized that biological research institutes, in addition to those listed above, in the former Soviet Union total at least another 75. Not only are the biological sciences one of the oldest organized scientific disciplines, biological scientific research institutes in the country are located in some 32 cities and towns and date back to the earliest beginnings of scientific research in Russia. Sometimes two or more dates for the founding of individual institutes are given below, and in each case the earliest date is used to locate the date of establishment among all of the institutions. The last date is that at which the institute in question emerges in its most modern; the first is the earliest date known for the creation of the first unit upon which the later form or forms were built.

Before 1940

1. Central Botanical Gardens in Tbilisi. 2. V. I. Lenin Ilmenskii State Reserve in Miass, Cheliabinsk Oblast. 3. N. G. Kholodnii Botany Institute in Kiev. 4. Botany Institute in Erevan.

1940s

5. Botanical Garden in Tallinn. 6. Soil Science and Agrochemistry Institute in Baku. 7. Plant Physiology Institute in Kiev. 8. Botanical Garden (Central Siberia) in Novosibirsk. 9. A. Kirkhenshtein Microbiology Institute in Riga.

1950s

10. Organic Synthesis Institute in Riga. 11. A. N. Natishvili Experimental Morphology Institute in Tbilisi. 12. Botanical Chemistry Institute in Tashkent. 13. V. N. Sukachev Forestry and Timber Institute in Krasnoyarsk. 14. Biology Institute in Novosibirsk. 15. Zoology Institute in Alma Ata. 16. Biology Institute in Kazan'.

1960s

17. Agrochemical Problems and Hydroponics Institute in Erevan. 18. Far Eastern Botanical Garden in Vladivostok. 19. Plant and Animal Ecology Institute in

Ekaterinburg (Sverdlovsk). 20. Forestry Institute in Petrozavodsk. 21. Biology Institute in Salaspils. 22. Experimental Biology Institute in Erevan. 23. Microbiology and Virology Institute in Alma Ata. 24. Paleobiology Institute in Tbilisi. 25. Cytology and Genetics Institute in Novosibirsk. 26. Zoology Institute in Ashkhabad. Established in 1957. 27. Experimental Biology Institute in Kharku. 28. Zoology and Botany Institute in Tartu. 29. Marine Biology Institute in Murmansk. 30. Plant Physiology and Biochemistry Institute in Irkutsk. 31. Genetics and Selection Institute in Baku. 32. Botany Institute in Vilnius. 33. Zoology and Parasitology Institute in Vilnius. 34. Zoology Institute in Kishinev. 35. Plant Physiology and Biochemistry Institute in Kishinev. 36. E. N. Pavlovskii Zoology and Parasitology Institute in Dushanbe. 37. Plant Physiology and Biophysics Institute in Dushanbe. 38. Biology and Soil Science Institute in Vladivostok. 39. Experimental Biology Institute in Alma Ata. 40. Arid Zones Physiology and Experimental Pathology Institute in Ashkhabad. 41. Regional Medicine Institute in Ashkhabad. 42. A. O. Kovalevskii Biology of Southern Seas Institute in Sevastopol. 43. Karadag Branch. 44. Odessa Branch. 45. A. O. Kovalevskii Institute of the Biology of the Southern Seas in Tashkent. 46. Zoology and Parasitology Institute in Tashkent. 47. Botany Institute in Ashkhabad. 48. Experimental Botany Institute in Minsk. 49. Botany Institute in Tashkent. 50. Botanical Gardens (Central) in Minsk. 51. Botanical Garden in Tadzhik. 52. Institute of Botany in Tbilisi. 53. V. L. Komarov Botany Institute in Baku. 54. Zoology Institute in Erevan. 55. Zoology Institute in Baku. 56. Hydrobiology Institute in Tashkent. 57. Hydrobiology Institute in Kiev. 58. Pamir Botanical Garden in Khorog. 59. Botany Institute in Dushanbe. 60. Zoology Institute in Tbilisi. 61. Limnology Institute in Irkutsk. Established in 1961. 62. Biochemistry Institute in Tashkent. Established in 1967 based on a 1925 institute forerunner. 63. D. K. Zabolotnii Institute of Microbiology and Virology in Tashkent. 64. Zoology Institute in Kiev. 65. Experimental Plant Biology Institute in Tashkent. 66. Biology Institute in Frunze. 67. Bioorganic Chemistry Institute in Vladivostok. 68. Gastroenterology Institute in Dushanbe. 69. Genetics and Cytology Institute in Minsk.

1970s

71. Paleobiology Institute in Tbilisi. 72. Plant Biochemistry Institute in Tbilisi. 73. Biology Institute in Ufa. 74. Photo biology Institute in Minsk. 75. Bioorganic Chemistry Institute in Minsk.

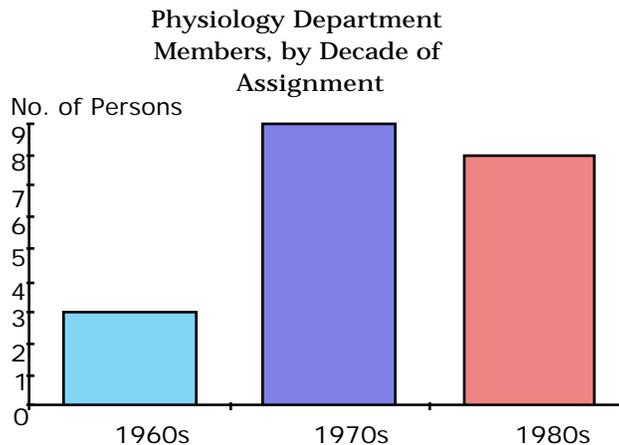


Department of Physiology (DP) in Moscow
32a, Leninskii ave., Moscow, 117993, tel.938-51-49

Academician Secretary of the Department is Pavel V. Simonov. Tel. 938-17-72.

Members of the Physiology Department--administrative responsibilities: The membership of this department includes the President of the Academy of Medical Sciences, and one member of the Presidium of that academy. Four other persons are members of that academy and of the Physiology Department of the national academy. The Vice President of the Armenian SSR academy is a member of this Department and one other departmental member is also a member of the Armenian academy. Two members of the department serve on the board of the General Assembly of the GKNT. The Scientific Secretary of the Department is Director of a Ukrainian research institute and a member of the Ukrainian SSR academy. One member is Head of an important research laboratory, one is a Deputy Directory of a research institute, and 12 are Directors of institutes in various parts of the country.

Figure 25



Compiled from: CR 80-13202, pp. 159-160.

Academicians--age and schools: The average age of the ten academicians of the department whose birth dates are known was 68 in 1991. Three were born before 1918. Even with these three discounted the average age of the remaining eight was 64. The institutions graduating seven of the 12 academicians of this department are known and include: the I. P. Pavlov 1st Leningrad Medical Institute, the Gorkiy Medical Institute, the Kiev Medical Institute, the 2nd Moscow Medical Institute, the University of Kiev, the Moscow State University, and the Dnepropetrovsk Medical Institute. One woman is among the twelve academicians.

Corresponding Members age and schools: Eleven of the 16 corresponding birth dates are known, and their average age in 1991 was 67. Two were in their 80s, and the youngest was 46. Only four institutions are known from which five of the 16 corresponding members graduated. As in the case of the academicians, however, of those whose institutions are known the largest majority of them graduated from medical schools with a second largest number graduating from biology departments of the universities.

(1997 update)

Bureau of the Department

Academician-- secretary

Academician Pavel V. Simonov, tel.938-17-72

Simonov, Pavel V., D. Med. S. Born in 1926. Academician secretary to the Physiology Department of the Academy since October 1988. Corresponding member of the Physiology Department of the Academy since 1981; academician since 1987. From 1961 to 1983 he was Deputy Director and since 1983, he has been Director of the Higher Nervous Activity and Neurophysiology Institute in Moscow that was created in 1961 to research the general, comparative, and pathological physiology of the nervous system--including the physiology and morphology of Pavlovian conditioning and inhibition. The institute is subordinate to the Academy's Physiology Department. Since 1969, he has been head of the Physiology of the Emotions Laboratory of that Institute. In 1979, he was awarded the I. P. Pavlov Prize in anatomy and physiology for his contributions to Russian Physiology.

Deputies of the Academician-- secretary:

Academician Oleg G. Gazenko, tel.195-02-33, 195-67-77

Gazenko, Oleg G., D. Bio. S. Born in 1918 in Nikolaevka, Stavropol Krai. Russian physiologist. Corresponding member of the Physiology Department of the Academy since 1966, and academician since 1976. He graduated from the Second Moscow Medical Institute in 1941. Since 1956, he has taken part in the organization of work on space biology and medicine that helped make manned space flights and their equipping possible. Since 1969, he has been Director of the Biomedical Problems Institute in Moscow. The institute conducts research in space biology and medicine. It is responsible for all aspects of the cosmonauts' health and safety. His principal works deal with space physiology, particularly in the influence of weightlessness on the organism. He is a deputy to the Academician Secretary of the Physiology Department of the Academy. (GSE 5, p. 170.)

Academician Tigran M. Turpaiev, tel.135-30-55

Turpaev, Tigran M., D. Bio. S. Born in 1918 in Astrakhan. Russian physiologist. Corresponding member of the Physiology Department of the Academy since 1972; academician in 1993. He graduated from the Department of biology of Moscow State University in 1941. From 1941 to 1946 he served in the Red Army. In 1948, he was a research worker at the A. N. Severtsov Institute of Animal Morphology of the AN SSSR and in 1961, he became head of one of that institute's laboratories. In 1969, he was made head of the Physiology Laboratory of the N. N. Koltsov Developmental Biology Institute in Moscow and from 1976 to 1988, he served as Director of that institute. Founded in 1967, the institute researches the mechanisms of growth and development on the molecular, subcellular and cellular tissue, and whole organism levels. It is subordinate to the academy's General Biology Department. His works are primarily in comparative physiology and the physiology of the transmission of nerve impulses in chemical synapses. He is presently heading the general physiology research group in the N. K. Koltsev Developmental Biology Institute in Moscow. At present he is a deputy to the Academician Secretary of the Physiology Department of the Academy. (GSE 26, p. 517.)

Responsible for scientific questions :

Dr. Irina Al. Maksimova, tel.938-17-13, 938-58-53

Members of the Bureau:

Academician Sergei N. Iefuni, tel.246-49-87

Iefuni, Sergei N., D. Med. S. Corresponding member of the Physiology Department of the Academy since 1979; academician since 1993.

Academician Platon G. Kostuk, tel.291-20-40, 293-29-09(Kiev)

Kostiuk, Platon G., D. Bio. S. Born in 1924 in Kiev. Russian physiologist and a specialist in neurophysiology and electrophysiology. Member of the Presidium of the academy since August of 1988. He has been a corresponding member of the Physiology Department of the AN SSSR and the RAN since 1966; and, academician since 1974. He has served as academician secretary of the Physiology Department since 1975. He has also been an academician of the Biochemistry,

Physics, and Theoretical Medicine Department of the Ukrainian academy of sciences since 1969 and a member of the GDR Republic Academy of Naturalists since 1966. He graduated from the University of Kiev in 1946 and from the Kiev Medical Institute in 1949. He became head of the Institute of Animal Physiology of the University of Kiev in 1956. In 1958, he became head of the division of general physiology of the nervous system that he had organized at the A. A. Bogomolets Institute of Physiology of the Ukrainian AN SSR. Since 1966, he has been director of that institute in Kiev. Established in 1953, the institute does research on basic and applied problems of physiology. His works have included work on cellular mechanism of nervous activity. He was the first in the U.S.S.R. to use microelectrodes in the study of nerve cells. He was awarded the I. P. Pavlov Prize in 1962. Since 1970, he has been director of the Experimental Medical Institute in St. Petersburg. In 1977, he received the I. M. Sechenov Prize for his work.(GSE 13, p. 439.)

Academician Iurii V. Natochin, tel.552-30-86(SPb)

Natochin, Iurii V., D. Bio. S. Born in 1932. In 1980, he received the L. A. Orbeli Prize in physiology for his research. Corresponding member of the Physiology Department of the Academy since December 1987; Academician in 1993.

Academician Vladimir L. Sviderskii, tel.552-79-01(SPb)

Sviderskii, Vladimir L., D. Bio. S. Born in 1931. Corresponding member since 1981. Academician of the Physiology Department of the Academy since December 1987. Since 1982, he has been Director of the I. M. Sechenov Evolutionary Physiology and Biochemistry Institute in St. Petersburg. that is subordinate to the academy's Physiology Department. It was created in 1956 and studies the problems of evolutionary physiology and the biological effects of radiation. In 1986, he was the recipient of the L. A. Orbeli Prize in physiology for his contributions to Russian physiology.

Corresponding Member Aleksei L. Buizov, tel.430-71-90

Byzov, Aleksei L., D. Bio. S. Born in 1926. Corresponding member of the Physiology Department of the Academy since 1981. Since 1975, he has been Chief of the Biological Problems Laboratory of the Information Transmission Problems Institute in Moscow.

Corresponding Member Aleksandr D. Nozdrachev, tel.218-97-41(SPb)

Nozdrachev, Aleksandr D. Corresponding member of the Physiology Department of the Academy in 1993.

Prof. Sviatoslav V. Medvedev, tel.234-13-90(SPb)

Prof. Feliks G. Gribakin, tel.552-30-90(SPb)

Scientist-- secretary: tel.938-58-53

Staff of the Department

Viktoriya M. Ivanova, tel.938-58-58

Dr. Svetlana P. Odintsova, tel.938-51-10

Vladimir S. Sbitenikov, tel.938-58-71

Margarita F. Stepanova, tel.938-51-49

The staff of the Department includes: Viktoria V. Ivanova; Dr. Svetlana Odintsova; Vladimir S. Sbitenikov; and Margarita F. Stepanova.

Academicians

Bekhtereva, Natalia P., D. Med. S. Born in 1924 in Leningrad. Russian physiologist. Since 1975, academician of the National Medical Academy of Sciences Medical and Biological Sciences Department. Corresponding member, 1970, and academician, 1981. Granddaughter of V. M. Bekhterev. She graduated from the I. P. Pavlov First Leningrad Medical Institute in 1947. She worked at the Institute of Experimental Medicine of the Medical Academy from 1950 to 1954 and at the A. L. Polenov Neurosurgical Institute of the Ministry of Health from 1954 to 1962. In 1962, she became Head of the Neurophysiology Department of the Institute of Experimental Medicine, becoming its Director in 1970. She was the first scientist in Russia to implant electrodes in the human brain on a long-term basis for diagnostic and medicinal purposes. (GSE 30, p. 23.)

Chazov, Evgenii I., D. Med. S. Born in 1929 in Gorkiy. Russian doctor of internal medicine. Academician of the Physiology Department of the Academy since 1979. Since 1972, he has been a member of the Presidium of the Academy of Medical Sciences. He is an Honored Scientist of the former RSFSR (1974). He graduated from the Kiev Medical Institute in 1953 and worked at the First Moscow Medical Institute and at the Institute of Internal medicine of the Academy of Medical Sciences. He was made professor and Director of the Institute of Internal Medicine in 1965. In 1968, he became Deputy minister of Health of the former Soviet Union and Head of the emergency cardiology division of the A. L. Miasnikov Institute of Cardiology. In 1976, he helped to establish and became General Director of the All-Union Cardiology Research Center in Moscow that has ten institutes under its jurisdiction. His work has concentrated on thrombosis, myocardial infarction, myocardial metabolism and circulatory insufficiency. He has been President of the All-Union Society of Cardiologists since 1975. He is a member of several societies and scientific academies across the world. (GSE 29, p. 75.)

Gazenko, Oleg G., D. Bio. S. Born in 1918 in Nikolaevka, StavropoKrai. Russian physiologist. Corresponding member, 1966, and academician, 1976. He graduated from the Second Moscow Medical Institute in 1941. Since 1956, he has taken part in the organization of work on space biology and medicine that helped make manned space flights and their equipping possible. Since 1969, he has been Director of the Biomedical Problems Institute in Moscow. The institute conducts research in space biology and medicine. It is responsible for all aspects of the cosmonauts' health and safety. His principal works deal with space physiology, particularly in the influence of weightlessness on the organism. He is currently a Deputy to the Academician Secretary of the Physiology Department of the Academy. (GSE 5, p. 170.)

Gurfinkel', Viktor S., D. Med. S. Born in 1922. Corresponding member of the Physiology Department of the Academy since 1987; academician in 1993. Professor Gurfinkel heads the Motor Control laboratory in the motion control in living systems and robotics area which is concerned with information processing in the system of posture and movement control, one of the most complex and important aspects of brain activity. The laboratory specializes also in the adaptation of man to weightlessness in space.

Kostiuk, Platon G., D. Bio. S. Born in 1924 in Kiev. Russian physiologist and a specialist in neurophysiology and electrophysiology. Member of the Presidium of the academy since August of 1988. He has been a corresponding member of the Physiology Department of the RAS since 1966, and, academician since 1974. He served as Academician Secretary of the Physiology Department from 1975 until

replaced by Professor Simonov. He has also been an academician of the Biochemistry, Physics, and Theoretical Medicine Department of the Ukrainian academy of sciences since 1969 and a member of the GDR Republic Academy of Naturalists since 1966. He graduated from the University of Kiev in 1946 and from the Kiev Medical Institute in 1949. He became Head of the Institute of Animal Physiology of the University of Kiev in 1956. In 1958, he became Head of the division of general physiology of the nervous system that he had organized at the A. A. Bogomolets Institute of Physiology of the Ukrainian AN SSR. Since 1966, he has been Director of that Institute in Kiev. Established in 1953, the institute does research on basic and applied problems of physiology. His works have included work on cellular mechanism of nervous activity. He was the first in Russia to use microelectrodes in the study of nerve cells. He was awarded the I. P. Pavlov Prize in 1962. Since 1970, he has been Director of the Experimental Medical Institute in St. Petersburg. In 1977, he received the I. M. Sechenov Prize for his work. He was awarded the A. A. Bogomol'ts Prize in Physiology and Theoretical Medicine in 1987. He is currently a member of the Bureau governing body of the Academy. (GSE 13, p. 439.)

Natochin, Iurii V., D. Bio. S. Born in 1932. In 1980, he received the L. A. Orbeli Prize in physiology for his research. Corresponding member of the Physiology Department since December 1987; Academician in 1993. He is currently a member of the Bureau governing body of the Physiology Department of the Academy.

Petrovskii, Boris V., D. Med. S. Born in 1908 in Essentuki. Russian surgeon and public figure and organizer of public health care. He was a candidate member of the Central Committee of the CPSU. Since 1957, academician of the Clinical Medical Department of the Academy of Medical Sciences. Academician since 1966. He graduated from the medical faculty of the First Moscow State University in 1930. From 1941 to 1944, during WWII, he was Head surgeon of evacuation hospitals at the front. He was a professor of the subdepartment of general surgery at the Second Moscow Medical Institute in 1948 and 1949 and of the subdepartment of stationary surgery at the University of Budapest from 1949 to 1951. Beginning in 1956, he was Head of the Department of Stationary Surgery at the First Moscow Medical Institute and since 1963, he has been Director of the Surgery Research Center in Moscow. In 1965 he was appointed Minister of Public Health of the USSR. Since 1977, he has been a board member of the General Assembly of the GKNT. His work is in the treatment of cancers of the esophagus and congenital and acquired defects of the heart. Recipient of the State Prize, 1971; Lenin Prize, 1960. (GSE 19, p. 513.)

Roshchevskii, Mikhail P. Corresponding member of the Physiology Department of the Russian Academy of Sciences and of the Urals Department since December 1987; academician in 1993. He became Chairman of the Komi Scientific Center in February 1984. He was named a Deputy Chairman of the Urals Department in August 1988.

Shumakov, Valerii I., D. Med. S. Born in 1931. Academician of the Physiology Department in 1993. He has been Director of the Transplants and Artificial Organs Scientific Research Institute in Moscow since 1974. The institute is developing an artificial heart and other organ and tissue transplants.

Simonov, Pavel V., D. Med. S. Born in 1926. Academician Secretary to the Physiology Department of the Academy since October 1988. Corresponding member of the Physiology Department of the Academy since 1981; academician since 1987. From 1961 to 1983 he was Deputy Director and since 1983, he has been Director of the Higher Nervous Activity and Neurophysiology Institute in Moscow that was created in 1961 to research the general, comparative, and pathological physiology of the nervous system--including the physiology and morphology of Pavlovian conditioning and inhibition. The institute is subordinate

to the Academy's Physiology Department. Since 1969, he has been Head of the Physiology of the Emotions Laboratory of that Institute. In 1979, he was awarded the I. P. Pavlov Prize in anatomy and physiology for his contributions to Russian Physiology. (See above.)

Skok, Vladimir I., D. Bio. S. Born in 1932. (Physiology and Medicine). Corresponding member of the Biochemistry, Physiology, and Experimental Medicine Department of the Ukrainian Academy of Sciences since 1973. He has been an academician of the Physiology Department of the Academy since 1987. Secretary of the Ukrainian Department of Biochemistry, Physiology, and Experimental Medicine since 1974. He was named Vice President of the Ukrainian Academy in 1988. In 1990, he was Head of the Council on Problems of Biotechnology. He received the State Prize in 1989.

Sviderskii, Vladimir L., D. Bio. S. Born in 1931. Corresponding member of the Physiology Department since 1981. Academician since December 1987. Since 1982, he has been Director of the I. M. Sechenov Evolutionary Physiology and Biochemistry Institute in St. Petersburg, that is subordinate to the academy's Physiology Department. It was created in 1956 and studies the problems of evolutionary physiology and the biological effects of radiation. In 1986, he was the recipient of the L. A. Orbeli Prize in physiology for his contributions to Russian physiology. He is currently a member of the Bureau governing body of the Physiology Department of the Academy.

Turpaev, Tigran M., D. Bio. S. Born in 1918 in Astrakhan. Russian physiologist. Corresponding member of the Physiology Department of the Academy since 1972; academician in 1993. He graduated from the Department of Biology of Moscow State University in 1941. From 1941 to 1946 he served in the Red Army. In 1948, he was a research worker at the A. N. Severtsov Institute of Animal Morphology of the AN SSSR and in 1961, he became Head of one of that institute's laboratories. In 1969, he was made Head of the Physiology Laboratory of the N. N. Koltsov Developmental Biology Institute in Moscow and from 1976 to 1988, he served as Director of that institute. Founded in 1967, the institute researches the mechanisms of growth and development on the molecular, subcellular and cellular tissue, and whole organism levels. It is subordinate to the academy's General Biology Department. His works are primarily in comparative physiology and the physiology of the transmission of nerve impulses in chemical synapses. He is presently heading the general physiology research group in the N. K. Koltsev Developmental Biology Institute in Moscow. He is currently a Deputy to the Academician Secretary of the Physiology Department of the Academy. (GSE 26, p. 517.)

Yefuni, (Efuni) Sergei N., D. Med. S. Born in 1930. Corresponding member of the Physiology Department since 1979; academician since 1993. He is currently a member of the Bureau governing body of the Physiology Department of the Academy.

Corresponding Members

Byzov, Aleksei L., D. Bio. S. Born in 1926. Corresponding member of the Physiology Department of the Academy since 1981. Since 1975, he has been Chief of the Biological Problems Laboratory of the Information Transmission Problems Institute in Moscow. He is currently a member of the Bureau governing body of the Physiology Department of the Academy.

Chaylakhian, Levon M., D. Bio. S. Corresponding member of the Physiology Department of the Academy since 1984. He is Head of the Information Transmission and Processing in Living Systems Area and of the Information Processing on the Molecular and Cellular Level Laboratory of the Problems of Information Transmission Institute in Moscow. His laboratory investigates the regulation and control principles used in the processes of the formation and

functioning of living beings, stressing the bio-informatic foundations of such principles.

Fanardzhian, Viktor V., C. Med. S. Born in 1929. (Armenian physiologist). Since 1979, he has served as Vice President of the Armenian Academy of Sciences. Corresponding member of the Physiology Department of the Russian Academy since 1984. Since 1978, he has been Director of the L. A. Orbeli Physiology Institute in Erevan. The institute was founded in 1943 to study problems of physiology, biochemistry, and pharmacology. It is a leading research facility of its kind in Armenia.

Fedorov, Sviatoslav N., D. Med. S. Born in 1927. Corresponding member of the Physiology Department of the Academy since December 1987. In 1987, he was the recipient of the M. V. Lomonosov Gold Medal for his contributions to Russian Science. (LDA 89-11378.)

Kryshtal', Oleg A., D. Bio. S. Born in 1945. (Physical Chemical Membrane Biology). He received the SSSR State Prize in 1983. Corresponding member of the Biochemistry, Physiology, and Theoretical Medicine Department of the Ukrainian Academy since 1985. Corresponding member of the Physiology Department of the Russian Academy since 1987. (LDA 89-11378.)

Medvedev, Vladimir I. Since December of 1987, corresponding member of the Physiology Department of the Academy, and Academician Secretary of the Department. (LDA 89-11378.)

Nozdrachev, Aleksandr D. Corresponding member of the Physiology Department of the Academy in 1993. He is currently a member of the Bureau governing body of the Physiology Department of the Academy.

Piruzian, Lev A., D. Med. S. Born in 1936 in Alaverdi, Armenian SSR. Medical biophysicist. Corresponding member of the Physiology Department of the Academy since 1974. He graduated from the Erevan Medical Institute in 1961. Since 1964, he has worked at the Institute of Chemical Physics of the AN SSSR. Since 1971, he has been Director of the Biological Testing of Chemical Compounds Scientific Research Institute in Kupavna which was established in 1973 to screen all new synthetic chemical compounds beneficial to man and to the environment. The institute is directly subordinate to the Ministry of the Medical and Microbiological Industry. (GSE30, p. 605.)



Research Institutes Directly Subordinate to the Physiology Department:

Retrospect: The Physiology Department is one of the smaller Departments of the academy with a membership of 11 academicians and 16 corresponding members for a total of 19 members. In 1980, there were only 75 individuals listed in key research positions in its three scientific research institutes. Its size does not however diminish the significance of its scientific activity. The three institutes subordinate to the department are: the Pavlov Physiology Institute, the Higher Nervous Activity and Neurophysiology Institute, and the I. M. Sechenov Evolutionary Physiology and Biochemistry Institute.

Organization of the Major Institutes: The Pavlov Physiology Institute in St. Petersburg has 17 laboratories and one computer center; the Higher Nervous Activity and Neurophysiology Institute in Moscow has a Foreign Relations Department and is organized into some 10 laboratories, and the I. M. Sechenov Evolutionary Physiology and Biochemistry Institute in St. Petersburg had no laboratories or departments listed in the Directory from which information on these

other institutes was abstracted. The institute was created in 1956 for the express purpose of studying the genetic and biological effects of radiation on plants and animals. The research institutes directly subordinate to the Physiology Department in order of their founding are listed below:

1. I. P. Pavlov Physiology Institute in St. Petersburg.

Located at 6 Makarova quay, U-34, St. Petersburg, 199034. Tel. 218-07-01; for telegrams: St. Petersburg U-34 Fiziolog. Director, tel. 218-11-18.

Retrospect: Established in 1925. The institute studies the physiology of the central nervous system of man and animals, including the physiology of vision, speech and hearing.

(older material)

Structure and Scientific Personnel: Vladimir A. Govirin, D. Bio. S., has been the Director of the institute since 1981. Deputy Director Kisliakov, Iurii Ia., D. Bio. S., since '82;

Bioacoustics Laboratory;

Bio-instrumentation Laboratory;

Cortecoviseral Physiology and Pathology Laboratory;

Digestive Physiology Laboratory;

Functional Neurochemistry Laboratory;

Gastrointestinal Functions Laboratory;

Higher Neural Activity Laboratory;

Nutrition Laboratory;

Physiology of Acoustic Analyzer Laboratory;

Physiology of the Ear Laboratory;

Physiology of the Eye Laboratory;

Physiology of Interoception Laboratory;

Physiology of Respiration Laboratory;

Regulation of Circulation Laboratory;

Roentgenology Laboratory;

Thermoregulation Laboratory;

Computer Center.



2. Higher Nerve Activity and Neurophysiology Institute in Moscow.

Located at 5a Butlerova st., Moscow, GSP-1, 117865. Tel. 334-70-00. Under the direction of Academician Pavel V. Simonov.

Simonov, Pavel V., D. Med. S. Born in 1926. Academician secretary to the Physiology Department of the Academy since October 1988. Corresponding member of the Physiology Department of the Academy since 1981; academician since 1987. From 1961 to 1983 he was Deputy Director and since 1983, he has been Director of the Higher Nervous Activity and Neurophysiology Institute in Moscow that was created in 1961 to research the general, comparative, and pathological physiology of the nervous system--including the physiology and morphology of Pavlovian conditioning and inhibition. The institute is subordinate to the Academy's Physiology Department. Since 1969, he has been head of the Physiology of the

Emotions Laboratory of that Institute. In 1979, he was awarded the I. P. Pavlov Prize in anatomy and physiology for his contributions to Russian Physiology.

Retrospect: Founded in 1961, the institute researches general, comparative, and pathological physiology of the nervous system. Director Simonov, Pavel V., D. Med. S., since 1983.

(older material)

Structure and Scientific Personnel: Pavel V. Simonov, D. Med. S., has been the Director of the institute since '83; Deputy Directors: Kroviakov, Iurii V., C. Bio. S., since '76; and, Rusinov, Vladimir S., D. Med. S., since '69.

Foreign Relations Department;

Brain and Behavior Laboratory;
Electromagnetic Energy Laboratory;
Electrophysiology of Conditioned Reflexes Laboratory;
Experimental Pathology Laboratory;
General Physiology in Conditioned Activities Laboratory.

Higher Activity and Neurophysiological Mechanisms of Purposeful Behavior Department;

Neuro-chemical Mechanisms of Memory Laboratory;
Neurological Cybernetics Laboratory;
Physiology of the Emotions Laboratory;
Sense Organ Analysis Laboratory.



3. I. M. Sechenov Evolutionary Physiology and Biochemistry Institute in St. Petersburg.

Located at 44 Moris Tores ave., K-223, St. Petersburg, 194223. Tel. 552-30-45; fax: (812) 552-30-12; for telegrams: St. Petersburg K-223 Evolutsia. Directed by Academician Vladimir L. Sviderskii.

Sviderskii, Vladimir L., D. Bio. S. Born in 1931. Corresponding member since 1981. Academician of the Physiology Department of the Academy since December 1987. Since 1982, he has been Director of the I. M. Sechenov Evolutionary Physiology and Biochemistry Institute in St. Petersburg. that is subordinate to the academy's Physiology Department. It was created in 1956 and studies the problems of evolutionary physiology and the biological effects of radiation. In 1986, he was the recipient of the L. A. Orbeli Prize in physiology for his contributions to Russian physiology.

The institute was created in 1956, and studies problems of evolutionary physiology and the biological effects of radiation. Vladimir L. Sviderskii, D. Bio. S., has been the Director of the institute since 1982. Deputy Directors: Brestkin, Aleksandr P., D. Chem. S., since '75; and, Karamian, Artashes I., D. Med. S., since '60.



4. Human Cerebrum Institute in St. Petersburg

Located at 9 acad. Pavlov's st., St. Petersburg, 197022. Tel. 234-13-90; fax: (812)234-32-47. Directed by Professor Svaitoslav V. Medvedev.

Institutes over which the Academy Physiology Department oversees the systematic scientific investigation procedures:

6. Medicinal Technology and Safety Scientific Research Institute in Staraiia (aya) Kupavna Village, Noginsk District, Moscow Region

Located at 23 Kirov st., Staraiia (aya) Kupavna Village, Noginsk district, Moscow region, 142450. Tel. 24-09-36: Directed by Professor Iurii V. Burov. Tel. 524-09-36.



7. Human Being Institute in Moscow

located at 14 Volhonka st., Moscow, 119842. Organized and directed by Academician Ivan T. Frolov. Tel/ 203-91-69.

Frolov, Ivan T. Born in 1929 in Dobroe, Lipetsk Oblast. Russian philosopher. Corresponding member of the Philosophy and Law Department of the Academy since 1976, and academician since December 1987. He graduated from the Department of philosophy of the Moscow State University in 1953. From 1962 to 1965, he worked as an editor, first in Moscow, and then in Prague. From 1965 to 1968, he was engaged in party work. From 1968 to 1977, he was editor-in-chief of the journal Voprosy filosofii. His work is in dialectical materialism, philosophical problems in contemporary natural science, and the social and philosophical problems of the scientific and technological revolution. In the 1970s, he was on the editorial council for publications of the Institute of the History of Natural Science and Technology of the AN SSSR. (GSE 28, p. 389.)



8. Traumatology and Orthopedics Central Institute of the Russian Academy of Medical Science in Moscow

Located at 10 Pirogova st., Moscow, 125299. Directed by Professor Iulii G. Shaposhnikov. Tel. 154-82-92.



9. Transplantation and Synthetic Organs Institute of the Russian Academy of Medical Science in Moscow

Located at 1 Shukinskaia (aya) st., Moscow, 123436. Directed by Academician Valerii Iv. Shumakov.

Shumakov, Valerii I., D. Med. S. Born in 1931. Academician of the Physiology Department in 1993. He has been director of the Transplants and Artificial Organs Scientific Research Institute in Moscow since 1974. The institute is developing an artificial heart and other organ and tissue transplants.



(1997 listing)

Institutions and Organizations of the Department: this is the latest list of research institutes under the direct control or the research direction of the department.

1. Higher Nerve Activity and Neurophysiology Institute (HNAI)

5a, Butlerova st., Moscow, GSP-1, 117865, tel.334-70-00
Directed by Academician Pavel V. Simonov, tel.334-70-00

2. Institute of Physiology named after I.P.Pavlov (IP)

6, Makarova quay, V-34, St.-Petersburg, 199034, tel.218-07-01,
for telegrams: St.-Petersburg V-34 Fiziolog
Director, tel.218-11-10

3. Evolution Physiology and Biochemistry Institute named after I. M. Sechenov (EPBI)

44, Moris Tores ave., K-223, St.-Petersburg, 194223
tel.552-30-45, fax: (812) 552-30-12
for telegrams: St.-Petersburg K-223 Evolutsia
Directed by Academician Vladimir L. Sviderskii, tel.552-79-01

4. Human Cerebrum Institute (HSI)

9, acad. Pavlov's st., St.-Petersburg, 197022
tel.234-13-90, fax: (812) 234-32-47
Directed by Prof. Sviatoslav V. Medvedev, tel.234-13-90

5. Medicinal Technology and Safety Scientific-Research Institute (Medicinal SRI)

(The Russian Academy of Sciences carries out scientific-systematic direction)

23, Kirov st., Staraia Kupavna vil., Noginsk district, Moscow region,
142450, tel.24-09-36
Directed by Prof. Iurii V. Burov, tel.524-09-36

6. Institute of Human Being

(The Department of Physiology carries out scientific-- systematic direction)
14, Volhonka st., Moscow, 119842
Directed and organized by Academician Ivan T. Frolov, tel.203-91-69

7. Institute of Medical-Biological Problems under the Russian Health Ministry

(The Department of Physiology carries out scientific-- systematic direction)
76a, Khoroshevskoie ave., Moscow, D-7, 123007
Directed by Corresponding Member Anatolii Iv. Grigoriev, tel.195-23-63

8. Traumatology and Orthopedics Central Institute of RAMS

(The Russian Academy of Sciences carries out scientific-systematic direction)
10, Pirogova st., Moscow, 125299
Directed by Prof. Iulii G. Shaposhnikov, tel.154-82-92

11. Transplantation and Synthetic Organs Institute of RAMS

(The Russian Academy of Sciences carries out scientific-systematic direction)

1, Shukinskaia st., Moscow, 123436
Directed by Academician Valerii (Valerii) Iv. Shumakov



National Research Efforts in Physiology:

In 1989, there were a total of 11 scientific research institutes in physiology in the former Soviet Union located in nine different cities. Eight of these were located outside Moscow and St. Petersburg.



Before 1940

1. I. S. Beritashvili Physiology Institute in Tbilisi.

1940s

2. D. N. Uznadze Psychology Institute in Tbilisi. No date given in source (in existence in 1941).
3. L. A. Orbeli Physiology Institute in Erevan.
4. Physiology Institute in Alma Ata.
5. A. A. Bogomolets Physiology Institute in Tashkent. Established in 1975 based on a 1953 institute.
6. A. A. Bogomolets Physiology Institute in Kiev.
7. Physiology Institute in Minsk.
8. A. Karaiev Physiology Institute in Baku.



The Section of the Earth Sciences

The Earth Sciences section of the academy deals with geology, geophysics, geochemistry, oceanography, atmospheric physics and geography and includes only two subject-matter departments: 1. the Geology, Geophysics, Geochemistry, and Mining Sciences Department, and 2. the Oceanology, Atmospheric Physics, and Geography Department. In 1989, the Section of the Earth Sciences had a total of 17 Scientific Research Institutes under the direction of the two subject-matter departments. In the country as a whole, however, there were some 95 research institutes with common research goals.



Geology, Geophysics, Geochemistry, and Mining Sciences Department

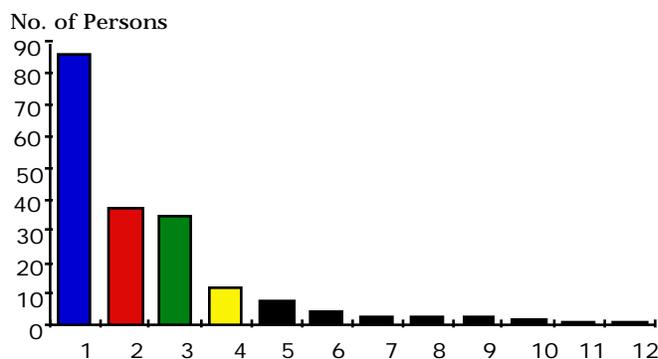
6-25, 32a. Leninskii ave. Moscow, 117993 tel 938-55-44. Academician Secretary of the Department is Academician Vilen A. Zarikov.

Zharikov, Vilen A., D. GM. S. Born in 1926. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1972, and academician since December 1987. From 1969 to 1981, he was Deputy Director of the Experimental Mineralogy Institute at Chernogolovka. Since 1981, he has been the Director of the Experimental Mineralogy Institute at Chernogolovka that was established in 1969 to study the physical chemical conditions of the formation of minerals, ores, and rocks and the origin and migration of magmas in the earth's crust and mantle.

Retrospect: In 1980, the four leading institutes subordinate to the Geology, Geophysics, Geochemistry, and Mining Sciences Department housed 87 percent of the scientists working in the 12 institutes of the department, as illustrated in Figure 26. By 1987, the Department had cut the number of its institutes to ten. The greatest research effort occurs in the O. E. Shmidt Physics of the Earth Institute, the V. I. Vernadskii Geochemistry and Analytical Chemistry Institute, the Geology Institute, and the Geology of Ore Bodies, Petrography, Mineralogy and Geochemistry--allocated in Moscow. The other six institutes active in 1987 were: the Mineralogy, Geochemistry and Crystal Chemistry of Rare Elements, Moscow the Experimental Mineralogy Institute, Moscow; the Geology and Exploitation of Combustible Fuels, Moscow; the A. A. Skochinskii Mining Institute, Lyubertsy; the Lithosphere Institute, Moscow, and the A. E. Fersman Mineralogical Museum in Moscow. While the Department has some 111 administrative units subordinate to it, the leading four institutes contained 81 percent of them in 1980. The pattern of distribution of effort in 1987 was virtually the same.

Figure 26

Personnel of the Geology, Geophysics
and Chemistry Department SRIs in
1980

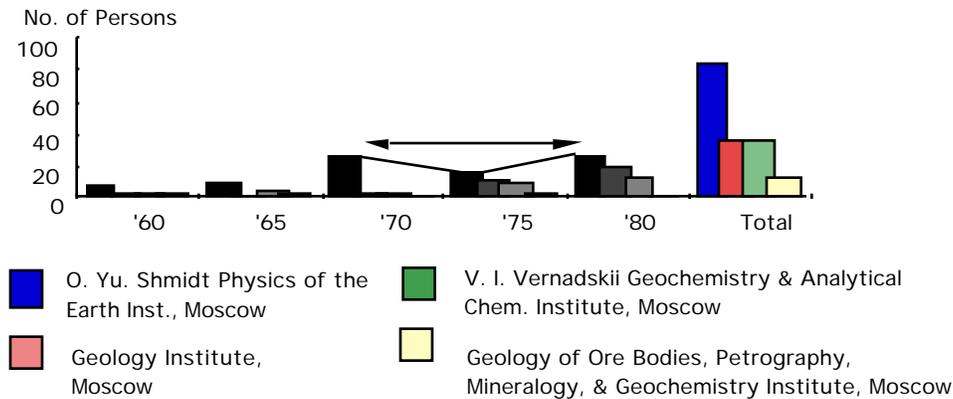


1. O. Yu. Shmidt Physics of the Earth Institute in Moscow; 2. V. I. Vernadskii Geochemistry and Analytical Chemistry Institute in Moscow; 3. Geology Institute in Moscow; 4. Geology of Ore Bodies, Petrography, Mineralogy and Geochemistry in Moscow; 5. Mineralogy, Geochemistry and Crystal Chemistry of Rare Elements in Moscow; 6. Experimental Mineralogy Institute in Moscow; 7. Geology and Exploitation of Fuel Minerals Institute in Moscow; 8. A. A. Skochinskii Mining Institute in Lyubertsy; 9. Precambrian Geology and Geochemistry Institute in Leningrad; 10. Lithosphere Institute in Moscow; 11. Economics of Minerals Raw Materials and Geological Exploration Institute in Moscow; 12. Problems of Complex Utilization of Mineral Resources Institute in Moscow.
Compiled from: CR 80-13202, pp. 171-417.

Membership of the Geology, Geophysics, Geochemistry, and Mining Sciences Department--administrative responsibilities: Academicians and corresponding members of the Geology, Geophysics, Geochemistry and Mining Sciences Department of the academy numbered some 71 persons in 1987. By 1989, this number had grown to 85. Because of its concern with the natural resource development of the country, this Department includes Directors, Deputy Directors and other administrators of research institutes located across the country. In 1987, 21 members were Directors of Scientific Research Institutes subordinate to the Department; seven were Deputy Directors of SRIs, and one was a Head of a major division of one of the subordinate institutes. Three members were Directors of AROs that are subordinate to governmental ministries rather than to the Department. One member was Vice President of the International Union of Geological Sciences. The Department membership counted a Deputy Chairman of the Siberian Department, a Deputy Chairman of the Far Eastern Department, a Chairman of the Presidium of the Far Eastern Department, a Deputy Chairman of the Urals Department, a Chairman of the Yakutsk Affiliate, a Chairman of the East Siberian Scientific Affiliate, and a Chairman of the Kola Affiliate of the Siberian Department. One member was a first Prorector of Moscow State University and one was dean of the Computer Mathematics and Cybernetics faculty at Moscow State University.

Figure 27

Personnel of the Top Four SRIs of the Geology,
Geophysics & Chemistry Department, 1980



Compiled from: CR 80-13202, pp. 245-257 and 366-369.

The Geology, Geophysics, Geochemistry, and Mining Sciences Department Membership

Academicians--age and schools: Only one academician's birthdate is unknown of the 27 members of the Geology, Geophysics, Geochemistry, and Mining Sciences Department. Nine members were in their 80s; seven in their 70s. The average age of the other nine members born after 1919 was 65. As can be seen from the dates of the establishment of the SRIs related to these sciences listed above, these sciences have been at the forefront of scientific development in Russia since the revolution in particular. They are, of course, directly involved in locating, identifying, and exploiting the mineral resources of the country--a matter of concern for the modernization of Russia from the beginning of Russia. The advanced age of these academicians is additional testimony to that fact as is the size of the corresponding member group of this Department--57 members in all. Ten institutions graduated 17 of the academicians whose graduation institutes are known. Moscow State University graduated five; Leningrad State University, three; the Leningrad Polytechnic Institute and the Leningrad Institute of Mines, one each; the Moscow Geological Prospecting Institute, two; the Moscow Institute of Engineers for Geodesy, Aerial Photography, and Cartography, one; the Moscow Mining Institute, one; the Institute of Water Transport Engineers, one; the Azerbaiian Industrial Institute, one, and the Far Eastern Polytechnic Institute, one. These institutions reflect the variety of educational opportunities established to prepare technicians and scientists for the development of Russian natural resources.

Corresponding Members--age and schools: Six of the corresponding members of this Department were in their 90s in 1991; seven in their 80s, and, 11 in their 70s. The birth dates of 15 corresponding members is not known. The average of all those born after 1918 was 62. Like the academicians of this Department, the corresponding members, where the graduating institution is known, came from a variety of different kinds of schools. Of the 23 corresponding members whose graduation institutions are known, they came from 15 different institutions which included: Moscow State University, five; Leningrad State University, three; the Moscow Geological Prospecting Institute, three, and one each from the Institute of

Geophysics of the Russian Academy of Sciences, the Leningrad Polytechnic Institute, the University of Kazan', the Moscow Academy of Mines, the Leningrad Institute of Mines, the Sverdlovsk Institute of Geological Prospecting, the Sverdlovsk Mining Institute, the Urals University, the Middle Asian Geological Exploration Institute in Tashkent, the University of Irkutsk, and the Azerbaiian Industrial Institute.

(1997 update)

Bureau of the Department

Academician-- Secretary of the Department

Academician Vilen An. Zarikov, tel. 938-55-44, 939-25-59, 524-50-37

Zharikov, Vilen A., D. GM. S. Born in 1926. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1972, and academician since December 1987. From 1969 to 1981, he was Deputy Director of the Experimental Mineralogy Institute at Chernogolovka. Since 1981, he has been the Director of the Experimental Mineralogy Institute at Chernogolovka that was established in 1969 to study the physical chemical conditions of the formation of minerals, ores, and rocks and the origin and migration of magmas in the earth's crust and mantle.

Deputies of the academician-- secretary:

Academician Dmitrii V. Rundkvist, tel. 203-53-87

Rundkvist, Dmitrii V., D. GM. S. Born in 1930. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department of the Academy since 1984; academician in 1993. Since 1972, he has been Deputy Director of the Geology Scientific Research Institute in St. Petersburg that researches the patterns of the formation and distribution of petroleum and gas deposits in the Krasnoyarsk region of Russia.

Academician Kliment N. Trubetskoi, tel. 360-89-60

Trubetskoi, Kliment N. Member of the Bureau of the Department. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since December 1987; academician in 1993.

Academician Vladimir N. Strahov, tel. 252-07-26

Strahov, Vladimir N., D. PM. S. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since December 1987; academician in 1993. In 1991, he was Director of the O. Iurii Shmidt Earth Physics Institute in Moscow and head of the Earth's Bowels and Planet's Physics Department as well as head of the Geopotential Fields Interpretation Theory Laboratory of that Department. (Letter of Dr. V. N. Strahov dated 14 November 1991.)

Responsible for scientific-organizing questions: Prof. Boris N. Ryizenko, tel. 938-16-90

Members of the Bureau:

Academician Oleg Al. Bogatkov, tel. 233-16-53

Bogatkov, Oleg A., D. GM. S. Born in 1934. In 1985, he received the A. E. Fersman Prize in geochemistry and mineralogy for his research. He has been a corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department since December 1987. He was elevated to academician status in 1993. Since 1977, he has worked as Head of a laboratory of the Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry Institute in Moscow.

Academician Igor S. Gramberg, tel. 113-83-79(SPb)

Gramberg, Igor S., D. GM. S. Born in 1922. Corresponding member of the Geology, Geochemistry, Geophysics, and Mining Sciences Department since 1979, and, academician since December 1987. Since 1975, he has been Director of Affiliated Research Organization (ARO), Geology and Mineral Resources of the World Oceans Institute under the Ministry of Geology. The institute is subordinate to the Northern Marine Geological-Geophysical Scientific Production Association of the Ministry of Geology. Located in St. Petersburg and established in 1947, the institute researches the terrestrial geology and geophysics of the Arctic and Antarctic Oceans.

Academician Erik M. Galimov, tel. 137-41-27

Galimov, E. M., D. Geo. & Min. S. The Geochemistry of Carbon Laboratory, under his direction, in 1973 began studies on the history of carbon in the earth's crust, including the history of life, the geochemical role of carbon and organic matter, and oil formation. Professor Galimov was elected an academician of The Geology, Geophysics, Geochemistry, and Mining Sciences Department in 1993.

Academician Anatolii N. Dmitrievskii, tel. 135-80-76

Dmitrievskii, Anatolii N. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy in 1987; academician in 1993.

Academician Nikolai L. Dobretsov, tel. 35-46-50(N.)

Dobretsov, Nikolai L., D. GM. S. Born in 1936. Corresponding member since 1984, and academician of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the RAN and of the Siberian Department since December 1987. He graduated from the G. V. Plekhanov Mining Institute in St. Petersburg in 1957. He worked in the geological field party on the Altai Geological Expedition of 1957-1960. He joined the Geology and Geophysics Institute of the Siberian Department in 1960, working in the Metamorphic Formation Laboratory from 1972 to 1980. From 1971-72 he worked in the chemistry laboratory of the Tectonics and Geophysics Institute of the National Academy. From 1980 to 1988, he served as Director of the Geology Institute of the Buriat Scientific Center in Ulan Ude that was established in 1973. Since 1988, he has been the chairman of the Ulan Ude Scientific Center. In 1988, he was named Director of the Institute of Geology and Geophysics of the Siberian Branch of the National Academy. He has been designated a professor since 1972. He has chaired the commission on metamorphosis and metamorphogeny of mineral deposits and head of the Petrography Committee of the national academy. He is now serving as Chairman of the Siberian Department of the RAS located in Akademgorodok, Novosibirsk.

Academician Vladimir Is. Keilis-Borok, tel. 110-77-95

Keilis-Borok, Vladimir I., D. PM. S. Born in 1921. Academician of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since December 1987. Since 1963, Head of the Computational Geophysics Laboratory of the O. Yu. Schmidt Earth Physics Institute in Moscow. Foreign member of the US National Academy of Sciences, the American Science and Arts Academy, and the Royal Astronomical Society (UK).

Academician Andrei L. Knipper, tel. 230-80-57

Knipper, Andrei L., D. GM. S. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since December 1987; academician in 1993. Since 1989, he has been the Director of the Geology Institute in Moscow, which is a major research center for tectonics research and the development of mathematical methods of geological research.

Academician Aleksei Em. Kontorovich, tel. 35-14-48(N.)

Kontorovich, Aleksei Z., D. GM. S. Born in 1934. Geologist. Specialist in general geology and the geochemistry of oil and gas. Academician since 1990. Deputy Director of the Institute of Geology and Geophysics of the Siberian Department in Akademgorodok-Novosibirsk. He is the author of 26 research works and co-author of 360 publications. His monographs “The Geology of Oil and Gas of the Siberian Platform,” (1976) and “Prognosis of Oil and Gas Reserves” (1981) are thought to be most significant. He is a professor at the Novosibirsk State University where he has directed the doctorate work of eight students and the postgraduate work of 55 aspirants for the candidate degree. He is on the Scientific Council on problems of the geology and geochemistry of oil and gas of the Russian Academy, of the Lithology Committee, and is coordinator of the studies on Oil and Gas in the Vostok Region of the Scientific Council for the “Sibir” program of the Siberian Department. He is head of the Novosibirsk Oblast Scientific Technical Oil and Gas Development Department imeni Academician I. M. Gubkina. In 1974, he received the I. M. Gubkin Prize named after the renowned petroleum geologist and engineer, sharing it with A. A. Trofimuk and V. S. Vishemirskii.

Academician Viktor Al. Koroteev, tel. 51-19-97(Ek.)

Koroteev, Viktor A., C. GM. S. Corresponding member of the Geology, Geochemistry, Geophysics and Mining Sciences Department and of the Urals Department since December 1987; academician since 1993. Since 1975, he has been Director of the V. I. Lenin Ilmenskii State Reserve in Miass in Cheliabinsk Oblast. This organization was established in 1920 to conduct geological and biological research in the forests of the Southern Urals Mountains. Deputy chairman of the Urals Department since August 1988.

Academician Michail V. Kurlenia, tel. 29-15-36(N.)

Kurlenia, Mikhail V. D. Tech. S. Born in 1931. Engineer. Specialist in mining mechanics. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department and of the Siberian Department since December 1987, and academician since 1990. He has written 24 scientific works and co-authored 105 others. He has 95 inventions and of his scientific writings, seven are major mono-

graphs--all on aspects of mining. He graduated from the Tomsk Polytechnical Institute Imeni S. M. Kirov in 1953 and worked there until 1960. In 1960, he joined the Mining Institute of the Siberian Department in Novosibirsk where, in turn, he was a senior researcher, head of a laboratory and a Department, and in 1988, he was named Director of that institute. He became a member of the Presidium in that year. He has been a professor since 1986. He has supervised the work of two doctoral and 16 candidate aspirants. He edits a mining journal.

Academician Nikolai P. Lavrov, tel. 954-29-68

Lavrov, Nikolai P. Born in 1930. Corresponding member since 1979. Academician of the Geology, Geophysics, Geochemistry, and Mining Department of the national academy since December 1987. Since 1987, he has been President of the Kirghizstan Academy of Sciences. He was named vice-President of the Russian Academy of Sciences for the Earth Sciences Section in October, 1988. Since 1990, he has been the Director of the Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry Institute in Moscow.

Academician Nikolai A. Logachev, tel. 46-27-27(Irk.)

Logachev, Nikolai A., D. GM. S. Born in 1929. Geologist. Specialist in studies of the Geology of the Continental Shelf. Corresponding member since 1979, and academician of the Geology, Geophysics, and Geochemistry Department and of the Siberian Department since 1984. He graduated from the Irkutsk State University in 1952. He began work upon graduation at the Eastern Siberian Branch Geology Institute that became the Earth's Crust Institute. In 1976 he was named Director of that institute that was established in 1949 and is subordinate to the academy's Siberian Department. Research at the institute includes geology, geophysics, and seismology. Since 1977, he has served as chairman of the Irkutsk Scientific Center. He was named to the Presidium of the Siberian Branch of the Academy in 1980. He has been a member of the American Geophysical Society since 1984. He was a delegate to the 26th National Congress. Winner--with others--of the 1978 State Prize in Science and Technology for "The History of the Development of the Relief of Siberia and the Far East" 15 Vols. In 1988, he received the Soviet Ministerial Prize. He has also received other medals and recognitions for his work in scientific research. (1964-76).

Academician Vladimir A. Magnitskii, tel. 254-23-35

Magnitskii, Vladimir A. Born in 1915 in Penza. Russian geophysicist and specialist in the physics of the earth. Corresponding member of the Geology, Geophys, Geochemistry, and Mining Sciences Department of the Academy since 1964, and academician since 1979. He graduated from the Moscow Institute of Engineers for Geodesy, Aerial Photography, and Cartography in 1940. He taught there from 1940 to 1954 and later at Moscow State University where he is heads the geophysics division. His works deal with the structure and processes of the earth's interior. (GSE 15, p. 319.)

Academician Viktor Iv. Osipov, tel. 923-31-11

Osipov, Viktor I., Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since December 1987; academician in 1993.

Academician Iurii M. Pushiarovskii, tel. 230-80-74

Pushcharovskiy, Iurii M., D. GM. S. Born in 1916 in Petrograd. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1976, and academician since 1984. He graduated from the Department of geology and pedology at Moscow State University in 1941. In 1946, he started working at the Geological Institute of the AN SSSR and in 1969, he was made head of the laboratory of the tectonics of zones adjacent to oceans. He devised a new scheme for the tectonics of the northeastern U.S.S.R. and the Arctic and developed new ideas on the structure and structural development of the Pacific geosynclinal belt, the presence of gas and oil in the belt, and the structure and tectonic evolution of the Pacific, Indian, and Arctic Oceans. He originated a theory of the structure of foredeeps. He is co-author and editor of tectonic maps of Eurasia, the Pacific region, the Arctic, and Cuba and the Caribbean region. Recipient of the State Prize, 1969. In 1979, he received the A. P. Kapinskii Prize in geology for his scientific accomplishments. (GSE 30, p. 615.)

Academician Nikolai V. Sobolev, tel. 35-65-52(N.)

Sobolev, Nikolai V., D. GM. S. Born in 1935. Geologist. Specialist in Mineralogy and petrology. Corresponding member of The Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1981, and academician since 1992. He graduated from L'vovsk State University in 1958. He worked at the Mineralogical museum at the university. In 1960 he joined the Geology and Geophysics Institute of the Siberian Department, working as a junior and senior researchers and head of the Laboratory of High Pressure Minerals (1973). In 1983, he became Deputy Director of that institute. He has been a professor since 1985. He was chairman the Scientific Council on the Natural Sciences for the Presidium of the Siberian Department for diamond deposits in 1983. He became Vice President of the Mineralogy Society in 1982 and a member of the Mineralogy Specialists Association in 1982. In 1986 he became a member of the American Geophysical Society. He received the Lenin Prize in 1976.

Academician Boris S. Sokolov, tel. 938-57-29

Sokolov, Boris S., D. GM. S. Born in 1914 in Vyshnii Volochek, in what is now Kalinin Oblast. Russian geologist and paleontologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1958, and academician since 1968. He graduated from Leningrad State University in 1937 and taught there from 1937 to 1945 and from 1945 to 1958. In 1958, he started working at the Institute of Geology and Geophysics of the Siberian Department of the AN SSSR. He has been on the Novosibirsk University faculty from 1960, becoming a professor there in 1964. Since 1960, he has been Head of the Stratigraphy of Precambrian and Paleozoic Laboratory of the Geology and Geophysics Institute in Novosibirsk that was established in 1958 to discover and develop Siberian mineral resources. In 1972, he was made vice-President of the International Paleontological Union. He has been Academician Secretary of the geology, geophysics and geochemistry section of the Russian Academy of Sciences since 1975. His work is in the Paleozoic corals, Proterozoic and Cambrian Organisms, the history of the development of the organic world during the Precambrian, and the biostratigraphy during the first half of the Paleozoic. He identified the Wend complex. In 1974, he was elected President of the All-Union Paleontological Society of the AN SSSR. In 1975, he became a member of the Presidium of the Russian Academy of Sciences. Since 1968, he has

been an honorary member of the Geological Society of Sweden, and since 1963, a member of the Geological Society of France. Lenin Prize, 1967. He received the coveted A. P. Karpinskii Gold Medal in 1979 for his work in geological research. (GSE 24, p. 280.)

Academician Viktor S. Surkov, tel. 21-38-95(N.)

Surkov, Viktor S., D. GM. S. Born in 1926. Geologist. Geophysicist. Specialist in regional geology and geophysics. Corresponding member since 1979, and academician since December 1987--of the Geology, Geophysics Geochemistry, and Mining Sciences Department of the Academy. He graduated from the Kazan State University imeni V. I. Ul'ianov-Lenin in 1950. From 1950 to 1962, he worked in the Siberia-physics Ministry of Geology of the U.S.S.R. , and was the Head engineer on several scientific expeditions. In 1962, he joined the Siberian Scientific Research Institute of Geology, Geophysics and Mineral Raw Materials subordinate to the Geology Ministry of the SSSR, becoming Deputy Director in 1971, and Director in 1973. The institute researches petroleum and gas deposits in the Krasnoyarsk region. It is under the Ministry of Geology. He became General Director of "Sibgeo" (NPO) in 1987. He is the scientific curator for the Geology Ministry of Russia for the regional geological and geophysical collections of Siberian and the Far East. He heads the section on regional geophysics of the national council for geophysical research. He holds several medals awarded for his scientific accomplishments.

Academician Evgenii Iv. Shemiakin, tel. 939-37-54

Shemiakin, Evgenii I., D. Tech. S. Born in 1929 in Novosibirsk. Russian scientist specializing in the mechanics of rocks. Since 1976, corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department of the Academy, and academician since 1984. He graduated from Leningrad State University in 1952. From 1955 to 1960, he was a researcher at the Institute of Chemical Physics of the AN SSSR. From 1960 to 1971, he was head of a laboratory of the Institute of Theoretical and Applied Mechanics of the Siberian Department of the AN SSSR. Since 1965, he has been a professor at the University of Novosibirsk. From 1971 to 1987, he served as Director of the Mining Institute of the Siberian Department at Novosibirsk that was established in 1944 to work in mineral exploration, develop mining machinery development, improve ore processing, develop environmental protection against mine wastes, and solve problems of cold region mining. He joined the Presidium of the Siberian Department in 1980. From 1980 to 1988, he was deputy chairman of the Siberian Department. In 1987, he became head of the Examination Board for the Council of Ministers of the U.S.S.R. His works are on the study of rocks, the effects of blasting and shock on rocks, and the deformation mechanics of solids. (GSE 29, p. 577.)

Academician Nikolai Al. Shilo, tel. 231-84-42

Shilo, Nikolai A., C. GM. S. Born in 1913 in Piatigorsk. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department of the Academy since 1964, and academician since 1970. He is also member of the Far Eastern Department. He graduated from the Leningrad Institute of Mines in 1937 and worked for various geological institutions in northeastern U.S.S.R. In 1960 he became Director of the Complex Scientific Research Institute (the Northeastern Integrated Scientific Research Institute) at Magadan. Since 1977, he has been chairman of the Presidium of the Far Eastern Department. Since 1980

he has been on the Presidium of the Russian Academy of Sciences. In 1988, he was appointed advisor to the national academy's Presidium. His works are in the geology and geochemistry of mineral deposits, including gold, silver, tin, mercury, tungsten, platinum, and copper. In 1985, he received the V. A. Obruchev Prize in geology for his lifetime contributions to the geological sciences. (GSE 29, p. 596.)

Academician Aleksei D. Shieglov, tel. 231-44-18(SPb)

Shcheglov, Aleksei D., D. GM. S. Born in 1926. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Far Eastern Department since 1979; academician in 1993. Since 1979, he has been Director of the Geology Institute in Vladivostok that studies the laws of distribution of deposits of useful minerals in the Far East and since 1980 deputy chairman of the Far Eastern Center of the academy.

Academician Nikolai P. Iushkin, tel. 2-00-37(Ek.)

Yushkin, Nikolai P. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Urals Department since December 1987; academician in 1993. Located in Ekaterinberg.

Academician Aleksandr L. Ianshin, tel. 237-38-41

Yanshin, Aleksandr L., D. GM. S. Born in 1911 in Smolensk. Russian geologist. Since 1958, academician of the Geology, Geophysics, Geochemistry, and Mining Department of the academy. Since 1958, academician of the Siberian Department of the academy. Since 1982, he has served as Vice President of the Academy of Sciences. In 1936, he began work at the Geological Institute of the AN SSSR where he was appointed head of a Department in 1956. Since 1958, he has been Deputy Director of the Geology and Geophysics Institute in Novosibirsk, established in 1958 to study and develop Siberia's mineral resources. Since 1967, he has been President of the Moscow Society of Naturalists. Since 1969, he has been Head of the Geology Division of the Novosibirsk Institute. His major research has been on the tectonic elements of the Tien-Shan and Urals regions. Winner--with others--of the 1978 State Prize for "The History of the Development of the Relief of Siberia and the Far East" 15 Vols. (1964-76). Since 1984, he has been Director of the Lithosphere Institute in Moscow that was established in 1979 to study the theory of sedimentary and metamorphic rock and ore formations. Recipient of the State Prize in 1969 and 1978. (GSE 30, p. 425.)

Corresponding Member Nikita A. Bogdanov, tel. 233-55-88

Bogdanov, Nikita A., D. GM. S. Born in 1931. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy in 1993. Since 1982, he has been the Director of the Lithosphere Institute in Moscow which was established in 1979 to study the theory of sedimentary and metamorphic rock and ore formation.

Corresponding Member Viktor An. Glebovitskii, tel. 218-48-01(SPb)

Glebovitskii, Viktor. A. Corresponding member of the Geology, Geophysics, Geochemistry and Mining Sciences Department of the Academy in 1993. He is located in St Petersburg.

Corresponding Member Nikolai N. Melnikov, tel. 3-75-20(Apat.)

Mel'nikov (Melnikov), Nikolai N., D. Chem S. Born in 1908. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy since 1979. He is located in Apatity.

Corresponding Member Feliks P. Mitrofanov, tel. 3-76-56(Apat.)
(No entry)

Corresponding Member Aleksei V. Nikolaiev, tel. 254-90-72

Nikolaev, Aleksei V., D. PM. S. Corresponding member of the Geology, Geochemistry, Geophysics, and Mining Sciences Department of the Academy since 1991. He has headed the Turbid Media Subdepartment of the O. Iu. Shmidt Earth Physics Institute since 1975. In 1991, he was made head of the Experimental Geophysics Department of the Institute, and he also headed the Experiment Geophysics Laboratory of that department.

Prof. Vitalii V. Adushkin, tel. 137-66-11

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Natalia G. Barsanova, tel. 938-53-08

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Tatiana S. Maratkanova, tel. 938-18-84

Olga P. Rumiantseva, tel. 938-55-44

Academicians

Bogatikov, Oleg A., D. GM. S. Born in 1934. He has been a corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department since December 1987. He was elevated to academician status in 1993. Since 1977, he has worked as Head of a laboratory of the Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry Institute in Moscow. In 1985, he received the A. E. Fersman Prize in geochemistry and mineralogy for his research.

Budyko, Mikhail I., D. PM. S. Born in 1920 in Gomel. Russian geophysicist. Corresponding member since 1964; academician since 1993. Originally elected to Earth Sciences Department. Principal membership in the Oceanology, Atmospheric Physics, and Geography Department. He graduated from the Leningrad Polytechnic Institute in 1942 and began working at the A. I. Voeikov Main Geophysical Observatory in St. Petersburg, becoming its Director in 1954 and served in that position until 1973. The Observatory is subordinate to the State Committee for Hydrometeorology, and was established in 1849 to study the atmospheric processes and phenomena affecting weather. His works are in physical climatology, bioclimatology, and actinometry. With A. A. Grigorev, he formulated the periodic law of geographical zonality. Lenin Prize, 1958 for work on the heat balance of the earth's surface. In 1981, he was the recipient of the A. P. Vinograd Prize for geochemistry and analytical chemistry. (GSE 4, p. 155.)

Cherskii, Nikolai V., D. Tech S. Born in 1905 in the settlement of Olga, in Primore Krai. Russian scientist whose specialties are in the mechanics and the development of petroleum and gas deposits. Corresponding member of the Geology, Geophysics, Geochemistry and Mining Sciences Department and of the Siberian Department since 1968, and academician of both Departments since 1981. He

graduated from the Institute of Water Transport Engineers in Vladivostok in 1931 and from the Academy of the Petroleum Industry in 1951. From 1953 to 1955, he worked in the Yakutsk scientific geological management. In 1955, he became Deputy Director and from 1964 to 1988, he was Chairman of the Yakutsk Scientific Center. He joined the Presidium of the Siberian Department of the academy in 1969. He has served as the Director of the Institute of Physical and Technical Problems of the North since 1973. His works include the design of gas wells, the development of methods for calculating the reserves of natural gas deposits and for exploiting gas hydrate deposits, and container-pipeline transportation. He was co-discoverer of the property of natural gas of forming deposits in the crust in the form of a solid gas hydrate. He served as a Deputy to the 7th, 8th, and 9th convocations of the Supreme Soviet. He holds a number of medals recognizing his scientific contributions. (GSE 29, p. 131.)

Dmitrievskii, Anatolii N., D. GM. S. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy in 1987; academician in 1993.

Dobretsov, Nikolai L., D. GM. S. Born in 1936. Corresponding member since 1984, and academician of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the AN SSSR from December 1987. He graduated from the G. V. Plekhanov Mining Institute in St. Petersburg in 1957. He worked in the geological field party on the Altai Geological Expedition of 1957-1960. He joined the Geology and Geophysics Institute of the Siberian Department in 1960, working in the Metamorphic Formation Laboratory from 1972 to 1980. From 1971-72 he worked in the Chemistry Laboratory of the Tectonics and Geophysics Institute of the National Academy. From 1980 to 1988, he served as Director of the Geology Institute of the Buriat Scientific Center in Ulan Ude (established in 1973). Since 1988, he has been the Chairman of the Ulan Ude Scientific Center. In 1988, he was named Director of the Institute of Geology and Geophysics of the Siberian Branch of the National Academy. He has been designated a professor since 1972. He has chaired the commission on metamorphosis and metamorphogeny of mineral deposits and has headed the Petrography Committee of the Academy. He is currently Head of the Compound Geology, Geophysics and Mineralogy Institute in Akademgorodok-Novosibirsk which conducts basic geological work on Siberian mineral resources. It studies the oil-gas capacity of the paleozoic stratum in Western and Eastern Siberia, proposes methods for accelerating the mining of oil and gas in Siberia, and is working on the natural gases found in a solid state in the Earth's crust. Dobretsov also heads the Geological Correlation Laboratory of the Geology Institute. Following the untimely death of Dr. Koptyug in January of 1997, Dobretsov was elected President of the Siberian Branch of the Russian Academy of Sciences.

Galimov, E. M., D. Geo. & Min. S. Academician of The Geology, Geophysics, Geochemistry, and Mining Sciences Department in 1993. The Geochemistry of Carbon Laboratory, under his direction, in 1973 began studies on the history of carbon in the earth's crust, including the history of life, the geochemical role of carbon and organic matter, and oil formation.

Gramberg, Igor S., D. GM. S. Born in 1922. Geologist. Corresponding member of the Geology, Geochemistry, Geophysics, and Mining Sciences Department since 1979, and, academician since 1987. Since 1975, he has been Director of Affiliated Research Organization (ARO), Geology and Mineral Resources of the World Oceans Institute under the Ministry of Geology. The institute is subordinate to the Northern Marine Geological-Geophysical Scientific Production Association of the Ministry of Geology. Located in St. Petersburg and established in 1947, the institute researches the terrestrial geology and geophysics of the Arctic and Antarctic Oceans.

Keylis-Borok, Vladimir I., D. PM. S. Born in 1921. Academician since December 1987. Since 1963, Head of the Computational Geophysics Laboratory of the O. Iurii Shmidt Earth Physics Institute in Moscow. Foreign member of the US National Academy of Sciences, the American Science and Arts Academy, and the Royal Astronomical Society (UK).

Khain, Viktor E. Born in 1913 in Baku. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1966, and academician, 1987. Originally elected to the Earth Sciences Department. He graduated from the Azerbaiian Industrial Institute in 1935 and conducted research at various geological institutions in Azerbaiian until 1954. He was a professor at the Azerbaiian Industrial Institute from 1949 to 1954, and at Moscow State University from 1961. In 1957, he became a senior researcher at the Institute of Geochemistry and Analytic Chemistry of the AN SSSR and, in 1972, he became a senior researcher at the Geological Institute of the Russian Academy of Sciences. His works deal principally with regional geology (the Caucasus, Carpathians, and other areas) tectonics, petroleum geology, and the history of the geological sciences. He has proposed a classification of tectonic movements. He is working on the problem of the principal stages of evolution of the earth's crust. He is Deputy editor-in-Chief of lithological and paleogeographic atlases of the Russian Platform and its boundary areas, and of the USSR. With A. B. Ronov, he has compiled the first maps of continental lithological formations. He is directing work on the compilation of international tectonic maps and since 1971, he has been vice Chairman of the Commission for the Geological Map of the World. He is honorary member of a number of geological societies throughout the world. (GSE 28, pp. 547-8.)

Knipper, Andrei L., D. GM. S. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1987; academician in 1993. Since 1989, he has been the Director of the Geology Institute in Moscow. Originally established during the reign of Peter I as the Geological Museum, it received institute status in 1930. It was moved to Moscow from Leningrad in 1934 and merged with the Institute of Petrography and the Institute of Geochemistry, Mineralogy and Crystallography after which it was named the Geological Institute. In 1956, it was again divided into two institutes. The Geological Institute is a major Russian center for research in tectonics, strato-physics studies, planetology, marine geology, paleomagnetism, the history of geology and the development of geophysical and mathematical methods for geological research and study. The institute coordinates geology research with the other branches of the academy and with the various former republic academies.

Kontorovich, Aleksei Z., D. GM. S. Born in 1934. Geologist. Specialist in general geology and the geochemistry of oil and gas. Academician since 1990. Deputy Director of the Institute of Geology and Geophysics of the Siberian Department in Akademgorodok-Novosibirsk. He is the author of 26 research works and co-author of 360 publications. His monographs "The Geology of Oil and Gas of the Siberian Platform," (1976) and "Prognosis of Oil and Gas Reserves" (1981) are thought to be most significant. He is a professor at the Novosibirsk State University where he has directed the doctorate work of eight students and the postgraduate work of 55 aspirants for the candidate degree. He is on the Scientific Council on problems of the geology and geochemistry of oil and gas of the Russian Academy, of the Lithology Committee, and is coordinator of the studies on Oil and Gas in the Vostok Region of the Scientific Council for the "Sibir" program of the Siberian Department. He is Head of the Novosibirsk Oblast Scientific Technical Oil and Gas Development Department imeni Academician I. M. Gubkina. In 1974, he received the I. M. Gubkin Prize named after the renowned petroleum geologist and engineer, sharing it with A. A. Trofimuk and V. S. Vishemirskii.

- Koroteev, Viktor A.,** C. GM. S. Corresponding member of the Geology, Geochemistry, Geophysics and Mining Sciences Department and of the Urals Department since December 1987; academician since 1993. Since 1975, he has been Director of the V. I. Lenin Ilmenskii State Reserve in Miass in Cheliabinsk Oblast. This organization was established in 1920 to conduct geological and biological research in the forests of the Southern Urals Mountains. Deputy Chairman of the Urals Department since August 1988.
- Kropotkin, Petr. N.,** D. GM. S. Born in 1910 in Moscow. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1966; academician in 1993. Originally elected to Earth Sciences Department. He graduated from the S. Ordzhonikidze Moscow Geological Prospecting Institute in 1932. Since 1959, he has headed the Tectonics and Geophysics Laboratory of the Geological Institute of the Russian Academy of Sciences. His main work is in the regional geology of Kazakhstan and the Far East, and geotectonics. (GSE 13, p. 520.)
- Kurlenia, Mikhail V.,** D. Tech. S. Born in 1931. Engineer. Specialist in mining mechanics. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department and of the Siberian Department since December 1987, and academician since 1990. He has written 24 scientific works and co-authored 105 others. He has 95 inventions and of his scientific writings, seven are major monographs--all on aspects of mining. He graduated from the Tomsk Polytechnical Institute Imeni S. M. Kirov in 1953 and worked there until 1960. In 1960, he joined the Mining Institute of the Siberian Department in Novosibirsk where, in turn, he was a senior researcher, Head of a laboratory and a Department, and in 1988, he was named Director of that institute. He became a member of the Presidium in that year. He has been a professor since 1986. He has supervised the work of two doctoral and 16 candidate aspirants. He edits a mining journal. He is a holder of the Badge of Honor and medals for his work.
- Laverov, Nikolai P.** Born in 1930. Corresponding member since 1979. Academician of the Geology, Geophysics, Geochemistry, and Mining Department of the national academy since December 1987. Since 1987, he has been President of the Kirghizstan Academy of Sciences. He was named Vice President of the Russian Academy of Sciences for the Earth Sciences Section in October, 1988. Since 1990, he has been the Director of the Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry Institute in Moscow. The new institute does ore and mineral analyses and develops new methods and tools for analysis.
- Letnikov, Feliks A.,** D. GM. S. Born in 1934. Geologist. Specialist in the fields of geology, geochemistry and petrological processes forming the earth's crust. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department and of the Siberian Department since December 1987, and academician since 1992. He has authored and co-authored 230 works of which 15 are monographic in length and substance. He graduated from the All-Union Correspondence Polytechnical Institute in 1961. He served on geological expeditions from 1957 to 1965. In 1965, he headed a laboratory of experimental and theoretical petrology, and in 1980 he was named Deputy Director of the Earth's Crust Institute in Irkutsk. He has been a professor since 1978, holding the chair in mineralogy and petrology at the Irkutsk State University. He has directed the research of three doctoral students and 23 aspirants for the candidate degree. He is on the commission on experimental mineralogy and of the commission on metasomatism of the Department of Geology, Geophysics, Geochemistry and Mining Sciences of the Russian Academy of Sciences. He is a member of group participating in the program "Lithosphere" and "Cybernetic Geodynamics of the Earth's Crust." He is editor of the journal "Geology and Geophysics."

- Logachev, Nikolai A.,** D. GM. S. Born in 1929. Geologist. Specialist in studies of the Geology of the Continental Shelf. Corresponding member since 1979, and academician of the Geology, Geophysics, and Geochemistry Department and of the Siberian Department since 1984. He graduated from the Irkutsk State University in 1952. He began work upon graduation at the Eastern Siberian Branch Geology Institute that became the Earth's Crust Institute. In 1976 he was named Director of that institute that was established in 1949 and is subordinate to the academy's Siberian Department. Research at the institute includes geology, geophysics, and seismology. Since 1977, he has served as Chairman of the Irkutsk Scientific Center. He was named to the Presidium of the Siberian Branch of the Academy in 1980. He has been a member of the American Geophysical Society since 1984. He was a delegate to the 26th National Congress. Winner--with others--of the 1978 State Prize in Science and Technology for "The History of the Development of the Relief of Siberia and the Far East" 15 Vols. In 1988, he received the Soviet Ministerial Prize. He has also received other medals and recognitions for his work in scientific research. (1964-76).
- Magnitskii, Vladimir A.** Born in 1915 in Penza. Russian geophysicist and specialist in the physics of the earth. Corresponding member, 1964, and academician, 1979. He graduated from the Moscow Institute of Engineers for Geodesy, Aerial Photography, and Cartography in 1940. He taught there from 1940 to 1954 and later at Moscow State University where he is heads the geophysics division. His works deal with the structure and processes of the earth's interior. (GSE 15, p. 319.)
- Marakushev, Aleksei A.,** D. GM. S. Born in 1925. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1981; academician in 1993. He has been a senior researcher at the Experimental Mineralogy Institute in Chernogolovka since 1975. The institute was established in 1969 to investigate the physical chemical conditions of the formation of minerals, ores, and rocks and the origin and migration of magmas in the earth's crust and mantle.
- Milanovskii, Evgenii E.** Born in 1923 in Moscow. Russian geologist. Corresponding member since 1976; academician in 1993. He graduated from the Department of geology at Moscow State University in 1949. In 1972, he became Head of the subdepartment of historical and regional geology at the university. His works deal with the regional geology of the Caucasus, the East African rift system and Iceland; the tectonics and the neotectonics of the alpine folded belt, and the theory of rift formation and orogeny. In 1985, he received the A. P. Kapinskii Prize in geology for his scientific achievements. (GSE 30, p. 562.)
- Osipov, Viktor I.,** Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since December 1987; academician in 1993.
- Pushcharovskiy, Iurii M.,** D. GM. S. Born in 1916 in Petrograd. Russian geologist. Corresponding member, 1976, and academician since 1984. He graduated from the Department of geology and pedology at Moscow State University in 1941. In 1946, he started working at the Geological Institute of the AN SSSR and in 1969, he was made Head of the laboratory of the tectonics of zones adjacent to oceans. He devised a new scheme for the tectonics of the northeastern USSR and the Arctic and developed new ideas on the structure and structural development of the Pacific geosynclinal belt, the presence of gas and oil in the belt, and the structure and tectonic evolution of the Pacific, Indian, and Arctic Oceans. He originated a theory of the structure of foredeeps. He is co-author and editor of tectonic maps of Eurasia, the Pacific region, the Arctic, and Cuba and the Caribbean region. Recipient of the State Prize, 1969. In 1979, he received the A. P. Kapinskii Prize in geology for his scientific accomplishments. (GSE 30, p. 615.)

- Puzyrev, Nikolai N.**, D. GM. S. Born in 1914. Geophysicist. Specialist in seismology and of the seismic zones of the earth's crust. Corresponding member since 1966, and academician of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Siberian Department since December 1984. He graduated from the Leningrad State University in 1941. He worked in the oil industry and in a geophysical organization in Kazakh, was a research worker at the Institute of Geophysical Methods. He joined the Geology and Geophysics Institute of the Siberian Department in 1959, heading a seismometry laboratory in the seismology Department. From 1966 to 1987, he was Deputy Director of the Geology and Geophysics Institute in Novosibirsk, that was begun in 1958 for the purpose of discovering and developing Siberia's mineral resources. Since 1969, he has also been Head of the Geophysics Division of that institute. In 1987, he was named Head of a laboratory on the problems of seismology. Since 1988, he has been Director of the Institute itself. He is a professor at the Novosibirsk State University. He received the State Prize in 1987, the O. Iurii Shmidt Prize in 1987, and holds a number of other recognitions and awards. (GSE 21, p. 366.)
- Riabchikov, Igor D.**, D. GM. S. Born in 1937. Corresponding member of the; Geology, Geophysics, Geochemistry and Mining Sciences Department of the Academy since 1984; academician in 1993.
- Ronov, Aleksandr B.**, D. GM. S. Born in 1913 in Poltava. Russian geologist and geochemist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1966; academician in 1993. Originally elected to the Earth Sciences Department. He graduated from Leningrad State University in 1938 and worked at the Radium Institute of the AN SSSR from 1939 to 1943. From 1944 to 1950, he worked at the academy's Institute of Earth Physics, where he developed a volumetric method for studying the process of sedimentation and the vertical movements of the earth's crust. In 1950, he began working at the V. I. Vernadskii Institute of Geochemistry and Analytic Chemistry where, in 1954, he became Head of the Laboratory for the Geochemistry of Sedimentary Rocks. Scientists in this laboratory study the evolution of the geochemistry sedimentation processes on the earth, using data which point to the distribution of volumes, masses and ratios, as well as the chemical composition of sedimentary rocks of different ages and in different structural zones of the earth's crust. In 1984, he received the V. I. Vernadskii Gold Medal named for the renowned geochemist. (GSE 22, p. 270.)
- Rundkvist, Dmitrii V.**, D. GM. S. Born in 1930. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department of the Academy since 1984; academician in 1993. Since 1972, he has been Deputy Director of the Geology Scientific Research Institute in St. Petersburg that researches the patterns of the formation and distribution of petroleum and gas deposits in the Krasnoyarsk region of Russia.
- Sadovskii, Mikhail A.**, D. Tech. S. Born in 1904 in St. Petersburg. Russian physicist. Corresponding member, 1953, and academician, 1966. Since 1970, he has also been an academician of the Physical Chemistry and Technology of Inorganic Materials Department, and since 1970, an academician of the Urals Department of the RAS. He graduated from the Leningrad Polytechnic Institute in 1930. From 1932 to 1941, he worked at the Institute of Seismology of the AN SSSR and from 1941 to 1944, in the special projects section of the Presidium of the AN SSSR. He was Deputy Director of the Institute of Chemical Physics from 1946 to 1963. From 1963 to August 1988, he was Director of the O. Iurii Shmidt Earth Physics Institute that was established in 1956 and that is the leading center for the study of earthquakes and other seismic phenomena. It is subordinate to the academy's Geology, Geophysics, and Geochemistry Department. He was originally elected to the Earth Sciences Department. In 1985, awarded the

Lomonosov Medal for his work in geophysics and geology. His works are in the problems of the theory of explosions, the study of the destructive action of explosions, and the seismic effects of large-scale explosions. He substantiated the law of similarity for explosions. He participated in large-scale, directional blasting in Russia and is one of the founders of the science of the physics of explosions. Recipient of the State Prize in 1948, 1949, 1951, and 1953. Lenin Prize, 1962. In 1986, he received the M. V. Lomonosov Gold Medal for his contributions to Russian Science. (GSE 22, p. 544.)

Sergeev, Evgenii M., D. GM. S. Born in 1914 in Moscow. Russian geologist. Corresponding member, 1966, and academician, 1979. He graduated from Moscow State University in 1940 and served in the Red Army from 1941 to 1943. He began working in the Department of geology at the Moscow State University in 1940, becoming a professor in 1953. In 1954, he became Head of the subdepartment of soil science and engineering geology, and in the years 1954 to 1957 and 1963 to 1964, he served as dean of the Department of geology at the university. He became Prorector in 1964 and since 1974 he has been first Prorector of Moscow State University. His works are in engineering geology, soil sciences, and hydrogeology. (GSE 23, p. 362.)

Shcheglov, Aleksei D., D. GM. S. Born in 1926. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Far Eastern Department since 1979; academician in 1993. Since 1979, he has been Director of the Geology Institute in Vladivostok that studies the laws of distribution of deposits of useful minerals in the Far East and since 1980 Deputy Chairman of the Far Eastern Center of the academy.

Shemiakin, Evgenii I., D. Tech. S. Born in 1929 in Novosibirsk. Russian scientist specializing in the mechanics of rocks. Since 1976, corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department of the Academy, and academician since 1984. He graduated from Leningrad State University in 1952. From 1955 to 1960, he was a researcher at the Institute of Chemical Physics of the AN SSSR. From 1960 to 1971, he was Head of a laboratory of the Institute of Theoretical and Applied Mechanics of the Siberian Department of the AN SSSR. Since 1965, he has been a professor at the University of Novosibirsk. From 1971 to 1987, he served as Director of the Mining Institute of the Siberian Department at Novosibirsk that was established in 1944 to work in mineral exploration, develop mining machinery development, improve ore processing, develop environmental protection against mine wastes, and solve problems of cold region mining. He joined the Presidium of the Siberian Department in 1980. From 1980 to 1988, he was Deputy Chairman of the Siberian Department. In 1987, he became Head of the Examination Board for the Council of Ministers of the USSR. His works are on the study of rocks, the effects of blasting and shock on rocks, and the deformation mechanics of solids. (GSE 29, p. 577.)

Shilo, Nikolai A., C. GM. S. Born in 1913 in Piatigorsk. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department of the Academy since 1964, and academician since 1970. He is also member of the Far Eastern Department. He graduated from the Leningrad Institute of Mines in 1937 and worked for various geological institutions in northeastern former Soviet Union. In 1960 he became Director of the Complex Scientific Research Institute (the Northeastern Integrated Scientific Research Institute) at Magadan. Since 1977, he has been Chairman of the Presidium of the Far Eastern Department. Since 1980 he has been on the Presidium of the Russian Academy of Sciences. In 1988, he was appointed advisor to the Academy's Presidium. His works are in the geology and geochemistry of mineral deposits, including gold, silver, tin, mercury, tungsten, platinum, and copper. In 1985, he received the V. A.

Obruchev Prize in geology for his lifetime contributions to the geological sciences. (GSE 29, p. 596.)

Sobolev, Nikolai V., D. GM. S. Born in 1935. Geologist. Specialist in Mineralogy and petrology. Corresponding member of The Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1981, and academician since 1992. He graduated from L'vovsk State University in 1958. He worked at the Mineralogical museum at the university. In 1960 he joined the Geology and Geophysics Institute of the Siberian Department, working as a junior and senior researchers and Head of the Laboratory of High Pressure Minerals (1973). In 1983, he became Deputy Director of that institute. He has been a professor since 1985. He was Chairman the Scientific Council on the Natural Sciences for the Presidium of the Siberian Department for diamond deposits in 1983. He became Vice President of the Mineralogy Society in 1982 and a member of the Mineralogy Specialists Association in 1982. In 1986 he became a member of the American Geophysical Society. He received the Lenin Prize in 1976. He is presently heading a research program on the specifics of the creation of minerals and the evolution of deep zones of the Lithosphere. At present he is Director of the Mineralogy and Petrography Institute in Akademgorodok-Novosibirsk. He is in charge of a wide-ranging research program which includes: the reconstruction of the geologic mineralogical process formation of diamond deposits as a base for the improvement of methods of forecasting their discovery; the crystallization, dissolving and stability of diamonds and new methods of cutting and polishing them; experimental modeling of minerals and the creation of rocks under conditions of the earth's mantle; research in the dynamics and kinetics of metamorphism, analysis of specific metamorphic formations, and the development of models; mineral groups of sillimanite, new raw material sources for the production of aluminum, silumin, and fireproof materials; thermo-geochemical research of magmatic and metamorphic processes and the creation of ores connected with them; modeling hydrodynamic thermophysical and chemical processes of the creation of minerals and of the dynamics of geologic systems; experimental crystal chemistry. He received the Lenin Prize in 1976.

Sokolov, Boris S., D. GM. S. Born in 1914 in Vyshnii Volochek, in what is now Kalinin Oblast. Russian geologist and paleontologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1958, and academician since 1968. He graduated from Leningrad State University in 1937 and taught there from 1937 to 1945 and from 1945 to 1958. In 1958, he started working at the Institute of Geology and Geophysics of the Siberian Department of the Academy. He has been on the Novosibirsk University faculty from 1960, becoming a professor there in 1964. Since 1960, he has been Head of the Stratigraphy of Precambrian and Paleozoic Laboratory of the Geology and Geophysics Institute in Novosibirsk that was established in 1958 to discover and develop Siberian mineral resources. In 1972, he was made Vice President of the International Paleontological Union. He has been Academician Secretary of the geology, geophysics and geochemistry section of the AN SSSR from 1975. His work is in the Paleozoic corals, Proterozoic and Cambrian Organisms, the history of the development of the organic world during the Precambrian, and the biostratigraphy during the first half of the Paleozoic. He identified the Wend complex. In 1974, he was elected President of the All-Union Paleontological Society of the Academy. In 1975, he became a member of the Presidium of the Russian Academy of Sciences. Since 1968, he has been an honorary member of the Geological Society of Sweden, and since 1963, a member of the Geological Society of France. Lenin Prize, 1967. He received the coveted A. P. Karpinskii Gold Medal in 1979 for his work in geological research. He heads the Precambrian Paleontology Laboratory of the Paleontological Institute and

Museum in Moscow. The laboratory studies fossil marine and insect invertebrates. (GSE 24, p. 280.)

Strakhov, Vladimir N., D. PM. S. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1987; academician in 1993. In 1991, he was Director of the O. Iurii Shmidt Earth Physics Institute in Moscow and Head of the Earth's Bowels and Planet's Physics Department as well as Head of the Geopotential Fields Interpretation Theory Laboratory of that Department. The institute received its present name in 1971. In 1977, it had some 10 Departments and 40 laboratories. In 1991, the institute was comprised of 13 Departments with some 74 scientific laboratories that involved the work of 1673 persons of whom 110 held doctors of science degrees and 298 held candidates of science degrees. There were two academicians and six corresponding members of the AN SSSR among these scientists one corresponding member of the Armenian Academy, one corresponding member of the Uzbek academy. (Letter of Dr. V. N. Strakhov dated 14 November 1991.)

Surkov, Viktor S., D. GM. S. Born in 1926. Geologist. Geophysicist. Specialist in regional geology and geophysics. Corresponding member since 1979, and academician since December 1987--of the Geology, Geophysics Geochemistry, and Mining Sciences Department of the RAS. He graduated from the Kazan State University imeni V. I. Ul'ianov-Lenin in 1950. From 1950 to 1962, he worked in the Siberia-physics Ministry of Geology of the USSR, and was the Head engineer on several scientific expeditions. In 1962, he joined the Siberian Scientific Research Institute of Geology, Geophysics and Mineral Raw Materials subordinate to the Geology Ministry of the SSSR, becoming Deputy Director in 1971, and Director in 1973. The institute researches petroleum and gas deposits in the Krasnoyarsk region. It is under the Ministry of Geology. He became General Director of "Sibgeo" (NPO) in 1987. He is the scientific curator for the Geology Ministry of Russia for the regional geological and geophysical collections of Siberian and the Far East. He heads the section on regional geophysics of the national council for geophysical research. He holds several medals awarded for his scientific accomplishments.

Trofimuk, Andrei A., D. GM. S. Born in 1911 in Brest Oblast. Russian petroleum geologist. Corresponding member, 1953, and since 1958, he has been an academician of the Geology, Geophysics, Geochemistry, and Mining Department of the National Academy and of the Siberian Department. He graduated from the University of Kazan' in 1933 and began work in the petroleum industry. In 1953, he became Deputy Director and in 1955, the Director of the All-Union Oil and Gas Scientific Research Institute. In 1957, he was made Director of the Geology and Geophysical Institute of the AN SSSR in Novosibirsk that was established in 1958 to conduct basic geological research in the discovery and development of the mineral wealth of Siberia. Since 1958, he has acted as Head of the Petroleum Geology Laboratory of the Geology and Geophysical Institute in Novosibirsk. Since 1963, he has been on the Presidium of the National Academy. He has served as Deputy Chairman of the Siberian Department since 1965. In 1985, he became Chairman of the Scientific Council for the Siberia Program. In 1988, he was appointed advisor to the national academy's Presidium. His work is in prospecting and developing petroleum deposits. He took part in the discovery of the Volga-Urals Oil-Gas Region, and helped develop methods for exploiting those deposits. He was a Deputy to the 6th through the 8th convocations of the Supreme Soviet of the USSR State Prizes in 1946 and 1950. In 1974, he shared the I. M. Gubkin Prize with V. S. Vishemirskii and A. E. Kontorovich. The prize is named after the renowned petroleum geologist and engineer. (GSE 26, p. 371.)

Trubetskoii, Kliment N., D. Tech. S. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since

1987; academician in 1993. Since 1987, he has been the Director of the Problems of Complex Utilization of Mineral Resources Institute in Moscow, which was founded in 1978 to research gas filtration and new methods for exploiting mineral resources.

Yanshin, Aleksandr L., D. GM. S. Born in 1911 in Smolensk. Russian geologist. Since 1958, academician of the Geology, Geophysics, Geochemistry, and Mining Department of the academy. Since 1958, academician of the Siberian Department of the academy. Since 1982, he has served as Vice President of the Academy of Sciences. In 1936, he began work at the Geological Institute of the AN SSSR where he was appointed Head of a Department in 1956. Since 1958, he has been Deputy Director of the Geology and Geophysics Institute in Novosibirsk, established in 1958 to study and develop Siberia's mineral resources. Since 1967, he has been President of the Moscow Society of Naturalists. Since 1969, he has been Head of the Geology Division of the Novosibirsk Institute. His major research has been on the tectonic elements of the Tien-Shan and Urals regions. Winner--with others--of the 1978 State Prize for "The History of the Development of the Relief of Siberia and the Far East" 15 Vols. (1964-76). Since 1984, he has been Director of the Lithosphere Institute in Moscow that was established in 1979 to study the theory of sedimentary and metamorphic rock and ore formations. Recipient of the State Prize in 1969 and 1978. In 1973, he was given the Presidium's Gold Medal imeni A. N. Karpinskii. (GSE 30, p. 425.)

Yushkin, Nikolai P. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Urals Department since December 1987; academician in 1993.

Zharikov, Vilen A., D. GM. S. Born in 1926. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1972, and academician since 1987. From 1969 to 1981, he was Deputy Director of the Experimental Mineralogy Institute at Chernogolovka. Since 1981, he has been the Director of the Experimental Mineralogy Institute at Chernogolovka that was established in 1968 from a laboratory of the Solid State Physics Institute. It is the only center for study and research on virtually all aspects of experimental mineralogy and petrology, although there are 12 other laboratories and experimental units in Russia that conduct similar research in specialized areas of concentration. Staff at the institute total some 320 workers of whom 80 are research scientists which include one academician and one corresponding member of the RAS, 12 doctors of sciences, 48 candidate degree holders, and 16 research scientists without degrees. The institute is comprised of 12 laboratories, eight ad hoc scientific teams, a design branch and a pilot plant. It has an advisory scientific council whose membership is composed of 30 "top-level" scientists who review the work and plans of the institute, review papers for publication and theses for degrees, and guide the development and production of scientific research apparatus for the institute. Long term research goals are presented by individual scientists to this council for approval and scheduling.

Corresponding Members

Abasov, Mitat Teymor ogly., D. Tech. S. (Petroleum Engineer) He has been Academician Secretary of the Earth Sciences Department of the Azerbaiian Academy of Sciences since 1979. He has been an academician of the Earth Sciences Department of the Azerbaidzhan academy since 1980. He has been a corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Russian Academy since 1984. Since 1975, he has been the Director of the Deep Petroleum and Gas Deposits Problems Institute in Baku that

was created in 1960 to investigate problems associated with drilling for petroleum at depths of over 4,000 meters.

Bogdanov, Nikita A., D. GM. S. Born in 1931. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy in 1993. Since 1982, he has been the Director of the Lithosphere Institute in Moscow which was established in 1979 to study the theory of sedimentary and metamorphic rock and ore formation.

Borukayev, Chermen B., D. Geol. S., Moscow State University graduate in 1958. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining department of the AN SSSR and member of the Far Eastern department since December 1987. Since 1988, he has been the Director of the tectonics and Geophysics Institute in Khabarovsk. which was founded in 1971 and is subordinate to the Far Eastern Department of the Academy. Its scientists study the deep tectonics of the Earth's crust of the continent and Pacific ocean; determine the relationship between the geophysical fields and structures of the Earth's crust; develop estimates of mineral deposits from the study of tectonic and geophysical relationships, and probe tectonic and geophysical theoretical problems. (LDA 89-11378.)

Bronnikov, Dmitrii M. Born in 1913. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1979. Since 1981, he has been Director of the Complex Utilization of Mineral Resources Institute in Moscow which was established in 1978 to research theories of gas filtration and new methods for exploiting mineral resources. It is subordinate to the academy's Geology, Geophysics, and Geochemistry department.

Bulanzhe, Iurii D., D. PM. S. Born in 1911 in Moscow. Soviet geophysicist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1966. Originally elected to the Physics of the Earth department. He graduated from the Moscow Geodetic Institute in 1934 and started work at the Institute of Physics of the Earth of the AN SSSR, becoming a department Head in 1956. Since 1956, he has been Chief of the Gravimetry and Geomagnetism Laboratory of the O. Iurii Shmidt Earth Physics Institute in Moscow. His works include experimental studies in gravimetrics and the study of deformations in the earth's crust. He has been Vice President of the Soviet Geodetic Society and of the International Association of Geodesy since 1957. (GSE 4, p. 169.)

Bulashevich, Iurii P. Born in 1911 in Nizhny Novgorod, now Gorkiy. Soviet geophysicist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1970. He is also a member of the Urals Scientific Center. He graduated from the University of Kazan in 1935 and started work at the Urals Department of the Academy. In 1958, he became the Director of that department's Institute of Geophysics which since 1971 has been called the Institute of Geophysics. In 1952, he became a professor at the Sverdlovsk Pedagogical Institute and later professor at the Sverdlovsk Mining Institute. His main works are in geophysical methods of studying the earth's crust and the exploration and analysis of useful mineral deposits. (GSE, 30, p. 29.)

Geodekian, Artem A., D. GM. S. Born in 1914. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1979. Since 1975, he has been Deputy Director of the P. P. Shirshov Oceanology Institute in Moscow and since 1979, he has served as Chief of the Geochemistry Division of the Oceanography Institute as well as Chief of the Petroleum in the Sea Laboratory. The Shirshov Oceanology Institute is the largest Russian research institute for the marine sciences. It was created in 1946, and is subordinate to the academy's Oceanology, Atmospheric Physics, and Geography department. It was named after Shirshov in 1967.

Glebovitskii, V. A. Corresponding member of the Geology, Geophysics, Geochemistry and Mining Sciences Department of the Academy in 1993 and a member of the Bureau of that department.

Gold'in, (Goldin) Sergei V., D. PM, S. Born in 1936. Physicist, Head of a laboratory of the Geology and Geophysics Institute of the Siberian Department. Corresponding member Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1991. He is a specialist in theoretical geophysics and in the processing of geophysical data. Since 1975, he has headed the Mathematical Methods Laboratory of the Geophysics Division of the Geology and Geophysics Institute in Novosibirsk which was established in 1958 to discover and develop Siberian mineral resources. He has authored 100--19 from 1986 to 1991--scientific works of which two are important monographs. He introduced the analytical method for developing the algorithm for the extension of polar seismic waves and from this environmental visualization constructed the parameters for high speed modeling. Under his leadership the cinematic interpretation procedures for measuring heterogeneous features of the environment from space was developed. He also led in the development of the theory of the spreading or dissemination of seismic waves. He is a professor at the Novosibirsk State University where he has guided the work of three aspirants for the candidate degree. His work has also produced methods for determining the existence of oil and gas reserves in Siberia. At present he is heading a team on developing theory and algorithms for solving the direct and ensuing problems of seismic prospecting.

Gorbunov, Grigorii I. Born in 1918 in the village of Dor, Niuksenitsa Raion, Vologda Oblast. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1972. He graduated from the Moscow Geological Prospecting Institute in 1941. He took part in the explorations of ore deposits in Kirghizia and Murmansk Oblast. In 1971, he was named Chairman of the Kola Affiliate of the Siberian department the AN SSSR. His works deal with regional metallogeny, the problems of prospecting for useful minerals, and the geology and structure of ore deposits. He has established regularities in the distribution of magmatic sulfide copper-nickel deposits. (GSE 30, p. 387.)

Gritsko, Gennadii M., D. Tech. S. Born in 1930. Engineer. Specialist in research into pressures of pits in coal mines. Corresponding member since 1990. He is Director of the Coal Institute in Kemerovo. He is author of 20 scientific works and co-author of 121, of which eight were important monographs. He introduced the method for predicting pressures in coal mine pits and developed the technology to implement the method. He teaches at the Kuzbass Polytechnic Institute where he has guided the work of two doctoral and 42 aspirants for the candidate degree. He was on the Scientific Council on physical Technical Problems in the exploitation of useful minerals of the Geology, Geochemistry and Mining Sciences Department of the AN SSSR; on the Scientific-Technical Council a government ministry; on the Council on the mechanical and mathematical l, energetics and earth sciences of the Siberian Department of the academy. He is on the specialists' supervisory panel for dissertation defense and Chairman of the doctorate granting body of the Institute of Coal. He is editor of a scientific journal and Director of the Kemerovo Scientific Center of the Siberian Department. Under Dr. Gritsko's leadership, an International Center for Coal research is being organized in Kemerovo under the Kemerovo Scientific Center.

Gubin, Igor E. Born in 1906 in St. Petersburg. Russian geologist and seismologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1976. He graduated from the Leningrad Institute of Mines in 1934. From 1932 to 1938, he was a staff member of the All-Union Geological Institute and a staff member of the Tadzhik Branch of the AN

SSSR from 1938 to 1945. In 1945, he began working at the Institute of Lithosphere Physics of the AN SSSR. His work deals mainly with seismic zoning and seismotectonics of Middle Asia. (GSE 30, p. 390.)

Ivanov, Sviatoslav N. Born in 1911 in Nizhny Novgorod (Gorkiy). Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1970. He is also a member of the Urals Scientific Center. He graduated from the Sverdlovsk Institute of Geological Prospecting in 1932 and began working on the exploration and prospecting of copper deposits in the Urals. From 1940, he directed the laboratory of physical geochemistry at the A. N. Zavaritskii Institute of Geology and Geochemistry of the Urals Department of the Academy. Since 1966, he has been Director of that institute and Deputy Chairman of the Urals Scientific Department of the AN SSSR. His works deal with the regularities of the location of pyrite-type cupreous deposits. He established the concept of the period and reasons for greenstone metamorphism, which he believes occurred before the uplifting of the sea floor and before the formation, in the volcanic region, of mountain structures connected with the intrusion of granite botholiths. State Prize, 1949. (GSE 10, p. 504.)

Kanygin, Aleksandr V., C. GM. S. Born in 1936. Micropaleontologist. Head of the Laboratory of Micropaleontology of the Institute of Geology and Geophysics of the Siberian Branch of the RAS. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1991. He graduated from Moscow State University in 1960 and went to work at the Geology and Geophysics Institute in 1962, where he was awarded the candidate degree in the geological sciences in 1965. In 1972, he became a senior researcher at that institute. His research included the biostratigraphy and paleobiogeography of the Asiatic portions of Russia. He is author and co-author of 60 scientific works including some statistical series--five of them with collectives--and he has edited about 12 monographs. He was on the Micropaleontology Commission of the Soviet Union, and Deputy Chairman of the Siberian Micropaleontology Commission of Siberia. He sat on the Scientific Council on doctoral dissertations, was on the Problems Council for the Department of General Biology for the AN SSSR. He was on the Coordination Council for the Sibir Program. He has been on the Presidium of both the Siberian Department and of the Russian Academy of Sciences.

Karus, Evgenii V., D. PM. S. Born in 1918. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1984.

Kogarko, L. N., D. GM. S. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy in 1993. He heads the Geochemistry of Alkaline Rocks Laboratory, set up in 1980 in the V. I. Vernadskii Geochemistry and Analytical Chemistry Institute in Moscow. Its scientists research the origin, evolution and differentiation of alkaline magmas, the behavior of such volatile components as water, carbon dioxide, sulfur, fluorine and chlorine in mantle and alkaline magmas.

Krasnii, Lev I., D. GM. S. Born in 1911. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy and of the Far Eastern Department since 1970. (LDA 89-11378.)

Kulish, E. A. Born in 1931. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department since 1979. Also member of the Far Eastern Department since 1987.

Kuz'min, (Kuzmin) Mikhail I., D. GM. S. Born in 1938. Geochemist. Director of the Geochemistry Institute imeni A. V. Vinogradov. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the

Academy since 1990. He is the author of 11 scientific works of which one is a monograph of importance. He has co-authored 140 pieces of which eight are lengthy monographs of which two bear mentioning: "New Global Tectonics, Magmatism and Metallogeny" (1976) and "The Tectonics of the Lithosphere's Plate in the Territory of the Soviet Union" (1990.) In his research he has conducted comparative studies of the geochemistry of magmatic ocean rocks. He has headed expeditions for collecting samples for study from the Atlantic, Indian, and Pacific Oceans. He is a member of a working group on "Paleoreconstruction." He is also on the Russian Committee on the "Lithosphere" program and the program on "Geodynamics," and others. (LDA 89-11378.)

Leonov, Iurii G. Corresponding member of the Geology, Geophysics, Geochemistry and Mining Sciences Department of the Academy in 1993. Director of the Geologic Institute in Moscow.

Marfunin, Arnold S., Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since December 1987. (LDA 89-11378.)

Mel'nikov, (Melnikov) Vladimir P., D GM. S. Born in 1940. Geologist. Specialist in geocriology, geophysical methods of researching the earth's crust. Corresponding member of the Oceanography, Atmospheric Physics and Geography Department and of the Siberian Department since December 1987. He graduated from Moscow Geological Prospecting Institute imeni Sergei Ordzhonikidze in 1962. He worked at there as an engineering student, a participant in geological expeditions, a junior and senior researcher. From 1970 to 1984, he worked at the Permafrost Institute in Yakutsk where he was a senior researcher and headed (from 1984 to 1985) the Department of engineering, geocriology and Deputy Director of the Geology and Geophysics Institute of the Siberian Department. In 1985 he was named Director of Problems of the North Institute in Tiumen--now called the Cryosphere of Earth Institute. He heads the national committee on permafrost, and is a leading member of the Science Coordination Council of the Soviet Union. In 1991, a new International research Center for Northern Territories Development in Siberia was established that links together the work of scientists of three Siberian Department Institutes: the Institute of Cryosphere of Earth in Tiumen, the Institute of Physico-Engineering Problems of the North in Yakutsk, and the Institute of Philology in Akademgorodok-Novosibirsk. As Director of the Institute of Cryosphere Earth, Mel'nikov will collaborate with the Directors of the other two institutes in the development of this new international research center. (LDA 89-11378.)

Mel'nikov, Nikolai N., D. Tech. S. Born in 1938. Since 1981, he has been Director of the Mining Institute in Apatity which is subordinate to the academy's Kola Affiliate. It conducts research on rock strata at mining sites. He is a corresponding member of the Geology, Geophysics, Geochemistry and Mining Sciences Department of the Academy and a member of the Bureau of that department.

Moiseenko, Valentin G., D. GM. S. Born in 1930. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences department and of the Far Eastern department since December 1987. He heads up the Amur Interdisciplinary Scientific research Institute in Blagoveshchensk. Established in 1980, from units of the Far Eastern Geological Institute and the Economic Research Division of the Institute of Economics, the institute has a subdivision on humanitarian problems and a laboratory on sociology that is headed by V. N. D'ianchenko. The laboratory works on the manpower problems in the Baikal l-Amur region and on labor resources for the agroindustrial complex of the region. It maintains relations with the branch of the Chinese Academy of Sciences in Hilongjiang province. (LDA 89-11378.)

- Nesterov, Ivan I., D. GM. S.** Born in 1932 in Paratkul, Dalmatovo Raion, Kurgan Oblast. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Siberian Department since 1976--reconfirmed in 1992. He joined the Presidium of the Siberian Department in 1980. He has authored and co-authored some 400 scientific works, of which 30 are monographs. He graduated from the Sverdlovsk Mining Institute in 1954. From 1957 to 1961, he worked at the Siberian Scientific Research Institute Geology, Geophysics and Mineralogy as a senior geologist, a senior researcher, and leader of a sector of the Tiumen branch of the Siberian Department. In 1964, he joined the Western Siberian Geological Oil Exploration Scientific Research Institute of the Ministry of Geology of the Ministry of Geology of the RSFSR located in Tiumen. In 1971, he became Director that institute. His studies of the geology of western Siberian are of scientific significance. He has developed theoretical principles for predicting the presence of oil and gas in large regions and local areas. He is a professor, holding the chairs at the Tiumen State University and at the Tiumen Industrial Institute. He was named to the Presidium of the Siberian Department in 1980. He heads the Scientific Council on the problems of Oil and Gas in Western Siberia. He received the Lenin Prize, 1970, and the I. M. Gubkin Prize in 1980. He is holder of the Badge of Honor for his work. (GSE 30, p. 566.)
- Nikolaev, Aleksei V., D. PM. S.** Corresponding member of the Geology, Geochemistry, Geophysics, and Mining Sciences Department of the Academy since 1991. He has headed the Turbid Media Subdepartment of the O. Iurii Shmidt Earth Physics Institute since 1975. In 1991, he was made Head of the Experimental Geophysics Department of the Institute, and he also headed the Experiment Geophysics Laboratory of that department. Since 1991 he has been Deputy Director of the O. Iurii Shmidt Earth Physics Institute.
- Ovchinnikov, Lev N.** Born in 1913 in Perm. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1964. Originally elected to the Earth Sciences department. He graduated from the Urals University in 1937. From 1945 through 1965, he headed the mineralogy and geochemistry laboratory of the Mining and Geological Institute of the Urals Scientific Center (now Department) of the AN SSR. In 1962, he became Director of the Urals Department's Institute of Geology. In 1966, he became the Director of the Mineralogy, Geochemistry, and Crystal Chemistry of Rare Elements Institute in Moscow which was established in 1956, and which assists in the development of raw material bases for the rare metals industry. That institute is jointly subordinate to the academy and to the Ministry of Geology of the USSR His principal works are on the geology of the Urals, the theory of ore formation, geochemical methods of prospecting for concealed mineralization, and the determination of the absolute age of geological formations. (GSE 18, p. 610.)
- Pariyskiy, Iurii N., D. PM. S.** Born in 1932. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1979. Since 1975, he has been Deputy Director of the Main Astronomical Observatory in Leningrad, which was founded in 1839 and investigates problems of celestial mechanics and gravimetrics and conducts classical astronomical research.
- Pinneker, Evgenii V., D. GM. S.** Born in 1926. Geologist. Specialist in the fields of geochemistry, metamorphism, hydrogeochemistry and Hydrogeology. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1990--reconfirmed in 1992. Author of 105 scientific works of which six were major monographs; co-author of another 160 publications of which 14 were monographs. He is Deputy Director of the Earth's Crust Institute in Irkutsk and a recipient of the State Prize. He is a professor

at the Irkutsk State University where he has guided the research of three doctoral students and 18 aspirants for the candidate degree. He was on the Scientific Council for engineering geology and hydrogeology of the AN SSSR. He is on the Siberian Department's commission for research into subterranean waters in Siberia and in the Far East, and a member of the Hydrogeology Association.

Poliakov, Gleb V., D. GM. S. Born in 1931. Geologist. Specialist in petrography and petrology, and in the magmatic formations of Siberia. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the AN SSSR from 1981--reconfirmed in 1992. He graduated from the Tomsk Polytechnical Institute imeni S. M. Kirov in 1953 and upon graduation continued to work there. He is the author of 163 scientific publications of which five are monographs. In 1960, he joined the Institute of Geology and Geophysics of the Siberian Department, serving as a scientific researcher, both junior and senior, and Head of the laboratory studying magmatic formation (1976), becoming Deputy Director of the institute in 1978, and Head of the Department of metallurgy, petrography, geochemistry and mining deposits in 1985. In 1982, he was made Head of the Council on doctoral dissertations for the Department of Geology, Geophysics, Geochemistry and Mining Sciences of the Siberian Department. As a professor, he has guided the work of ten aspirants for the candidate degree. In 1984, he was Deputy Chairman of the Siberian Petrographic Scientific Council. He is Head editor of the journal *Geology and Geophysics*. He received the State Prize in 1983. He is currently heading a research program on the magmatic formations of unstable zones, their petrology, and the evolution of economic minerals. Presently he is Head of the Petrology, Geochemistry and Location of Mineral deposits Department of the Geology Institute in Akademgorodok-Novosibirsk as well as Head of the Magmatic Formation Laboratory of that department. He is holder of the Badge of Honor for his work.

Proskuriakov, Nikolai M. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since December 1987. (LDA 89-11378.)

Sergeev, Konstantin F., D. GM. S. Born in 1931. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Far Eastern Department since 1979. Since 1977, he has been Director of the Marine Geology and Geophysics Institute (formerly the Complex Scientific Research Institute--Sakhalin) in Novo Aleksandrovsk that is subordinate to the Far Eastern Department and that does research in the fields of oceanography and geophysics, including seismology, hydro-acoustics, and the study of tidal waves.

Sobolev, Gennadii A., D. PM. S. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy in 1991. Since 1974, he has headed the Fracture Mechanics Department of the O. Iurii Shmidt Earth Physics Institute in Moscow. Since 1991 he has headed the Modeling and Processes Analysis in Earthquake Focus Laboratory of the institute.

Timofeev, Petr P., D. GM. S. Born in 1918 in Viazma, Smolensk Oblast. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1976. He graduated from Moscow State University in 1943. In 1950, he joined the staff of the Geology Institute of the AN SSSR. From 1960 to June 1988, he served as Deputy Director of the Geology Institute in Moscow. In June 1988, he was made Director of the Geology Institute which was established in 1937 to coordinate geological research with other branches of the academy and with the other republic academies. His works are in the study of the geological formations of coal. State Prize, 1972. (LDA 89-11378.) (GSE 30, p. 668.)

Iakovlev, Viktor L., D. Tech. S. Born in 1934. Mining Engineer. Specialist in mining. Corresponding member since 1990. From 1982 to 1984 he taught at the Sverdlovsk

Mining Institute imeni V. V. Vazhrushev, and since 1987 he has taught at the Yakutsk State University where he has guided the research of nine aspirants for the candidate degree. He has written 27 studies of which one is a significant monograph and he has co-authored 79 publications of which four are major monographs. He is Chairman of the Russian Group on International Mining in the Arctic of the USA Committee, on the Scientific Council of the Siberian Department for the Mechanics, Energetics, and Mining Sciences, and he is Chairman of the Yakutsk Scientific Center of the Siberian Department of the Russian National Academy.

Zhamoyda, Aleksandr I., D. GM. S. Born in 1921. Corresponding member of the Geology, Geochemistry, Geophysics, and Mining Sciences Department since December 1987. Since 1970, he has been the Director of the Geology Scientific Research Institute located in Leningrad. It was established in 1932 and specializes in regional geology and in prospecting methods. It is directly subordinate to the Ministry of Geology. (LDA 89-11378.)



Organization of the Leading Institutes: The O. Iurii Shmidt Physics of the Earth Institute is organized into seven laboratories that have some 13 Departments; the V. I. Vernadskii Geochemistry and Analytical Chemistry Institute is structured around three divisions that have some 21 laboratories; the Geology Institute that dates back to 1937 is one of the oldest of the Department's institutes and is organized into five major divisions; the Geology of Ore Bodies, Petrography, Mineralogy and Geochemistry Institute in Moscow dates from the 1950s and contains 12 laboratories, and the Mineralogy, Geochemistry and Crystal Chemistry of Rare Elements Institute in Moscow includes six laboratories.

Geology, Geophysics, Geochemistry and Mining Sciences Research Institutes: The research institutes directly subordinate to the Geology, Geophysics, Geochemistry, and Mining Sciences Department in Moscow or whose research is directed by the department are given below:

1. A. E. Fersman Mineralogical Museum in Moscow.

Located at 18, build 2. Leninskii ave., V-71. 117071/ Directed by Professor Aleksandr A. Godovikov, tel. 952-00-67.

Retrospect: This museum dates back to St. Petersburg and 1716. It was moved to Moscow in 1934. The museum houses major collections of minerals, gems and meteorites from, Russia and the rest of the world. Its scientists conduct comparative studies of minerals. Since 1984, its Director has been Aleksandr A. Godovikov, D. GM. S.



2. Geology (Geologic) Institute in Moscow.

7 pizevskii st. Moscow, 109017, tel. 230-80-29. Directed by Corresponding Member Iurii G. Leonov. tel. 230-80-39.

Leonov, Iurii G. Corresponding member of the Department of Geology, Geophysics, Geochemistry and Mining Sciences of the Russian Academy in 1993. He is the Director of the Geologic Institute (G IN) located in Moscow which was Originally established during the reign of Peter I as the Geological Museum, it received institute status in 1930. It was moved to Moscow from Leningrad in 1934 and merged with the Institute of Petrography and the Institute of Geochemistry, Mineralogy and Crystallography after which it was named the Geological Institute. In 1956, it was again divided into two institutes. The Geological Institute is a major Russian center for research in tectonics, stratophysics studies, planetology, marine geology, paleomagnetism, the history of geology and the development of geophysical and mathematical methods for geological research and study. The institute coordinates geology research with the other branches of the academy and with the various republic academies. The Institute has published Trudy since 1930.

Retrospect: Originally established during the reign of Peter I as the Geological Museum, it received institute status in 1930. It was moved to Moscow from Leningrad in 1934 and merged with the Institute of Petrography and the Institute of Geochemistry, Mineralogy and Crystallography after which it was named the Geological Institute. In 1956, it was again divided into two institutes. The Geological Institute is a major Russian center for research in tectonics, stratophysics studies, planetology, marine geology, paleomagnetism, the history of geology and the development of geophysical and mathematical methods for geological research and study. The institute coordinates geology research with the other branches of the academy and with the various republic academies. The Institute has published Trudy since 1930.

(old material)

Structure of the institute: From 1989 to 1993, the Director of the institute was Andrei L. Knipper, D. GM. S.; the present Director is Iurii G. Leonov. Deputy Directors: Krashennnikov, Valeri A., D. GM. S., since '75; Menner, Vladimir V., D. GM. S., since '65; and, Timofeev, Petr P., D. GM. S., since '60;

Quaternary Geology Division: Head Nikivera, K. V., since '69;

Genesis of Sediments Laboratory;

Stratigraphy Laboratory;

Sedimentary Lithology Division;

Coal Deposits Laboratory;

Geochemistry of Sediments Laboratory;

Mineralogy of Sediments Laboratory;

Volcanic Rocks Laboratory;

Stratigraphy Division;

Micropaleontology Laboratory;

Paleobotany Laboratory;

Post Cambrian Stratigraphy Laboratory;

Tectonics Division;

Alpine Tectonics Laboratory;

Magmatism and Tectonics Laboratory;

Regional Geology Laboratory;

Studies of Crystal Displacement Laboratory;

Tectonic Maps Laboratory;

Tectonics of Continental Margins Laboratory;

**Tectonophysics Department;
Applied Geophysics Laboratory;;
Hydrogeology and Hydrothermal Processes Laboratory;
Mathematics in Geology Laboratory;
Support Services Laboratory;**

**Radiometric Dating Department;
Sedimentology and Mineralogy Department** (See: Ruble, Vol. I., p. 234.)



3. V. I. Vernadskii Geochemistry and Analytical Chemistry Institute in Moscow.

19, Kosigina st. V-334. Moscow, GSP-1, 117975, tel. 939-7083, or 137-14-84. Directed by Academician Erik M. Galimov. tel. 137-41-27.

Galimov, Erik M., D. Geo. & Min. S. The Geochemistry of Carbon Laboratory, under his direction, in 1973 began studies on the history of carbon in the earth's crust, including the history of life, the geochemical role of carbon and organic matter, and oil formation. Professor Galimov was elected an academician of The Geology, Geophysics, Geochemistry, and Mining Sciences Department in 1993. He is now the director of the V. I. Vernadskii Institute of Geochemistry and Analytical Chemistry located in Moscow. (GEOCH IN)

Retrospect: This institute developed from Vernadskii's organization of a Living Matter Research Group in 1926, which in 1928, became the Biogeochemical Laboratory, which, in turn, became in 1943, the Vernadskii's Laboratory of Geochemical Problems. It was removed to Moscow in the mid-1930s where in 1947, it became the V. I. Vernadskii Institute of Geochemistry and Analytical Chemistry. At that time its personnel included some 60 researchers. In the early 1990s its 30-odd laboratories and experimental works employed over 1,000 scientists, engineers, technicians, and laboratory assistants. It also maintains a post-graduate student body which includes 70 or more postgraduate students from the other republics. Since its formation in 1947, it has produced more than 350 specialists of whom four have become corresponding members of the AN SSSR, 30 have received doctors degrees and 50 scientists from the other republics have received candidate degrees. Twenty-two other scientists from Eastern Bloc countries received advanced training in the institute during this period.

(Old material)

Structure and Scientific Personnel: From 1976 to 1993, Valeri L. Barsukov, D. GM. S., was Director of the institute. Since that time Professor E. M. Galimov, D. Geo. & Min. S., has served in that capacity. Deputy Directors: Miasoidov, Boris F., D. Chem. S., since 1980 and Shukoliukov, Iurii, A., D. Chem. S., since 1982; Scientific Secretary: Dr. B. Ryzhenko, D. Chem. S. The institute is organized into two Departments:

The Department of Geochemistry:

Under the Department of Geochemistry are these laboratories:

- the Cosmochemistry Laboratory**, established in 1965, now headed by A. K. Lavrukhhina, Professor and D. Chem. S. and studies the formation (nucleosynthesis) and the evolution of matter;
- the Geochemistry of the Planets Laboratory**, begun in 1961 and now headed by Professor Iurii A. Surkov, D. PM. S. develops experimental methods and equipment for interplanetary probes intended for the investigation of the composition, structure and properties of matter of the moon, planets and interplanetary space;
- the Comparative Planetology Laboratory**, organized in 1967 and headed by A. T. Bazilevskii, C. Geo. S. studies the structure, geological history, composition and formation of the planets of the solar system;
- the Meteoritics Laboratory**, established in 1979 and originally headed by E. L. Krinov (deceased), D. Geo. & Min. S., was incorporated into the institute in 1979 and investigates the composition, the structure and characteristics of meteorites, the conditions of their entry into the atmosphere, and their interaction with the earth's surface;
- the Magmatogene Processes Laboratory**, organized in 1953, headed by N. I. Khitarov, associate member of the AN SSSR is engaged in investigating the physico-chemical principles of the geochemistry of abyssal processes;
- the Geochemistry of Magmatic and Metamorphic Rocks Laboratory**, started in 1953 and headed now by L. V. Dmitriev, D. Geo. & Min. S. studies the physico-chemical and geochemical characteristics of magmatic processes in colossal structures of the mantle and the lithosphere;
- the Geochemistry of Alkaline Rocks Laboratory**, set up in 1980 and headed by L. N. , D. Geo. & Min. S. researches the origin, evolution and differentiation of alkaline magmas, the behavior of such volatile components as water, carbon dioxide, sulfur, fluorine and chlorine in mantle and alkaline magmas;
- the Geochemistry of Hydrothermal Ore Formation Laboratory** was organized in 1954 and has been headed since 1978 by R. P. Rafalskii, D. Geo. & Min. S. investigates the conditions of the formation of hydrothermal ore deposits;
- the Geochemistry of Rare Elements Laboratory**, organized in 1965 and headed by Professor G. B. Naumov, D. Geo. & Min. S. studies the conditions of the transfer and concentration of elements in hydrothermal processes on the basis of data on thermodynamic parameters of natural bodies and through the use of physico-chemical simulation;
- the Theoretical Principles of Applied Geochemistry Laboratory**, founded in 1973 and headed by V. L. Barsukov, associate member of the AN SSSR and Director of the Institute researches the geochemistry of ore elements, gaseous and dissolved compounds in hydrothermal solutions, and the physico-chemical analysis of hydrothermal processes with a view to identifying methods of prospecting and deposit evaluation;
- the Geochemistry of Sedimentary Rocks Laboratory**, founded in 1950 and headed by A. B. Ronov, associate member of the AN SSSR studies the evolution of geochemistry of sedimentation processes on the Earth by using quantitative data

which point to the distribution of volumes, masses and ratios, as well as the chemical composition of sedimentary rocks of different ages and in different structural zones of the earth's crust

the Geochemistry of Carbon Laboratory, begun in 1973 and headed by Professor E. M. Galimov, D. Geo. & Min. S. studies the history of carbon in the earth's crust, including the history of life, the geochemical role of carbon and organic matter, and oil formation;

the Biogeochemistry Laboratory, originally started by Vernadskii in 1928, since 1954, the laboratory has been headed by V. V. Kovalskii, associate member of the USSR Academy of Agricultural sciences--studies the biogeochemical heterogeneity of the biosphere and the development of methods for biosphere zoning of the territory of Russia on the basis of quantitative investigation of all links of the food chain and biogenous cycles of chemical elements including rare elements;

the Geochemistry of Isotopes and Geochronology Laboratory, begun in 1949, headed successively by A. A. Trofimov, Academician A. P. Vinogradov, and A. I. Tugarinov, and headed now by Professor Iurii A. Shukoliukov, D. Chem. S.--investigates the origin, occurrence and distribution of isotopes and their behavior in different natural conditions;

the Thermodynamics of Natural Processes Laboratory, organized in 1977 and headed by Professor I. L. Khodakovskii, D. Chem. S. does experimental studies of thermodynamic properties of minerals and components of aqueous solutions of electrolytes;

the Crystal Chemistry Laboratory, begun in 1956 by Professor E. S. Makarov and whose present Head is V. S. Urusov, D. Chem. S. develops a quantitative theory of isomorphous replacements of atoms in crystal structures and investigates the stability of solid solutions;

the Geochemical Data Processing Laboratory, begun in 1980, headed by A. V. Garanin, C. Tech. S. provides banks of petrological-geochemical and thermodynamic data and studies the use of computers in conjunction with analytical instruments for control purposes and high-speed data processing, and

the Central Analytical Laboratory, set up in 1976, headed by G. M. Varfshal, C. Chem. S., gives analytical support to other laboratories and develops methods for analyzing natural and industrial objects using X-ray fluorescence analysis, X-ray microanalysis, neutron activation and emission spectrum analysis, Raman laser spectroscopy, infrared spectroscopy, as well as gas, liquid, thin-layer and paper chromatography. It also uses titrimetric, kinetic and ionometric methods of analysis.

The Department of Analytical Chemistry with 10 laboratories and an experimental works center. The Analytical Chemistry Department maintains 10 laboratories that work on basic problems of analytical chemistry: analytically important reactions, the properties of substances, separation and concentration processes, and identification and determination techniques. The work of the Department has been headed successively by D. I. Ryabchikov, P. N. Palei, and Iurii A. Zolotov. It has been headed by B. F. Miasoiedov since 1979. The laboratories under this Department include:

the Radiochemistry Laboratory, founded in 1949, headed by Professor B. F. Miasoiedov, D. Chem. S. studies the chemical properties of the actinide elements and the development of methods for their separation, concentration and determination;

the Analytical Chemistry of Rare Elements Laboratory, founded in 1953 by D. I. Riabchikov, now headed by Professor A. N. Ermakov, D. Chem. S.--is engaged in studies of complexing of rare elements and their analytically important reactions, and in the development of methods for concentration, separation and identification of these elements. It also deals with theoretical and practical aspects of chromatographic ion exchange and thin-layer separation;

the Radio-analytical Chemistry and Microanalysis Laboratory, begun in 1949 by acadmician I. P. Alimarin is engaged in the development of a theory and methods for quantitative determination of ultra low concentrations of elements and the analysis of extremely small amounts of substances;

the Sorption Methods Laboratory, started in 1967 by Professor M. M. Senyavin, D. Chem. S. focuses its research on the theory of sorption processes used for separation and concentration of elements and purification of solutions for analytical and technological purposes;

the Extraction Methods Laboratory, begun in 1971 by Professor V. I. Kuznetsov, and now headed by Professor S. B. Savvin, D. Chem. S., researches extraction processes in different systems, synthesis and investigation of new extractants and the development of hybrid analytical methods;

the Spectral Analysis Laboratory, begun in 1949 and headed in turn by T. F. Borovikh-Romanova, E. E. Vainshtein, and A. V. Karyakin. It is now headed by Iurii I. Beliaev, (Belyaev) C. Tech. S., studies the development and perfection of optical analysis techniques;

the Molecular Spectroscopy and Quantum Chemistry Laboratory, founded in 1976 and headed by Professor L. A. Gribov, D. PM. S. calculates electronic shells and spectra of molecules, the nature of chemical bonds, the use of kinetic and electron spectroscopy for investigation, and laser detection of atoms and molecules in gases, liquids, and solids;

the Determination of Gas-forming Impurities Laboratory, established in 1967 and headed by Professor L. L. Kunin, D. Tech. S., deals with the determination of hydrogen, helium, carbon, nitrogen and oxygen in metals and inorganic compounds;

the Precise Analytical Instrumentation Laboratory, founded in 1971 and headed until 1980 by I. S. Abramson, then by V. A. Slavnii, and at present by A. N. Mogilievskii, C. Tech. S., is charged with the development of optical I, spectral, electrochemical and chromatographic instruments. Problems dealt with in these laboratories include: the geochemistry of processes taking place deep in the earth's crust and in the upper mantle at high pressures and temperatures the geochemistry of hydrothermal ore-forming processes the chemical composition of geochemical history of the sedimentary shell of the earth the geochemistry and cosmochemistry of isotopes and isotopic geochronology the geochemistry of carbon, and biogeochemistry cosmochemistry, the formulation of concepts of the origin,

evolution, composition and structure of bodies of the solar system the chemistry of radio elements and radio analytical chemistry extraction processes sorption processes organic reagents and new instruments and equipment.

(Information provided by letter dated October 1991 from V. L. Barsukov, Director of the V. I. Vernadskii Geochemistry and Analytical Chemistry Institute. See also: *The Vernadskii Institute of Geochemistry and Analytical Chemistry*. Moscow: Scientific Publishing House, 1984. A pamphlet of 58 pages published in 1984 for the XVII Geologorum Convents in Moscow.)



5. Mining Formation Geology, Petrography, Mineralogy and Geochemistry in Moscow.

Located at 35 Staromonetnii st., Moscow, 109017. tel. 231-45-79. Directed by Academician Nikolai P. Laverov. tel. 231-72-70.

Laverov, Nikolai P. Born in 1930. Corresponding member since 1979. Academician of the Geology, Geophysics, Geochemistry, and Mining Department of the national academy since December 1987. Since 1987, he has been President of the Kirghizstan Academy of Sciences. He was named vice-President of the Russian Academy of Sciences for the Earth Sciences Section in October, 1988. Since 1990, he has been the Director of the Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry Institute in Moscow. That institute is now named the Institute of Mining Formations Geology, Petrography, Mineralogy and Geochemistry (IGEM)



6. Geology and Exploitation of Combustible Fuels Institute (Now the Institute of Geology and Combustible Minerals Elaboration) in Moscow

Located at 50, Fersman st. V-312, 117312. tel. 121-91-55. Directed by Professor Nikolai A. Krilov. tel. 121-91-55.

Retrospect: This institute is the leading exploration institute of the Russian oil industry. It was founded in 1934. The institute is jointly subordinate to the Ministry of the Oil and Gas Industry and to the Russian Academy of Sciences. Scientific personnel in the institute totaled more than 400 in 1992, including 32 with doctoral degrees and 146 with candidate degrees. These scientists work in three major areas of research: 1) the determination of potential reserves of oil and gas, the development of plans for producing oil and gas, and the projection of future production in Russia, 2) the development of new and utilization of present methods of oil and gas exploration, and 3) the study of the creation of oil and gas, and the development of methods and criteria for the estimation of the petroleum and gas potential of sedimentary basins.

Scientific Personnel: Nikolai Krilov, D. Tech. S., has been Director of the institute since 1984 Deputy Directors: Professor E. M. Khalimov, D. Tech. S. Dr. V. I. Gromeka, D. Tech. S. Professor A. A. Axenov, D. Tech. S., and Scientific Secretary of the institute Dr. A. N. Obukhov. Foreign Relations Department: Petroleum Geology of Foreign Countries is headed by Dr. I. I. Skvortsov, and, Dr. A. A. Epifanov heads Marketing.

(Information provided in letter dated 4 December 1991 from Deputy Director V. Gromeka.)

(update)

Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry Institute (Now the Institute of Mining Formations Geology, Petrography, Mineralogy and Geochemistry in Moscow.

Located at 35, Staromonetnii st., Moscow, 109017. tel. 231-45-79. Directed by Academician Nikolai P. Laverov. tel. 231-72-70.

Laverov, Nikolai P. Born in 1930. Corresponding member since 1979. Academician of the Geology, Geophysics, Geochemistry, and Mining Department of the national academy since December 1987. Since 1987, he has been President of the Kirghizstan Academy of Sciences. He was named vice-President of the Russian Academy of Sciences for the Earth Sciences Section in October, 1988. Since 1990, he has been the Director of the Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry Institute in Moscow. That institute is now named the Institute of Mining Formations Geology, Petrography, Mineralogy and Geochemistry (IGEM)

Established in 1956. The institute does ore and mineral analyses. Develops new methods and tools for analysis. Since 1990, the Director has been Nikolai P. Laverov, D. GM. S.



7. Seismology Institute in Moscow

Located at 10 B Gruzinskaia (aya) st. D-242. Moscow. GSP. 123810. Directed by Corresponding Member Gennadii A. Sobolev. tel. 254-91-41.

Sobolev, Gennadii A., D. PM. S. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy in 1991. Since 1974, he has headed the Fracture Mechanics Department of the O. Iu. Shmidt Earth Physics Institute in Moscow. Since 1991 he has headed the Modeling and Processes Analysis in Earthquake Focus Laboratory. He is now head of the Institute of Seismology located in Moscow. He is also head of the Geophysical Center (GC) of the Russian Academy of Sciences.



8. Geoelectromagnetic Research Institute in Troitsk, Moscow Region.

Users Box 30. Moscow region. Troitsk. 142092.: Directed by Dr. Vitalii S. Shneer. tel. 334-09-06.



9. Applied Geophysics Institute (Now the Institute of Experimental Geophysics) in Moscow.

Located at 10, B. Gruzinskaia (aya) st. D-242. Moscow, 123810.: Directed by Corresponding Member Aleksei V. Nikolaev, tel. 254-90-72. Created in 1956 from the Geophysics Institute.

Nikolaev, Aleksei V., D. PM. S. Corresponding member of the Geology, Geochemistry, Geophysics, and Mining Sciences Department of the Academy since 1991. He has headed the Turbid Media Subdepartment of the O. Iu. Shmidt Earth Physics Institute since 1975. In 1991, he was made head of the Experimental Geophysics Department of the Institute, and he also headed the Experiment Geophysics Laboratory of that department. He now heads the Institute of Experimental Geophysics located in Moscow. He is also the director of the Scientific-Engineering and Coordination Seismological Center of the Russian Academy.



10. O. Iurii Shmidt Earth Physics Institute (Now the United Institute of Earth Physics named after O. Iurii Shmidt) in Moscow.

Located at 10, B. Gruzinskaia (aya) st., D-242. Moscow GSP. 123810. tel. 254-27-10. Under the direction of Academician Vladimir N. Strakhov. tel. 252-07-26.

Strakhov, Vladimir N., D. PM. S. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since December 1987; academician in 1993. In 1991, he was Director of the O. Iurii Shmidt Earth Physics Institute in Moscow and head of the Earth's Bowels and Planet's Physics Department as well as head of the Geopotential Fields Interpretation Theory Laboratory of that Department. He also heads the Institute of Planetary Geophysics. (Letter of Dr. V. N. Strakhov dated 14 November 1991.)

Retrospect: Established in 1956 from the Geophysics Institute base whose research efforts date back to 1897. The institute received its present name in 1971. In 1977, it had some 10 Departments and 40 laboratories in 1991, the institute was comprised of 13 Departments with some 74 scientific laboratories that involved the work of 1673 persons of whom 110 held doctors of science degrees and 298 held candidates of science degrees. There were two academicians and six corresponding members of the AN SSSR among these scientists one corresponding member of the Armenian Academy, one corresponding member of the Uzbek academy.

(Older material)

Structure and Scientific Personnel: V. N. Strakhov, D. PM. S., has been Director of the institute since 1991. He is an academician of the RAS Deputy Directors: Mikhail B. Gokhberg, D. PM. S., since 1976 Mikhail V. Nevskii, C. GM. S., since 1991--junior researcher in 1979--Aleksei V. Nikolaev, D. PM. S., corresponding member of the Russian Academy of Sciences, since 1991--Head of the Turbid Media Subdepartment in 1975; Gennadii A. Sobolev, D. PM. S., since 1991--Head of the Fracture Mechanics Department in 1974 Scientific Secretary: Andrei M. Artamonov, C. PM. S., since 1991.

Seismology Department: Viktor V. Shtenberg, D. PM. S., since 1991.

(Ten Laboratories):

- 1) Regional Seismicity Laboratory: Aleksandr Ia. Sidorin, C. PM. S., since 1991;
- 2) Prognostic Research Laboratory: Oleg. N. Galaganov, C. PM. S., since 1991;

- 3) The Earth's Crust Stress State Laboratory: Sergei I. Yunga, D. PM. S., since 1991-- junior researcher in 1979;
- 4) Paleoseismicity Laboratory: Andrei A. Nikonov, D. GM. S., since 1991;
- 5) Seismometry Laboratory: Anatoli V. Rykov, C. PM. S., since 1991--senior researcher in 1959;
- 6) General Seismology Laboratory: Lev P. Vinnik, D. PM. S., since 1991--senior researcher in 1965;
- 7) Seismological Observations Methodology and Interpretation Laboratory: Nadeida V. Kondorskaia (aya), D. PM. S., since 1991--Head Survey Seismology Department in 1968;
- 8) Instrumental Seismic Observations Methodology Laboratory: Zinovii I. Artanovich, since 1991;
- 9) Seismic Effects Prediction Laboratory: Viktor V. Shtenberg, D. PM. S., since 1991;
- 10) Strong Earthquakes Laboratory: Sergei S. Arefiev, C. PM. S., since 1991.

Seismic Monitoring Department:

(Three Laboratories):

- 1) Data Acquisition and Transmission Laboratory: Vladimir N. Mishatkin, C. PM. S., since 1991;
- 2) Systems Software Laboratory: A. I. Levin, D. Tech. S., since 1991;
- 3) Seismic Data Processing, Storage and Exchange Laboratory: Oleg Ie. Staraovoi, C. PM. S., since 1991.

Earthquake Focal Physics and the Earth's Material Properties Department:

(Five Laboratories):

- 1) Pacific Ocean Seismic Belt Seismicity Laboratory: Sergei A. Fedotov, D. PM. S., Corresponding member of the RAS, since 1991;
- 2) Earthquake Precursors Research Methods Laboratory: Aleksandr V. Ponomarev, C. PM. S., since 1991;
- 3) Modeling and Processes Analysis in Earthquake Focus Laboratory: Gennadi A. Sobolev, since 1991--Head of the Fracture Mechanics Department in 1974;
- 4) Theoretical Seismology Laboratory: Boris V. Kostrov, D. PM. S., since 1991--Head of the Mathematics Department in 1970;
- 5) Material Properties at High Pressures and Temperatures Laboratory: Vladimir A. Kalinin, D. PM. S., since 1991.

Gravimetry and Geodesy Department: Iurii N. Avsiuk, D. PM. S., since 1991

(Four Laboratories):

- 1) Experimental Gravimetry Laboratory: Iurii N. Avsiuk, D. PM. S., since 1991--acting Director of the institute in 1988;
- 2) The Earth's Internal Structure Laboratory: Sergei M. Molodenskii, D. PM. S., since 1991;
- 3) Accelerometry Laboratory: Vladimir B. Dubovskoi, C. PM. S., since 1991;
- 4) Global Gravitation Field Laboratory: Mikhail G. Kogan, D. PM. S., since 1991.

The Earth's Bowels and Planets Physics Department: Vladimir N. Strakhov, D. PM. S., Corresponding member of the Russian Academy of Sciences, since 1991

(Ten Laboratories):

- 1) Theoretical Geophysics Laboratory: Evgenii V. Artiushkov, D. PM. S., since 1991;

- 2) Seismic Physics Laboratory: Vladimir A. Dubrovskii, D. PM. S., since 1991--Deputy Director of the institute in 1982;
- 3) Theoretical Physics Laboratory: Vladimir N. Zharkov, D. PM. S., since 1991;
- 4) Geothermy and Geoelectrics Laboratory: Aleksandr O. Gliko, D. PM. S., since 1991;
- 5) Geopotential Fields Interpretation Theory Laboratory: Vladimir N. Strakhov, D. PM. S., since 1991;
- 6) The Earth Bowels Inhomogeneity Physics Laboratory: Valerii P. Trubitsin, D. PM. S., since 1991;
- 7) The Earth and Planets Origin Laboratory: Andrei V. Vitiazev, D. PM. S., since 1991;
- 8) Tectonic Structures Mechanics Laboratory: Lev. V. Nikitin, D. PM. S., since 1991;
- 9) Ordered Medium Geophysics Laboratory: Evgenii M. Chesnokov, D. PM. S., since 1991;
- 10) Geophysical Manifestations and Physical Mechanisms of Petrological Processes in the Crust and Upper Mantle Laboratory: Stepan V. Sobolev, C. PM. S., since 1991.

The Earth's Electromagnetic Field Department: Oleg A. Pokhotelov, D. PM. S., since 1991:

(Seven Laboratories):

- 1) Geoelectrodynamics Laboratory: Oleg A. Pokhotelov, D. PM. S., since 1991;
- 2) Magnetotelluric and Ionospheric Research Laboratory: Evgenii N. Fedorov, C. PM. S., since 1991;
- 3) Ancient Magnetic Field Laboratory: Valerii P. Scherbakov, D. PM. S., since 1991;
- 4) Morphology and Geomagnetic Pulsations Theory Laboratory: Boris I. Klain, C. PM. S., since 1991;
- 5) The Earth's Electromagnetic Field Observations and Primary Data Processing Laboratory: Sergei V. Anisimov, C. PM. S., since 1991;
- 6) Rock Materials Study of Physical Methods Laboratory: A. K. Ganeev, C. Chem. S., since 1991;
- 7) Geodynamic Processes Experimental Research Laboratory: Viktor I. Lykov, D. PM. S., since 1991.

Seismoelectrics Department: Mikhail B. Gokhberg, D. PM. S., since 1991:

(Three Laboratories):

- 1) Tectonic Electromagnetic Correlations Laboratory: Mikhail B. Gokhberg, D. PM. S., since 1991--Deputy Director since 1976;
- 2) Experimental Electromagnetic Research Laboratory: Sergei V. Shamanin, C. PM. S., since 1991;
- 3) Seismomagnetism Laboratory: Iurii P. Skovorodkin, D. PM. S., since 1991.

Experimental Geophysics Department: Aleksei V. Nikolaev, D. PM.S., corresponding member of the RAS, since 1991--Head of the Turbid Media Subdepartment in 1975;

(Four Laboratories):

- 1) Experimental Geophysics Laboratory: Aleksei V. Nikolaev, D. PM. S., since 1991--Head of the Turbid Media Subdepartment in 1975;
- 2) Four-Dimensional Seismics Laboratory: Mikhail V. Nevskii, C. GM. S., since 1991--junior researcher in 1979;
- 3) The Earth's Vibration Sounding Laboratory: Iurii M. Teitelbaum, C. PM. S., since 1991;
- 4) Geophysical Measurements Metrological Laboratory: Aleksei M. Polikarpov, C. PM. S., since 1991.

Continents and Oceans Tectonosphere Study Department: Mikhail Ye. Artemiev, D. Tech. S., since 1991;

(Seven Laboratories):

- 1) Deep Seismic Research Laboratory: Sergei M. Zverev, D. PM. S., since 1991;
- 2) Lithosphere Deep Material Physical Chemical Properties Laboratory: Iurii S. Genshaft, D. PM. S., since 1991--senior researcher in 1968;
- 3) Geophysical Data Complex Interpretation Laboratory: Mikhail Ye. Artemiev, D. Tech. S., since 1991;
- 4) Seismotectonics Laboratory: Georgii I. Reisner, D. GM. S., since 1991;
- 5) Endogene Regimes Laboratory: Viktor N. Sholpo, D. GM. S., since 1991;
- 6) Tectonophysics Laboratory: Iurii L. Rebetskii, C. PM. S., since 1991;
- 7) Regional Geonomic Research Laboratory: Naum Ia. Kunin, D. GM. S., since 1991.

Geomagnetism Department: Valerii I. Bagin, D. PM. S., since 1991;

(Two Laboratories):

- 1) Main Geomagnetic Field Laboratory: Valerii I. Bagin, D. PM. S., since 1991;
- 2) Lithosphere Magnetism Laboratory: Diamar M. Pecherskii, D. GM. S., since 1991.

Gravi-inertial Research Department: Evgenii I. Popov, D. Tech. S., since 1991;

(Three Laboratories):

- 1) Gravi-inertial Laboratory: Evgenii I. Popov, D. Tech. S., since 1991;
- 2) Probing Masses Oscillations Physics Laboratory: Anatolii B. Manukin, D. PM. S., since 1991;
- 3) Gravi-inertial Observatory: V. I. Rebrov, C. Tech. S., since 1991.

Geophysical Information Department: Vladimir V. Ratushny, D. Tech. S., since 1991: (Four Laboratories):

- 1) Geophysical Research Information Supply Laboratory: Vladimir V. Ratushny, D. Tech. S., since 1991;
- 2) Geoinformation Problems Laboratory: Viktor M. Lapshin, C. PM. S., since 1991;
- 3) Computers Geophysical Networks Laboratory: Boris M. Ginzburg, C. Tech. S., since 1991;
- 4) Geophysical Data Processing Means Laboratory: Anatolii N. Boiko, C. Tech. S., since 1991--junior researcher in 1975.

Deep Electromagnetic Research Department: Mikhail S. Zhdanov, D. PM. S., 91; (Five Laboratories):

- 1) Geophysical Research Methods Laboratory: Mikhail S. Zhdanov, D. PM. S. since 1991;
- 2) Experimental Marine Research Laboratory: Boris S. Svetov, D. PM. S., since 1991;
- 3) Electromagnetic Fields Modeling Laboratory: Eduard B. Fainberg, D. PM. S., since 1991;
- 4) Electromagnetic Methods Laboratory, Akopiants, C. PM. S., since 1991, and
- 5) Electromagnetic Data Program Interpretation Systems Laboratory: I. M. Varentsov, C. PM. S., since 1991.

(Information provided by letter from Dr. Vladimir N. Strakhov, Director of the Institute, dated 14 November 1991.) (See also: *Institut fiziki zemli*, Moscow: Scientific Publishing House, 1978. 92 pp.)



(Update 1997):

**11. CENTER OF GEOPHYSICAL COMPUTER DATA STUDIES, JOINT
SCHMIDT INSTITUTE OF PHYSICS OF THE EARTH, RUSSIAN
ACADEMY OF SCIENCES**

**postal address: CGDS IIPE/ILP P.O.Box 23,
Moscow 109651, Russia**

electronic mail address:cgds@wdcbr.rssi.ru

director +(7-095)-133-43-39

(phone/fax), +(7-095)-349-09-40 (phone)

artificial intelligence lab.

+(7-095)-930-61-15 (phone)

laboratory of geoinformation systems and technologies

+(7-095)-349-09-41

(phone), +(7-095)-348-80-71 (fax)

The Center of Geophysical Computer Data Studies (CGDS) was founded in January 1991 as a joint effort of Russian Academy of Sciences and the International Lithosphere Program. CGDS is a key-nodal member of the European-Mediterranean Seismological Center (EMSC) in Russia. The Center is affiliated with Joint Institute of Physics of the Earth (IIPE) of Russian Academy of Sciences (RAS) and International Lithosphere Program (ILP)-a joint IUGS/IUGG program devoted to the geodynamical studies based on joint analysis of geophysical and geological data. As a part of the ILP the center operates in close coordination with the ILP Coordinating Committee on Data Exchange and Centers. One of the activities is the support of Strong Motion Data Base.

CGDS consists of four groups. They are:

laboratory of artificial intelligence in geophysics (head, Prof. Alexei Gvishiani)

laboratory of geoinformation systems and technologies (head, Dr. Andrei Eliutin)

laboratory of computer telecommunications (head, Dr. Mikhail Zhizhin)

laboratory of informational support of the geophysical studies (head, Dr. Vladimir Sladkov)

Total number of the CGDS permanent staff is 15 people including 12 scientific researchers and 3 persons of technical staff. Up to 10 students from Moscow Lomonosov University work on their thesis at the CGDS in connection with different projects of the Center. The center has direct connection with INTERNET provided by Russian Space Science Internet. Direct access to X.25 (TRANSPAC) is also available at the CGDS.

The Center also plays the key role in the INTERNET training project, which is supported by different international and national organizations.



**12.. Oil and Gas Problems under the Russian Academy of Sciences and the
Russian Ministry of Sciences in Moscow**

Located at 65 Leninskii ave. Moscow, V-296. GSP-1, 117917. tel. 930-93-45. Directed by Academician Anatolii N. Dmitrievskii. tel. 135-80-76.

Dmitrievskii, Anatolii N. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy in 1987; academician in 1993. He is presently the director of the Institute of Oil and Gas Problems which is under both the Russian Academy of Sciences and the Russian Ministry of Sciences and is located in Moscow.



13. Petrochemical Synthesis Institute in Moscow. Created in 1958



14. Precambrian Geology and Geochronology Institute in St. Petersburg.
Located at 2, Makarova quay. V-34, St. Petersburg. 199034 tel. 218-47-01. Directed by Corresponding Member Viktor A. Glebovitskii

Glebovitskii, Viktor. A. Corresponding member of the Geology, Geophysics, Geochemistry and Mining Sciences Department of the Academy in 1993. He is located in St Petersburg. He is director of the Institute of Geology and Precambrian Geochronology (IGPG) located in St.

The institute was established in 1967 to investigate precambrian magmatic and sedimentary complexes. The institute's scientists develop new methods of determining the absolute age of rocks.



15. Experimental Mineralogy Institute in Chernogolovka.

Located in Cherogolovka post office, Noginsk district, Moscow region, 142432, tel. 524-50-39. Directed by Vilen A. Zharikov.

Zharikov, Vilen A., D. GM. S. Born in 1926. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1972, and academician since 1987. From 1969 to 1981, he was Deputy Director of the Experimental Mineralogy Institute at Chernogolovka. Since 1981, he has been the Director of the Experimental Mineralogy Institute at Chernogolovka that was established in 1968 from a laboratory of the Solid State Physics Institute. It is the only center for study and research on virtually all aspects of experimental mineralogy and petrology, although there are 12 other laboratories and experimental units in Russia that conduct similar research in specialized areas of concentration. Staff at the institute total some 320 workers of whom 80 are research scientists which include one academician and one corresponding member of the RAS, 12 doctors of sciences, 48 candidate degree holders, and 16 research scientists without degrees. The institute is comprised of 12 laboratories, eight ad hoc scientific teams, a design branch and a pilot plant. It has an advisory scientific council whose membership is composed of 30 "top-level" scientists who review the work and plans of the institute, review papers for publication and theses for degrees, and

guide the development and production of scientific research apparatus for the institute. Long term research goals are presented by individual scientists to this council for approval and scheduling. tel. 938-55-44, 939-25-59, 524-50-37.

Deputy Director for Research: Dr. Yu. B. Shapovalov
Deputy Director for Business and Administration: O. A. Mishenchuk

Scientific Secretary: Dr. V. V. Fedkin

Retrospect: Founded in 1968 from a laboratory of the Solid State Physics Institute. It is the only center for study and research on virtually all aspects of experimental mineralogy and petrology, although there are 12 other laboratories and experimental units in Russia that conduct similar research in specialized areas of concentration. Staff at the institute total some 320 workers of whom 80 are research scientists which include one academician and one corresponding member of the RAS, 12 Doctors of Sciences, 48 Ph. D.'s (Candidate degree holders), and 16 research scientists without degrees.

(Older material)

Structure and Personnel: The institute is comprised of two departments, 13 laboratories, eleven ad hoc scientific teams(or groups), a design branch and a pilot plant. It has an advisory scientific council whose membership is composed of 30 "top-level" scientists who review the work and plans of the institute, review papers for publication and theses for degrees, and guide the development and production of scientific research apparatus for the institute. Long term research goals are presented by individual scientists to this council for approval and scheduling.

Department of Physical and Chemical Studies of Natural Processes.

(Head: Academician Prof. V. A. Zharikov)

Laboratory of Magmatism (Head: Prof. E. G. Konnikov)

Laboratory of Magmatic Reology (Head: Prof. E. S. Persikov)

Laboratory of Fluid-Magmatic Interactions (Head: Academician Prof. V. A. Zharikov)

Group of Magma Formation (Head: Academician Prof. V. A. Zharikov)

Group of Magmatic Differentiation (Head: Prof. N. I. Bezmen)

Mineral Thermodynamics Laboratory (Head: Academician Prof. A. A. Marakushev)

Laboratory of Ore Deposits Modeling (Head: Prof. G. P. Zarskii)

Laboratory of Metamorphism (Head: Prof. V. I. Fonarev)

Laboratory of Lithosphere (Head: Dr. T. V. Gerya)

Laboratory of Hydrothermal Processes (Head: Dr. L. Z. Lakshtanov)

Laboratory of Hydrothermal Systems Thermodynamics (Head: Dr. M. A. Korzhinskii)

Laboratory of High-Temperature Electrochemistry (Head: Prof. E. G. Osadchii)

Laboratory of Radiogeocology (Head: Prof. A. R. Kotelnikov)

Laboratory of Mineral Synthesis (Head: Prof. V. S. Balitskii)

Group of Mantle Magmas (Head: Prof. Yu. A. Litvin)

Group of Ore Components Solubility (Head: Dr. T. P. Dadze)

Group of Kinetics (Head: Dr. N. G. Sretenskaya)

Stable Isotope Geochemistry Group (Head: Dr. E. O. Dubinina)

Department of Physical and Chemical Methods of Research.

(Head: Prof. Yu. E. Gorbaty)

Physical Research Laboratory (Head: Dr. A. G. Kalinichev)

Group of Molecular Spectroscopy (Head: Dr. A. G. Kalinichev)

Group of Moessbauer Spectroscopy (Head: Dr. G. V. Novikov)

X-Ray Powder Diffraction Group (Head: Dr. A. V. Chichagov)

Group of Microprobe Analysis (Head: Dr. I. M. Romanenko)

Group of Chemical Analysis (Head: Dr. V. I. Tikhomirova)

Research Support Units

Information Group (Head: Dr. Yu. B. Shapovalov)

Editorial and Publishing Group (Head: Dr. V. V. Fedkin)

Computer Networking Group (Head: D. A. Varlamov)

Experimental Technological Department

(Head: O. A. Mishenchuk)

Bureau of Design and Technology (Head: A. V. Litvinov)

Machine Shop (Head: N. I. Kartashov)

Group of Control and Measuring Devices and Electronics

Group of Technological Equipment (Head: N. A. Shirokov)

Group of Electrical Equipment (Head: G. I. Berezin)

Administrative and Support Units

Among the fields researched by scientists at the institute are the following:

- 1) Physico-chemical problems of the Earth's depth structure and origin** involving these scientists--Iurii A. Litvin, E. S. Persikov, Mrs. L. T. Chudinovskikh, A. V. Kosiakov, V. N. Zyryanov, and R. A. Ishbulatov;
- 2) Physico-chemical problems of magmatism and related ore formations** involving these scientists-- M. B. Epelbaum, A. G. Simakin, A. S. Chekhmir, A. A. Marakushev, and N. I. Bezmen;
- 3) Physico-chemical problems with hydrothermal processes, metasomatism and related ore formations** involving these scientists--G. P. Zaraiskii, K. I. Shmulovich, I. P. Ivanov, V. I. Sorokin, Iurii V. Alekhin, Eu. G. Osadchii, Iurii B. Shapovalov, V. M. Shmonov, Mrs. H. G. Sretenskaia (aya), N. S. Gorbachev, Iurii E. Gorbaty, and V. N. Balashov;

4) **Physico-chemical problems of metamorphism** involving these scientists--L. L. Perchuk, L. Ia. Aranovich, V. I. Fonarev, V. V. Fedkin, Mrs. N. A. Kosdiakova, and A. A. Graphichikov;

5) **Problems with synthesis, physics and chemistry of metals** involving these scientists--V. S. Balitskii, Mrs. S. L. Sorokina, Iurii E. Gorbaty, G. V. Novikov, A. V. Chichagov, and I. M. Romanenko. Institute scientists maintain Technical-scientific contacts with both other Russian and Western scientists and institutes. Director Zharikov, Vilen A., D. GM. S., since 1981.

(Information provided by letter dated 15 October 1991 from Academician Vilen A. Zharikov, Director of the Institute of Experimental Mineralogy of the Russian Academy of Sciences in Chernogolovka.)



(Updated 1997)

People of Institute of Experimental Mineralogy

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Galina M. Akhmedzhanova		akhm@iem.ac.ru	Group of Chemical Analysis	58-57
B				
Victor N. Balashov	58-44	balashov@iem.ac.ru	Laboratory of Ore Deposits Modeling	
Stanislav M. Beloborodov	58-49	sb@iem.ac.ru	Laboratory of High-Temperature Electrochemistry	
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Roman E. Bocharnikov		roman@iem.ac.ru	Laboratory of Hydrothermal Systems	58-54

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Pavel G. Buhtiyarov		pavel@iem.ac.ru	Thermodynamics Laboratory of Magmatic Reology	58-42
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Vitaly Yu. Chevychelov	58-61	chev@iem.ac.ru	Laboratory of Ore Deposits Modeling	
Anatoliy V. Chichagov		avchicha@issp.ac.ru	Physical Research Laboratory, X-Ray Powder Diffraction Group	52-54
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D				
Tatyana P. Dadze		dadze@iem.ac.ru	Group of Ore Components Solubility	58-48
Tatyana A. Desyatova		desyat@iem.ac.ru	Group of Chemical Analysis	58-57
Elena O. Dubinina		elena@iem.ac.ru	Stable Isotope Geochemistry Group	25-52
E				
Mark B. Epelbaum		epelb@iem.ac.ru	Laboratory of Magmatism	58-53
Vladimir V. Ermakov	58-51	ermak@iem.ac.ru	Laboratory of Lithosphere	27-86
F				
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			58-51
Mark V. Fedkin	mark@iem.ac.ru	Laboratory of High-Temperature Electrochemistry	58-49
Valentin V. Fedkin	fedkin@iem.ac.ru	Scientific Secretary	16-66
Vyacheslav I. Fonarev	fonarev@iem.ac.ru	Laboratory of Metamorphism	58-51
58-55			

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58-55			

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I

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Sergei E. Lunin	58-49	sl@iem.ac.ru	High-Temperature Electrochemistry	

M

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Gennadii V. Novikov	54-34	novikov@issp.ac.ru	Physical Research Laboratory, Group of Moessbauer Spectroscopy	
O				
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Vladislav N. zyryanov@iem.ac.ru Laboratory of Radiogeoeology
Zyryanov 58-80

If you want to send any information to all IEM persons, use next mail address: iem@iem.ac.ru



15. Problems of Complex Utilization of Mineral Resources Institute in Moscow.

(Now the Institute of Complex Mineral Resources Assimilation Problems in Moscow)
Located at 4, Krukovskii impasse. E-20, Moscow, 111020. tel. 360-89-60.
Directed by Academician Kliment N. Trubetskoi.

Trubetskoi, Kliment N. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since December 1987; academician in 1993. He is the director of the Institute of Complex Mineral resources Assimilation Problems (ICMRAP) located in Moscow.

Founded in 1978 to conduct research on theories of gas filtration and on new methods for exploiting mineral resources. Since 1987, the Director has been Kliment N. Trubetskoi, D. Tech. S.



16. Lithosphere Institute in Moscow.

Located at 22, Staromonetai st. Moscow, 109130. tel. 233-55-88. Directed by Corresponding Member Nikita A. Bogdanov. tel. 233-55-88.

Bogdanov, Nikita A., D. GM. S. Born in 1931. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy in 1993. Since 1982, he has been the Director of the Lithosphere Institute

in Moscow which was established in 1979 to study the theory of sedimentary and metamorphic rock and ore formation.

Retrospect: Established in 1979, the institute studies sedimentary and metamorphic rock and ore formations. Nikita A. Bogdanov, D. GM. S., has been Director of the institute since 1982. (LDA 89-11378.)



17. Planetary Geophysics Institute in Moscow.

Located at 10. B. Gruzinskaia (aya) st. D-242. Moscow GSP, 123810. Directed by Academician Vilen N. Strakhov. tel. 252-07-26.

Strakhov, Vladimir N., D. PM. S. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since December 1987; academician in 1993. In 1991, he was Director of the O. Iurii Shmidt Earth Physics Institute in Moscow and head of the Earth's Bowels and Planet's Physics Department as well as head of the Geopotential Fields Interpretation Theory Laboratory of that Department. He also heads the Institute of Planetary Geophysics. (Letter of Dr. V. N. Strakhov dated 14 November 1991.)



18. International Institute of Earthquake Forecast Theory and Mathematical Geophysics in Moscow.

Located at 79. build. 2. Varshavskoie highway, Moscow, 113556. tel.110-77-95. Directed by Academician Vladimir Is. Kaylis Borok. tel. 110-77-95.

Keylis-Borok, Vladimir I., D. PM. S. Born in 1921. Academician of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since December 1987. Since 1963, head of the Computational Geophysics Laboratory of the O. Iu. Shmidt Earth Physics Institute in Moscow. Foreign member of the US National Academy of Sciences, the American Science and Arts Academy, and the Royal Astronomical Society (UK). He is now the director of the International Institute of Earthquake Forecast Theory and Mathematical Geophysics (IIFT RAS)



19. Geological Engineering and Hydroecological Scientific Center in Moscow

Located at 13. build 2. Ulanskii st. Center. Moscow. 1011000. tel. 923-31-11. Directed by Academician Viktor I. Osipov. tel. 923-31-11.

Osipov, Viktor I., Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since December 1987; academician in 1993. He is the director of the Geological Engineering and Hydroecological Scientific Center (EHC RAS) located in Moscow.



20. Geosphere Dynamics Institute in Moscow.

Located at 138, build. 6. Leninskii ave. V-334. Moscow, 117334. tel. 137-66-11. Directed by Professor Vitalii V. Adushkin. tel. 137-66-11.



21. Scientific Geoinformation Center in Moscow.

Located at post box 168, 19 Novii Arbat st. Moscow. 121019. Directed by Professor Valentin V. Lebedev. tel. 202-11-49.



22. Geophysical Center of the Russian Academy of Sciences in Moscow.

Located at 3, Molodeznaia (aya) st. Moscow-296, GSP-1, 117296. Acting Director Corresponding Member Gennadii A. Sobolev. tel. 930-05-46.

Sobolev, Gennadii A., D. PM. S. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy in 1991. Since 1974, he has headed the Fracture Mechanics Department of the O. Iu. Shmidt Earth Physics Institute in Moscow. Since 1991 he has headed the Modeling and Processes Analysis in Earthquake Focus Laboratory. He is now head of the Institute of Seismology located in Moscow. He is also head of the Geophysical Center (GC) of the Russian Academy of Sciences.



23. Scientific-Engineering and Coordination Seismological Center of the Russian Academy of Sciences in Moscow.

Located at 51, Ulianovskaia (aya) st., 109004, Directed by Corresponding Member Aleksei V. Nikolaiev, tel. 272-36-18.

Nikolaev, Aleksei V., D. PM. S. Corresponding member of the Geology, Geochemistry, Geophysics, and Mining Sciences Department of the Academy since 1991. He has headed the Turbid Media Subdepartment of the O. Iu. Shmidt Earth Physics Institute since 1975. In 1991, he was made head of the Experimental Geophysics Department of the Institute, and he also headed the Experiment Geophysics Laboratory of that department. He now heads the Institute of Experimental Geophysics located in Moscow. He is also the director of the Scientific-Engineering and Coordination Seismological Center of the Russian Academy.



24. The State Geological Museum named after Vernadskii in Moscow.

Located at 6, Mokhovaia (aya) st., Moscow, 103912. Directed by Academician Dmitrii V. Rundkvist. tel. 203-53-87.

Rundkvist, Dmitrii V., D. GM. S. Born in 1930. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department of the Academy since 1984; academician in 1993. Since 1972, he has been Deputy Director of the Geology Scientific Research Institute in St. Petersburg that researches the patterns of the formation and distribution of petroleum and gas deposits in the Krasnoyarsk region of Russia. He is now director of the State Geological Museum named after V. I. Vernadskii located in Moscow.

[**Note: One of the most interesting developments within the continuing reorganization and revitalization of the Russian Academy of Sciences under the new democratically elected government of Russia, is the expansion of control by the Academy over the scientific research within former ministerial scientific research institutes which under the Soviet Ministries had maintained their independence of the Academy. The Department of Geology, Geophysics, Geochemistry and Mining Sciences of the Russian Academy epitomizes these trends. There are some 13 research institutes over whom the department exercises guidance in research. The "All Union" Institutes listed below represent this trend.**]



25. Institute of Mineralogy Geochemistry and Rare Elements Crystallography in Moscow. (Formerly: The Mineralogy, Geochemistry, and Crystal Chemistry of Rare Elements Institute

Located at 15, Veresaieva st., 121357. tel. 443-84-28. Directed by Professor Eduard K. Burenkov.

Retrospect: Established in 1956 in Leningrad. Assists in the development of mineral raw material bases for the rare metals industry. The institute is subordinate to the Russian Federation State Committee for its administrative direction and funding and to the RAS for its research guidance Since 1986, its Director has been Edward K. Burenkov, D. GM. S. The department carries out scientific-systematic direction of the research in this institute.



26. A. A. Skochinskii Institute of Mining in the Moscow Region

Located at 4, Lubertsii, Moscow region, 140004. tel. 554-85-13. Directed by Professor Nikolai A. Krilov. Created in 1956, this institute is under the department's direction for systematic scientific research.



27. Geology and Mining of Fossil Fuels Institute (Now the Institute of Geology and Combustible Minerals Elaboration) in Moscow.

Located at 50. Fersam st., V-312, Moscow, 117312. tel. 121-91-55. Directed by Professor Nikolai A. Krilov. tel. 121-91-55.

Organized in 1958. Today, the Russian Academy's Geology department is responsible for guiding the scientific research of this institute.



28. All-Russian Scientific Research Institute of Mineral Material Economics and Geological Exploration in Moscow.

Located at 38, 3-d Magistralinaia (aya) st., Moscow, 123853. tel. 259-69-88. Directed by Professor Vladimir M. Piperskii. tel. 259-69-88.

The Russian Academy oversees the scientific research in this institute.



29. All-Russian Scientific Research Institute of Mineral Materials in Moscow

Located at 31, Staromonetnyii st., Moscow, 109017. Directed by Professor Aleksandr M. Yermeev, tel. 231-40-43.

The Russian Academy oversees the scientific research in this institute.



30. All-Russian Scientific Research Geological Oil Institute in Moscow.

Located at 36, Entuziastov ave., Moscow, 105118. Directed by Professor Konstantin A. Kleshev, tel. 273-26-51.

The Russian Academy oversees the scientific research in this institute.



31. Central Scientific Research Geological Exploration Institute of Nonferrous and Noble Metals in Moscow.

Located at 129-b, Varshavskoie highway, Moscow, 113545. Directed by Professor Igor F. Migachev, tel. 315-06-10.

The Russian Academy oversees the scientific research in this institute.



32. All-Russian Scientific Research Geological Institute named after A. P. Karpinskii in St. Petersburg.

Located at 74, Srednii prosp., St. Petersburg, 199026, Directed by Academician Aleksei D. Sheglov, tel. 231-44-18.

The Russian Academy oversees the scientific research in this institute.

Shcheglov, (Sheglov) Aleksei D., D. GM. S. Born in 1926. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Far Eastern Department since 1979; academician in 1993. Since 1979, he has been Director of the Geology Institute in Vladivostok that studies the laws of distribution of deposits of useful minerals in the Far East and since 1980 deputy chairman of the Far Eastern Center of the academy. He is now the director of the

All-Russian Scientific Research Geological Institute named after A. P. Kaprinskii (ARGEI) located in Saint Petersburg.



33. All-Russian Scientific Research Institute of Geology and Mineral Materials of the World Ocean in St. Petersburg.

Located at 1, Maklina st., St. Petersburg, 190121. Directed by Academician Igor S. Gramberg. tel. 113-83-79.

The Russian Academy oversees the scientific research in this institute.

Gramberg, Igor S., D. GM. S. Born in 1922. Corresponding member of the Geology, Geochemistry, Geophysics, and Mining Sciences Department since 1979, and, academician since December 1987. Since 1975, he has been Director of Affiliated Research Organization (ARO), Geology and Mineral Resources of the World Oceans Institute under the Ministry of Geology. The institute is subordinate to the Northern Marine Geological-Geophysical Scientific Production Association of the Ministry of Geology. Located in St. Petersburg and established in 1947, the institute researches the terrestrial geology and geophysics of the Arctic and Antarctic Oceans.



34. All-Russian Scientific Research Institute of Exploring Geophysical Methods in Moscow.

Located at 22, Chernyishevskogo st., Moscow's, 101000. Directed by Dr. Aleksei V. Mikhaltsev, tel. 925-45-13.

The Russian Academy oversees the scientific research in this institute.



36. All-Russian Scientific Research Institute of Geological, Geo-physical and Geo-chemical Systems in Moscow.

Located at 8, Varshavskoie highway, Moscow, 113115. Directed by Professor Oleg L. Kuznetsov. tel. 954-53-50.

The Russian Academy oversees the scientific research in this institute.



37. All-Russian Scientific Research Institute of Exploring Geophysics in St. Petersburg.

Located at 20, Faia (aya)nsovaia (aya) st., St. Petersburg, 194019. Directed by Professor German N. Mikhailov. tel. 567-68-03.

The Russian Academy oversees the scientific research in this institute.



38. All-Russian Oil Scientific Research Geological Exploration Institute (under the Committee on Geology and Mineral Resource Utilization of the Russian Government) in St. Petersburg.

Located at 39, Liteyniy ave., St. Petersburg, 191104. Directed by Dr. Mikhail D. Belonin. tel. 273-43-83.

The Russian Academy oversees the scientific research in this institute.



39. Complex Laboratory of Hydrogeology and Nature-Saving Mining Technologies (under the St. Petersburg State Mining Institute) in St. Petersburg.

Located at 2, 21-st line, St. Petersburg, 199026. Scientific Head is Corresponding Member Valerii A. Mironenko. tel. 218-84-21.

The Russian Academy oversees the scientific research in this institute.

Mironenko, Valerii A. Corresponding member of the Department of Geology, Geophysics, Geochemistry, and Mining Sciences of the Russian Academy in 1993. He is the Scientific head of the Complex Laboratory of Hydrogeology and Nature-saving Mining Technologies under the St. Petersburg State Mining Institute. This laboratory is under the scientific direction of the RAS.



40. Siberian Scientific Research Institute of Geology, Geophysics and Mineral Raw Material (under the Committee on Geology and Mineral Resources Utilization of the Russian Government) in Novosibirsk.

Located at 67, Krasnyii prosp., Novosibirsk, 630104. Directed by Academician Viktor S. Surkov. tel. 21-38-95.

The Russian Academy oversees the scientific research in this institute.

Surkov, Viktor S., D. GM. S. Born in 1926. Geologist. Geophysicist. Specialist in regional geology and geophysics. Corresponding member since 1979, and academician since December 1987--of the Geology, Geophysics Geochemistry, and Mining Sciences Department of the Academy. He graduated from the Kazan State University imeni V. I. Ul'ianov-Lenin in 1950. From 1950 to 1962, he worked in the Siberia-physics Ministry of Geology of the USSR. , and was the head engineer on several scientific expeditions. In 1962, he joined the Siberian Scientific Research Institute of Geology, Geophysics and Mineral Raw Materials subordinate to the Geology Ministry of the SSSR, becoming Deputy Director in 1971, and Director in 1973. The institute researches petroleum and gas deposits in the Krasnoyarsk region. It is under the Ministry of Geology. He became General Director of "Sibgeo" (NPO) in 1987. He is the scientific curator for the Geology Ministry of Russia for the regional geological and geophysical collections of Siberian and the Far East. He heads the section on regional geophysics of the national council for geophysical research. He holds several medals awarded for his scientific accomplishments. He is director of the Siberian Scientific Research Institute of Geology, Geophysics, and Mineral Raw Materials (SSRIGGMM) which is under the Committee on Geology and Mineral Resources under the Russian Government. The Institute is located in Novosibirsk.

There is a newly established **National Geophysical Committee of the Russian Federation** which works with the International Union of Geodesy and Geophysics which coordinates the work of the geophysical Center of the Russian Academy of Sciences with other world organizations. A center for geophysical computer data studies, jointly between the Schmidt Institute of Physics of the Earth and the RAS includes a Laboratory of artificial intelligence in geophysics. The artificial intelligence group includes: Professor Aleksei Ovishiani, Head of the center itself; Dr. Mikhail Zhizhin as senior researcher; and Aleksandr Mikoyan, researcher. This group has cooperated with other centers in Europe and elsewhere to develop a World Data Center. In the Laboratory of geoinformation systems and technologies under Dr. Andrei Eliutin, GIS techniques for seismic hazard data processing in collaboration with French laboratories is being developed. The center also has a Laboratory of computer telecommunications, and a Laboratory of informational support of geophysical studies.

A National Geophysical Committee of the Russian Federation has been organized comprising: Gennadi A. Sobolev, Corresponding Member of the RAS; Vladimir V. Migulin, Academician of the RAS; Vladimir M. Kotliakov, Academician of the RAS; and Professor Iurii S. Tyupkin, Secretary-General of the committee. The E-Mail address of Professor Tyupkin and the Committee is: (tyupkin@wpcb.rssi.ru)



National Research in Geology, Geophysics, Geochemistry, and Mining:

When one looks more broadly at the distribution of research effort throughout the former Soviet Union in Geology, Geophysics, Geochemistry, and the Mining Sciences, one finds that there are some 68 research units located in 33 cities distributed broadly across the country and located in all the republics. Of these 12 are directly subordinate to the Moscow Russian Academy of Sciences Department. That research in these areas rank high in the "hard science" research priorities of the nation is proven by the fact that Nikolai Laverov, an academician of this Department of the Russian Academy of Sciences was named a Vice President of the academy for the Earth Sciences Sector of the academy.

(1997 update)

Institutions and Organizations of the Department: this is the latest list of research institutes and other units under the direct or the research supervisory role of the department.

1. Geologic Institute (GIn)

7, Pyizevskii st., Moscow, 109017, tel. 230-80-29
Directed by Corresponding Member Iurii G. Leonov, tel. 230-80-39,
231-04-43

2. Institute of Geology and Precambrian Geochronology (IGPG)

2, Makarova quay, V-34, Saint-Petersburg, 199034, tel. 218-47-01
Directed by Corresponding Member Viktor An. Glebovitskii, tel. 218-48-01

3. Institute of Mining Formations Geology, Petrography, Mineralogy and Geochemistry (IGEM)

35, Staromonetnii st., Moscow, 109017, tel. 231-45-79
Directed by Academician Nikolai P. Lavrov, tel. 231-72-70

4. Institute of Experimental Mineralogy (IEM)

Chernogolovka post office, Noginsk district, Moscow region, 142432,
tel. 524-50-39
Directed by Vilen An. Zarikov, tel. 524-50-37

5. United Institute of Earth Physics named after O.I.Shmidt (UIEP)

10, B.Gruzinskaia st., D-242, Moscow, GSP, 123810, tel. 254-27-10
General Director-- Academician Vladimir N. Strakhov, tel. 252-07-26

6. Institute of Planetary Geophysics

10, B.Gruzinskaia st., D-242, Moscow, GSP, 123810
Directed by Academician Vladimir N. Strakhov, tel. 252-07-26

7. Institute of Experimental Geophysics

10, B.Gruzinskaia st., D-242, Moscow, GSP, 123810
Directed by Corresponding Member Aleksei V. Nokolaiev, tel. 254-90-72

8. Institute of Seismology

10, B.Gruzinskaia st., D-242, Moscow, GSP, 123810
Directed by Corresponding Member Gennadii Al. Sobolev, tel. 254-91-41

9. Institute of Geoelectromagnetic Research

Users box 30, Moscow region, Troitsk, 142092
Directed by Dr. Vitalii S. Shneer, tel. 334-09-06

10. Institute of Complex Mineral Resources Assimilation Problems (ICMRAP)

4, Krukovskii impasse, E-20, Moscow, 111020
tel. 360-89-60, fax: 360-89-60
Directed by Academician Kliment N. Trubetskoi, tel. 360-89-60

11. Institute of Lithosphere (ILS)

22, Staromonetnii st., Moscow, 109180, tel. 233-55-88
Directed by Corresponding Member Nikita Al. Bogdanov, tel. 233-55-88

12. Institute of Oil and Gas Problems under RAS and Russian Ministry of Sciences

65, Leninskii ave., Moscow, V-296, GSP-1, 117917, tel. 930-93-45
Directed by Academician Anatolii N. Dmitrievskii, tel. 135-80-76

13. Institute of Geochemistry and Analytical Chemistry named after V. I. Vernadskii (GeochIn)

19, Kosyigina st., V-334, Moscow, GSP-1, 117975
tel. 939-70-83, 137-14-84
Directed by Academician Erik M. Galimov, tel. 137-41-27

14. International Institute of Earthquake Forecast Theory and Mathematical Geophysics (IIFT RAS)

79, build.2, Varshavskoie highway, Moscow, 113556
tel. 110-77-95, fax: 310-70-32
Directed by Academician Vladimir Is. Keilis-Borok, tel. 110-77-95

15. Geological Engineering and Hyoecological Scientific Center (EHC RAS)

13, build. 2, Ulanskii st., Center, Moscow, 101000, tel. 923-31-11
Directed Academician Viktor Iv. Osipov, tel. 923-31-11

16. Institute of Geosphere Dynamics (IGD)

38, build. 6, Leninskii ave., V-334, Moscow, 117334, tel. 137-66-11
Directed by Prof. Vitalii V. Adushkin, tel. 137-66-11

17. Scientific Geoinformation Center (SGIC)

post box 168, 19, Novii Arbat st., G-19, Moscow, 121019
Directed by Prof. Valentin V. Lebedev, tel. 202-11-49

18. Geophysical Center (GC) RAS

3, Molodeznaia st., Moscow-296, GSP-1, 117296
Acting Director Corresponding Member Gennadii Al. Sobolev,
tel. 930-05-46

19. Scientific-Engineering and Coordination Seismological Center RAS

51, Ulianovskaia st., Z-4, Moscow, 109004
Directed by Corresponding Member Aleksei V. Nikolaiev, tel. 272-36-18

20. Mineralogical Museum named after A.E.Fersman

18, build. 2, Leninskii ave., V-71, Moscow, 117071
Directed by Prof. Aleksandr Al. Godovikov, tel. 952-00-67

21. State Geological Museum named after V. I. Vernadskii

6, Mokhovaia st., Moscow, 103912
Directed by Academician Dmitrii V. Rundkvist, tel. 203-53-87

22. Institute of Geology and Combustible Minerals Elaboration (IGCME)

(The department carries out scientific-systematic direction)
50, Fersman st., V-312, Moscow, 117312, tel. 121-91-55
Directed by Prof. Nikolai Al. Kryilov, tel. 121-91-55

23. Institute of Mining named after A. A. Skochinskii (IM)

(The department carries out scientific-systematic direction)
4, Lubertsyi, Moscow region, 140004, tel. 554-85-13
Directed by Prof. Iurii L. Khudin, tel. 554-85-13

24. Institute of Mineralogy, Geochemistry and Rare Elements Crystallography (IMGREC)

(The department carries out scientific-systematic direction)

15, Veresaieva st., Moscow, 121357, tel. 443-84-28
Directed by Prof. Eduard K. Burenkov, tel. 443-84-28

25. All-Russian Scientific Research Institute of Mineral Material Economics and Geological Exploration (AIMME)

(The department carries out scientific-systematic direction)
38, 3-d Magistralinaia st., Moscow, 123853, tel. 259-69-88
Directed by Prof. Vladimir M. Piterskii, tel. 259-69-88

26. All-Russian Scientific Research Institute of Mineral Materials (AIMM)

(The department carries out scientific-systematic direction)
31, Staromonetnyii st., Moscow, 109017
Directed by Prof. Aleksandr N. Ieremeiev, tel. 231-40-43

27. All-Russian Scientific Research Geological Oil Institute (ASRGOI)

(The department carries out scientific-systematic direction)
36, Entuziastov ave., Moscow, 105118
Directed by Prof. Konstantin Al. Kleshev, tel. 273-26-51

28. Central Scientific Research Geological Exploration Institute of Nonferrous and Noble Metals (CSRGEI)

(The department carries out scientific-systematic direction)
129-b, Varshavskoie highway, Moscow, 113545
Directed by Prof. Igor F. Migachev, tel. 315-06-10

29. All-Russian Scientific Research Geological Institute named after A. P. Karpinskii (ARGeI)

(The department carries out scientific-systematic direction)
74, Srednii prosp., St.-Petersburg, 199026
Directed by Academician Aleksei D. Sheglov, tel. 231-44-18

30. All-Russian Scientific Research Institute of Geology and Mineral Materials of the World Ocean (ASRI oceangeology)

(The department carries out scientific-systematic direction)
1, Maklina st., St.-Petersburg, 190121
Directed by Academician Igor S. Gramberg, tel. 113-83-79

31. All-Russian Scientific Research Institute of Exploring Geophysical Methods (ASRI geophysics)

(The department carries out scientific-systematic direction)
22, Chernyishevskogo st., Moscow, 101000
Directed by Dr. Aleksei V. Mikhaltsev, tel. 925-45-13

32. All-Russian Scientific Research Institute of Geological, Geophysical and Geochemical Systems (ASRI geosystem)

(The department carries out scientific-systematic direction)

8, Varshavskoie highway, Moscow, 113115
Directed by Prof. Oleg L. Kuznetsov, tel. 954-53-50

33. All-Russian Scientific Research Institute of Exploring Geophysics (ASRIrud geophysics)

(The department carries out scientific-systematic direction)
20, Faiansovaia st., St.-Petersburg, 194019
Directed by Prof. German n. Mikhailov, tel. 567-68-03

34. All-Russian Oil Scientific Research Geological Exploration Institute under Committee on Geology and Mineral Resources Using under Russian Government (ASRGEI)

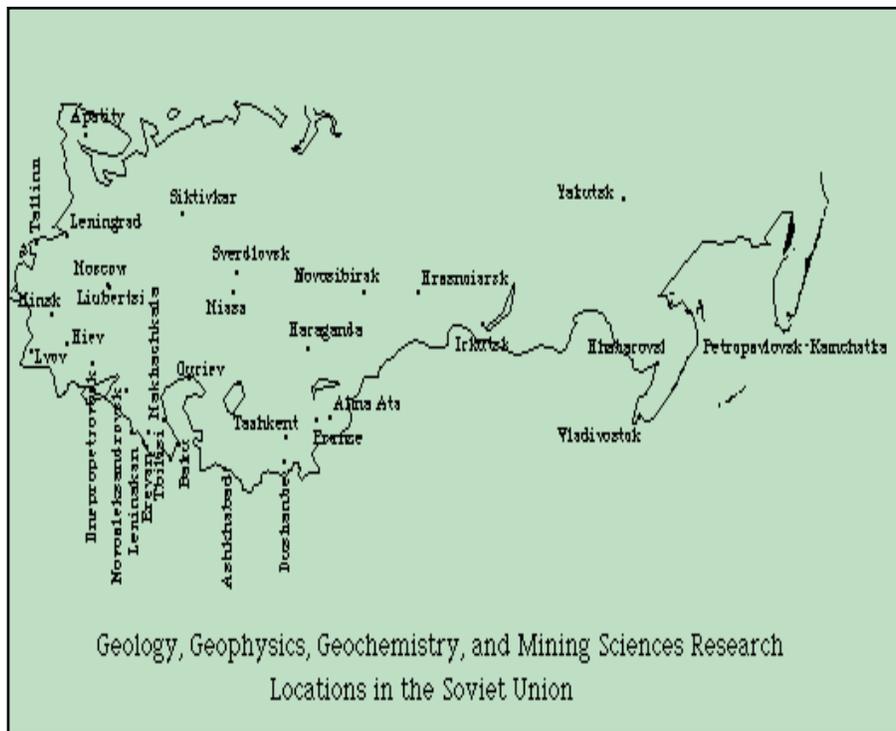
(The department carries out scientific-systematic direction)
39, Liteinii ave., St.-Petersburg, 191104
Directed by Dr. Mikhail D. Belonin, tel. 273-43-83

35. Complex Laboratory of Hydrogeology and Nature-Saving Mining Technologies under St.-Petersburg State Mining Institute

(The department carries out scientific-systematic direction)
2, 21-st line, St.-Petersburg, 199026
Scientific Head-- Corresponding Member Valerii (Valerii) Al. Mironenko,
tel. 218-84-21

36. Siberian Scientific Research Institute of Geology, Geophysics and Mineral Raw Materials (SSRIGGMM) under Committee on Geology and Mineral Resources Using under Russian Government

(The department carries out scientific-systematic direction)
67, Krasnyii prosp., Novosibirsk, 630104
Directed by Academician Viktor S. Surkov, tel. 21-38-95



Before 1950

1. V. I. Lenin Ilmenskii State Reserve in Miass, Cheliabinsk Oblast.
2. Geological Sciences Institute in Kiev.
3. Geophysics Institute in Tbilisi.
4. Geology Institute in Erevan.
5. Kh. M. Abdullaev Geology and Geophysics Institute in Tashkent.
6. K. I. Satpaev Geological Sciences Institute in Alma Ata.
7. Geology Institute in Frunze.
8. Mining Institute in Novosibirsk.
9. Geology and Geochemistry of Combustible Materials Institute in Lvov.
10. Geophysics Institute in Ekaterinburg (Sverdlovsk).
11. M. T. Urazbayev Mechanics and Seismic Resistant Construction Institute in Tashkent.
12. Geology Institute in Tallinn.
13. Earth's Crust Institute in Irkutsk.

1950s

14. Geology Institute in Dushanbe.
15. Metallurgy and Ore Dressing Institute in Alma Ata.
16. Permafrost Institute in Yakutsk.
17. Geology Institute in Makhachkala.
18. Geology Institute in Yakutsk.
19. Chemistry Institute in Ashkhabad.
20. Physics of the Earth and Atmosphere Institute in Ashkhabad.
21. Geology and Geophysics Institute in Novosibirsk.
22. Chemistry and Metallurgy Institute in Karaganda.
23. A. P. Vinogradov Geochemistry Institute in Irkutsk.
24. G. A. Tsulukidze Mining Institute in Tbilisi.
25. Geology Institute (Far Eastern) in Vladivostok.
26. Physics and Mechanics of Rocks Institute in Frunze.
27. Deep Petroleum and Gas Deposits Problems Institute in Baku.

1960s

28. I. M. Gubkin Geology Institute in Baku.
29. Geology and Geophysics Institute in Krasnoyarsk.
30. Polar Geophysics Institute in Apatity.
31. S. I. Subbotin Geophysics Institute in Kiev.
32. Petroleum and Natural Salts Chemistry Institute in Guriev.
33. Physics and Mechanics of Rocks Institute in Frunze.
- 34.

Geophysics and Seismology Engineering Institute in Leninakan. 35. Marine Geology and Geophysics Institute in Novo Aleksandrovsk. No date given in source. 36. Volcanology Institute in Petropavlovsk-Kamchatskii. 37. Deserts Institute in Ashkhabad. 38. Geotechnical Mechanics Institute in Dnepropetrovsk. 39. Hydrogeology and Hydrophysics Institute in Alma Ata. 40. Seismic Resistant Construction and Seismology Institute in Dushanbe. 41. Metallurgy Institute in Tbilisi. 42. Seismology Institute in Tashkent. 43. Physics and Geophysics Institute in Ashkhabad. 44. Institute of Soil Studies and Agrochemistry in Erevan. 45. Precambrian Geology and Geochronology Institute in St. Petersburg. 46. Soil Science and Agrochemistry Institute in Novosibirsk. 47. Experimental Mineralogy Institute in Chernogolovka. 48. Geochemistry and Mineral Physics Institute in Kiev. 49. Tectonics and Geophysics Institute in Khabarovsk. 50. Geochemistry and Geophysics Institute in Minsk.

1970s

51. Mining Institute in Alma Ata. 52. Geology Institute in Syktyvkar. 53. Mining Institute in Apatity. 54. Construction Mechanics and Seismic Stability Institute in Tbilisi. 55. Metallurgy Institute in Ekaterinburg (Sverdlovsk). 56. Geothermal Problems Institute in Makhachkala.



**Department of Ocean Research, Atmosphere Physics and Geography
(DORAPG) in Moscow
32a, Leniniskii ave., Moscow, 117993, tel.938-14-63**

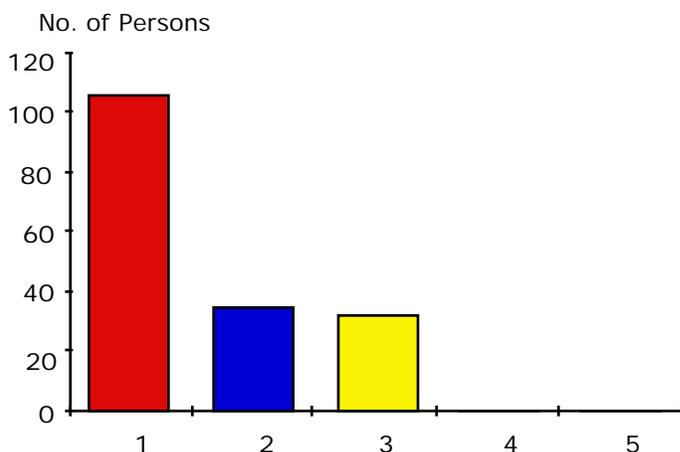
**Academic Secretary of the Department is Academician Vladimir E. Zuev
(Zuev).**

Zuev, Vladimir E., D. PM. S. Born in 1927 in Malye Goly, Kachug Raion, Irkutsk Oblast. Russian physicist. Specialist in the fields of the dispersion of electromagnetic and optical wave bands in the atmosphere. He has been a corresponding member, 1970, and an academician since 1989--of the Oceanology, Atmospheric Physics, and Geography Department. He was originally elected to the General Physics and Astronomy Department. He joined the Presidium of the Siberian Department in 1971. Since 1979, he has been chairman of the Presidium of the Tomsk Scientific Center, and he is chairman of the Council for Research Coordination of the Tomsk Oblast Committee. He has authored 69 scientific works of which nine are monographs of importance; co-authored 238 works of which ten are significant monographs and eight are discoveries. He graduated from the University of Tomsk in 1951 and immediately began teaching there. From 1955 to 1969, he worked in the Siberian PhysicoTechnical Institute, becoming a professor in 1964. Since 1969, he has been director of the Atmospheric Optics Institute in Tomsk and a member of the Siberian Department Presidium. The Atmospheric Optics Institute was established in 1969 to study spectroscopy, the laser probing of the atmosphere, lasers, and other electro-optical devices. His main work is in atmospheric optics and physics. He has guided the academic work of 23 doctoral candidates and 67 aspirants for the candidate degree. He was a deputy to the 8th Convocation of the Supreme Soviet of the USSR. He received a State Prize for his scientific work in 1985. He is the recipient of a number of other awards and medals. He is presently the Academician Secretary of the Department of Ocean Research, Atmospheric Physics and Geography of the Russian Academy of Sciences. (GSE 9, p. 696.)

Retrospect: The relative significance of the five scientific research institutes under the direction of the Oceanology, Atmospheric Physics, and Geography Department may best be seen in Figure 28.

Figure 28

Personnel of the Oceanology, Atmospheric
Physics and Geography Department SRIs,
1980



1. P. P. Shirshov Oceanology Institute in Moscow. 2. Geography Institute in Moscow. 3. Physics of the Atmosphere Institute in Moscow. 4. Limnology Institute in Leningrad. 5. Water Problems Institute in Moscow.

Compiled from: CR 80-13202, pp. 248-249; 276; 298-304; 365-366; and 415.

Membership of the Oceanology, Atmospheric Physics, and Geography Department--administrative responsibilities:

Membership in the Oceanology, Atmospheric Physics and Geography Department totaled nine academicians and 22 corresponding members (31) in 1987. In 1989, there were 12 academicians and 22 corresponding members (39). Among these members could be found the past Chairman of GKNT and the current President of the Academy of Sciences of the USSR, who is also a full member of the Central Committee of the CPSU, Deputy Chairman of the USSR Council of Ministers, Deputy Chairman of the Interdepartmental Committee to Study Innovations in Socialist Countries, and Chairman of the Committee for Cooperation in Scientific and Technical Research in CEMA. One member of the Department is also President of the Turkestan SSR Academy of Sciences. The Chairman of the Far Eastern Department and three other members of that center are also members of the Department. Three others are members of the Siberian Department of the academy. One member is also Chairman of the Presidium of the Tomsk Affiliate of the academy, and one is Chairman of the Council for Research Coordination of the Tomsk Oblast Committee. Fifteen of the members of this Department are Directors of SRIs; one is a Deputy Director.

Academicians--age and schools: Only one academicians's birthdate is unknown. of the remaining eleven only one was in his 90s. Three were in their 70s. The average age of the remaining academicians (seven) was 63 years in 1991. Their educational background included graduation from these institutions: Leningrad State University, three; Moscow State University, two, and one each from the University of Perm', the University of Gorkiy, the Leningrad Institute of Mining, and the University of Tomsk. The institutes from which the other three academicians received their degrees is unknown. **Corresponding Members--age and schools:** Only four birth dates of the 22 corresponding members is unknown. Two corresponding members

were in their 90s and one in his 80s in 1991. The average age of the remaining 15 corresponding members was 64 and the youngest member was 52. The relative youthfulness of these scientists suggests the relative late arrival of two of the sciences collected together in this Department: atmospheric physics and oceanology. Six different institutions produced eight of the corresponding members whose institutions of graduation are known. These include: the Middle Asian University in Tashkent, two; the Moscow Geological Prospecting Institute, two, and one each from the Ashkhabad Pedagogical Institute, the Leningrad Polytechnic Institute, the University of Irkutsk, and the Moscow State University.

(1997 update)

Bureau of the Department

Academician-- Secretary

Academician Vladimir Ev. Zuev, tel.938-14-63

Zuev, Vladimir E., D. PM. S. Born in 1927 in Malye Goly, Kachug Raion, Irkutsk Oblast. Russian physicist. Specialist in the fields of the dispersion of electromagnetic and optical wave bands in the atmosphere. He has been a corresponding member, 1970, and an academician since 1989--of the Oceanology, Atmospheric Physics, and Geography Department. He was originally elected to the General Physics and Astronomy Department. He joined the Presidium of the Siberian Department in 1971. Since 1979, he has been chairman of the Presidium of the Tomsk Scientific Center, and he is chairman of the Council for Research Coordination of the Tomsk Oblast Committee. He has authored 69 scientific works of which nine are monographs of importance; co-authored 238 works of which ten are significant monographs and eight are discoveries. He graduated from the University of Tomsk in 1951 and immediately began teaching there. From 1955 to 1969, he worked in the Siberian Physicotechnical Institute, becoming a professor in 1964. Since 1969, he has been director of the Atmospheric Optics Institute in Tomsk and a member of the Siberian Department Presidium. The Atmospheric Optics Institute was established in 1969 to study spectroscopy, the laser probing of the atmosphere, lasers, and other electrooptical devices. His main work is in atmospheric optics and physics. He has guided the academic work of 23 doctoral candidates and 67 aspirants for the candidate degree. He was a deputy to the 8th Convocation of the Supreme Soviet of the U.S.S.R. He received a State Prize for his scientific work in 1985. He is the recipient of a number of other awards and medals. He is presently the Academician Secretary of the Department of Ocean Research, Atmospheric Physics and Geography of the Russian Academy of Sciences. (GSE 9, p. 696.)

Deputies of the Academician-- Secretary:

Academician Georgii S. Golitsin, tel.231-55-65

Golitsin, Georgii S., D. PM. S. Born in 1935. Russian physicist. Corresponding member, 1979; academician since 1987 of the Oceanology, Atmospheric Physics and Geography Department. In 1976, he was Chief of the Climatology laboratory of the Physics of the Atmospheric Physics Institute in Moscow that was established in 1956 and that uses modern physical mathematical means to probe the atmosphere from earth and space by optical and radiophysical methods. He was elected to the Presidium of the academy in June 1988. He has headed the Climate Theory Department of the Atmospheric Physics Institute which has four laboratories: the climate theory laboratory, the upper atmosphere physics laboratory, the atmosphere-

ocean interaction laboratory, and the mathematical ecology laboratory. In 1990, he became Director of the Atmospheric Physics Institute in Moscow. He is the recipient of the A. A. Friedman prize for his works on "Study of the General Circulation of Atmosphere and Convection." He is presently deputy to the Academician Secretary of the Department of Ocean Research, Atmospheric Physics and Geography of the Academy.

Academician Vladimir M. Kotlyakov, tel.238-86-10

Kotliakov, Vladimir M., D. Geo. S. Born in 1931 in the settlement of Krasnaia Poliana, now in the city of Lobnia, Moscow Oblast. Russian glaciologist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1976, and academician since 1988. He graduated from the Department of geography at Moscow State University in 1954. In 1968, he became Head of the Glaciology Laboratory of the Geography Institute of the AN SSSR in Moscow. Since 1986, he has been Director of the Geography Institute in Moscow. He has been deputy secretary of the Department since April 1988. His works are on glaciology, the earth's snow cover, and glaciation in the Antarctica, the Caucasus, and the Pamirs. In 1961, he founded a series of published collections--Materials on Glaciological Research: A Chronicle of Discussion--of which he is editor-in-Head. He is presently a deputy to the Academician Secretary of the Department of Ocean research, Atmospheric Physics and Geography of the Academy. (GSE 30, p. 535.)

Academician Artem S. Sarkisian, tel.938-18-07

Sarkisian, Artem S., D. PM. S. Born in 1926. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1981; academician since 1988. He is Deputy to the Academician Secretary of the Department. Since 1971, he has headed the Marine Current Dynamics Department of the P. P. Shirshov Oceanology Institute in Moscow.

Responsible for scientific-organizing questions:

Corresponding Member Viktor G. Neiman, tel.938-18-59

Neyman, Viktor G. Deputy to the Academician Secretary of the Oceanology, Atmospheric Physics, and Geography Department since October 1987. He is responsible for "scientific organizing questions for the Department. Since 1974, he has been a senior researcher in the Hydrological Processes Laboratory of the P. P. Shirshov Oceanology Institute in Moscow, the largest marine sciences research unit in the Soviet Union. He has been a Corresponding Member of the Department since 1993. (LDA 89-11378.)

Members of the Bureau:

Academician Leonid M. Brekhovskikh, tel.124-85-38

Brekhovskikh, Leonid M., D. PM. S. Born in 1917 in the village of Strunkino, Arkhangelsk Province. Russian physicist. Corresponding member since 1953; academician of the Oceanology, Atmospheric Physics, and Geography Department since 1968. Originally elected to the Earth Sciences Department. Academician secretary of the Oceanology Department since 1969. He graduated from the University of Perm' in 1939. He has been a professor at Moscow State University

since 1953. From 1954 to 1964, he was director of the Acoustics Institute that was founded in 1953 and that researched bioacoustics, hydroacoustics, quantum acoustics, and ultrasonics--it also had two research ships attached to it. He headed a Department at the university from 1964. His early work was on the scattering of X-rays in crystals and liquids. In 1942 he began working in acoustics and wave propagation. He studied propagation of sound and electromagnetic waves in heterogeneous media. He developed a theory of wave fields from point sources in stratified media and, in particular, produced a complete theory for so-called lateral waves that play an important role in seismological surveys. He discovered the extra long-range propagation of sound in the sea (jointly with L. D. Rozenberg) in 1946. He received the State Prize in 1951. (GSE 4, p. 62.)

Academician Oleg F. Vasiliev, tel.25-21-25(Barnaul)

Vasil'ev (Vasilev), Oleg F., D. Tech. S. Born in 1925 in Moscow. Russian scientist in the fields of applied hydrodynamics and hydraulics. Academician of the Problems of Machine Building, Mechanics, and Control Processes Department of the Russian Academy of Sciences and of the Siberian Department since 1992. He has authored or co-authored 250 scientific works of which four are major monographs. He graduated from the Moscow Institute of Hydromelioration in 1948 and taught at the Moscow Institute of Engineering and Construction until 1959. In 1970, he began working in the Department of applied hydrodynamics in the Institute of Hydrodynamics of the Siberian Department of the AN SSSR. The institute was established in 1957 to conduct theoretical and experimental research on gases, plasma, and the mechanics of fluids. From 1977 to 1980, he served as Deputy Director and head of a Department and as a specialist at the Institute of Applied Systems Analysis in Austria. In 1980, he organized and was head of a Laboratory on the Hydrophysics and Ecology of Reservoirs of the Hydrodynamics Institute of the Siberian Department. In 1985 he was the organizer, and in 1987 was named the Director of the Water and Ecological Problems Institute in Barnaul that was subordinate to the Siberian Department. His works are in the theory of non-stationary and eddy currents of liquids and gases, the hydraulics of open river beds, pipe systems, and hydraulic works. Since 1962, he has been a professor at the Novosibirsk State University, and from 1980 to 1987, he was on the faculty of the Engineering Institute in Novosibirsk. He has directed the work of three doctorate students and 25 aspirants for the candidate degree. He has been on the Council on the Biosphere since 1970, on the Council on Mathematical Modeling since 1987; on the Presidium's National Committee on Theoretical and Applied Mechanics, and a member of InterDepartmental Association Reservoir Research. He was made an honorary member of the Hungarian Hydrological Society in 1978 and received an honorary doctorate in engineering sciences from an East German University in 1985. He is presently located in Barnaul. (GSE 4, p. 525.)

Academician Mikhail Ev. Vinogradov, tel.124-79-40

Vinogradov, Mikhail E., D. Bio. S. Born in 1927. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1984; academician since 1993. Since 1959, he has been Head of the Plankton Laboratory and since 1968, he has served as Deputy Director of the P. P. Shirshov Oceanology Institute in Moscow that was established in 1946 and is now the largest Russian research institute for the marine sciences. It is subordinate to the academy's Oceanology, Atmospheric Physics, and Geography Department. Since 1977, he has been Head of the Biology Division of the Shirshov Oceanology Institute.

Academician Vladimir V. Vorobiev, tel.46-29-20(I.)

Vorob'ev (Vorobev), Vladimir V. D. Geog. S. Born in 1929. Geographer. Specialist in the field of economic geography. Corresponding member since 1981, and academician of the Oceanology, Atmospheric Sciences and Geography Department since 1992. He graduated from the Moscow State University in 1952. From 1952 to 1955, he worked in the Eastern Branch of the AN SSSR. From 1955 to 1958, he was an aspirant there. In 1958 he began work at the Geography Institute of the Siberian Branch in the Far East as a junior and then a senior researcher, and eventually headed a sector of the institute. From 1967 to 1976, he was its Deputy Director and in 1977, he became Director of the institute. He has been a professor at the Irkutsk State University since 1977. He became editor of the journal *Geography and Natural Resources* in 1980. In 1981, he was named to head the Scientific Council on the difficulties of the assimilation of the Taiga.

Academician Igor P. Druzhinin, tel.33-39-48(Kh.)

Druzhinin, Igor P. Corresponding Member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy and of the Far Eastern Department of the Academy since December 1987; academician of both in 1993.

Academician Mikhail Ch. Zalikhanov, tel.2-75-44(Nalchik)

Zalikhanov, Mikhail Ch., C. GM. S. Born in 1939. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the RAN since 1984; academician since 1993. Since 1978, he has been Director of the Alpine Geophysics Institute at Nalchik and directly subordinate to the State Committee for Hydrometeorology and Environmental Control. Established in 1934, the institute researches dangerous atmospheric and hydrologic phenomena and searches for methods of artificially controlling them.

Academician Iurii An. Izrael, tel.169-24-30

(no entry)

Academician Viktor Iv. Iliichyev, tel.9-66-30(V.)

Ii'ichev, Viktor I. Born in 1932 in the village of Tikhonovo, Vladimir Oblast. Russian hydrologist and hydroacoustics specialist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the AN SSSR since 1976 and, academician since 1981. He graduated from the University of Gorkiy in 1955. Between 1955 and 1974 he was on the Acoustics Institute staff. In 1974, he became director of the Pacific Ocean Oceanology Institute in Vladivostok established in 1973 to study the complex hydrophysics of water masses, sea swell, energy exchange, and the interactions of the ocean. It is subordinate to the academy's Far Eastern Scientific Center (now an academy Department.) Since March 1986, he has served as chairman of the Far Eastern Department of the academy. He has been a vice-president of the academy and a member of the Presidium since October 1987. His works deal with acoustic and hydrodynamic cavitation, the resistance of liquids to cavitation, and marine hydrology. (GSE 30, p. 440.)

Academician Kirill Iak. Kondratiev, tel.231-77-73(SPb)

Kondrat'ev, Kirill Ia., D. PM. S. Born in 1920 in Rybinsk. Russian geophysicist. Specialist in the field of the physics of planets' atmospheres and the history of the cosmos. Corresponding member, 1968, and academician of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1984. He graduated from Leningrad State University in 1946, and began working there at once, becoming a professor in 1958 and serving as rector of the university from 1964 to 1970. Beginning in 1961, he also worked at the A. SI. Voeikov Main Geophysical Observatory located in St. Petersburg. His works are in radiation problems in satellite meteorology, atmospheric physics, and actinometry. They also include the study of the "Greenhouse Effect." Since 1969, he has been a member of the International Academy of Astronautics. (GSE 13, p. 362.)

Academician Aleksandr P. Lisitsyn, tel.124-85-28

Lisitsyn, Aleksandr P., D. Geog. S. Born in 1923 at the Shatilov Selection Station, Orel Oblast. Russian geologist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1974; academician in 1993. He graduated from the Moscow Geological Prospecting Institute in 1950 and immediately joined the Institute of Oceanography of the AN SSSR. Since 1967, he has been Head of the Physical Geological Research Laboratory and Head of the Geophysics Division of the P. P. Shirshov Oceanology Institute in Moscow. He has established general patterns for the distribution and transport of suspended sedimentary material and the calculation of absolute weights of suspended materials in the oceans. He has identified global zones of sedimentogenesis, published charts of sedimentation rates and the absolute weights of sedimentary material in the world ocean. Recipient of the State Prize in 1971 and 1977. (GSE 30, p. 554.)

Academician Gurii Iv. Marchuk, tel.938-17-69

Marchuk, Gurii I., D. PM. S. Born in 1925 in Petro-Khersonets, Grachevka Raion, Orenburg Oblast. Russian mathematician. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1962, and academician since 1968. He is also a member of the Siberian Department of the Academy. He was originally elected to the Earth Sciences Department. From 1980 to 1986, he was the chairman of the GKNT (the State Committee for Science and Technology) that develops and monitors a unified state policy for science and technology. From 1981 to 1990, he was a full member of the former Central Committee of the CPSU. He graduated from Leningrad State University in 1949. From 1953 to 1962, he worked at the Physics and Energetics Institute in Obninsk; from 1962-64 he was assigned to the Institute of Mathematics of the Siberian Department of the AN SSSR. In 1969, he was made deputy chairman of the Presidium of the Siberian division, and from 1969 to 1980, he was a member of the Presidium of the Siberian Department. His principal works lie in computer science and applied mathematics. He constructed an algorithm for the numerical solution of the equations of neutron transport that has become the foundation for calculating the critical parameters of nuclear reactors. He has also conducted theoretical studies on the methods of short-term weather forecasting and the dynamics of the atmosphere and the ocean. He is presently working on solving problems of automated control systems. Since 1980, he has been Director of the Computational Mathematics Department in Moscow, that was established in 1980 and that conducts research in applied mathematics, long-range forecasting, the formulation of mathematical models of atmospheric and immunological systems, and the development of computation methodology. From 1980 until the fall of the

government, he was a deputy chairman of the U.S.S.R. Council of Ministers. In 1980, he served as chairman for the exhibition of the Achievements of the National Economy. In 1982, he was deputy chairman of the Interdepartmental Council to Study Innovations in Socialist Countries. In 1983, he became chairman of the Committee for Cooperation in Scientific and Technical Research in CEMA. From October 1986 to 1991, he was President of the Academy of Sciences. Lenin Prize, 1961; Recipient of the State Prize, 1979--for a cycle of works on the development and application of statistical modeling methods for the solution of multidimensional tasks of radiation transfer--with others. In 1975, he received the A. A. Fridman Prize in recognition of his research. In 1980, he was given the M. V. Keldysh Gold Medal for his work in statistics and mathematics. He presently heads the Institute of Computing Mathematics in Moscow. (GSE 15, p. 456.)

Academician Pavel Iv. Melnikov, tel.124-54-22

Mel'nikov (Melnikov), Pavel I., D. GM. S. Born in 1908. Corresponding member since 1968, and academician of the Oceanology, Atmospheric Physics, and Geography Department and of the Siberian Department since 1981. Geologist. Specialist in geochronology, engineering geology, and hydrogeology. He graduated from the Leningrad Mining Institute in 1935. From 1935 to 1956, he worked as a scientific researcher at the Permafrost Station in Siberia. In 1960, he was named Director of the Far Eastern Department's V. A. Obruchev Permafrost Institute, that was established in 1956 to conduct glaciological and geocryological studies and expeditions. It is subordinate to the academy's Siberian Department. He served as its Director until 1988, when he received emeritus status. He has been a professor at the Yakutsk State University since 1963. He was a member of the branch office of the Oceanology, Atmospheric Physics and Geography Department of the AN SSSR from 1971. He headed the Scientific Council on the Earth's Cryogenics from 1970. He is the recipient of numerous awards and medals. (GSE 16, p. 103.)

Academician Gennadii V. Smirnov, tel.2-88-90(V.)

Smirnov, Gennadii V., He is an academician of the Department of Ocean Research, Atmospheric Physics and Geography of the Russian Academy of Sciences.

Academician Martin G. Khublarian, tel.265-97-57

Khublarian, Martin G., D. Tech S. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1984; academician in 1993. Since 1991, he has directed the research of the Water Problems Institute in Moscow. Since its establishment in 1967, the institute has developed some 47 mathematical models ranging from the sedimentation in a tidal river mouth to a model and program for estimating the effect of the accumulation of algae and suspensions on the temperature and gas regime of the near-surface layer of a water body. It has developed flow meters, temperature measurement thermometers, developed some nine major methodologies for prediction and planning for water development, protection, and use, and created several large data banks containing hydrologic information in Russia and the rest of the world. Cartographic materials that its scientists have created include an atlas of content and transfer of moisture over Russian territory, bathymetric maps of the Aral Sea, a hydrographic map of the northern Caspian Sea, diagrammatic maps of world water reservoirs, map of ground water flow of Central and Eastern Europe, and a map of surface and ground water runoff in Mongolia derived from space photography.

Corresponding Member Grigorii V. Voropaiev, tel.231-68-41

Voropaev, Grigorii V. Born in 1932. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1976. Since 1977, he has been director of the Water Problems Institute in Moscow which is subordinate to the academy's Oceanology, Atmospheric Physics, and Geography department and which does research on terminal lakes and river diversion projects.

Corresponding Member Gellii A.I. Zerebtsov, tel.46-05-65(I.)

Zherebtsov, Gellii A., D. PM. S. Born in 1938. Atmospheric Physicist. Specialist in atmospheric physics, solar-terrestrial radiation physics. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy and of the Siberian Department since 1990. Author of eight scientific works and co-author of 130. Director of the Terrestrial Magnetism, Ionosphere, and Radio Wave Propagation Institute in Irkutsk. He was on the Scientific Council on widespread radiation and "Sun--Earth" of the AN SSSR; head of the Scientific Council on Cosmic-physical Research of the Siberian Department of the academy, and on the Coordinating Committee of the Ministry of the Radio Industry of the Soviet Union. In 1990, the Siberian Department of the Russian Academy of Sciences established the Siberian Center of Solar-Terrestrial Physics in Siberia--a new international research center that combined the work of scientists in two major institutes: the Terrestrial Magnetism, Ionosphere and Radio Wave Propagation Institute in Irkutsk and the Institute of Cosmophysical Research and Aeronomy in Yakutsk in the establishment of this new international thrust. As Director of the Siberian Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation, Dr. Zherebetsov will play a large role in the development of this new international research center.

Prof. Nikita F. Glazovskii, tel.238-83-77

no entry

Prof. Iurii S. Dolotov, tel.938-06-10

no entry

Staff of the Department

Ludmila N. Rudiakova, tel.938-14-63, 938-52-98

Ludmila G. Tabunova, tel.938-51-84

Dr. Marina G. Iurkevitch, tel.938-52-99

Marina Iv. Iakovleva, tel.938-52-24

Academicians

Brekhovskikh, Leonid M., D. PM. S. Born in 1917 in the village of Strunkino, Arkhangelsk Province. Russian physicist. Corresponding member since 1953, and academician of the Oceanology, Atmospheric Physics, and Geography Department since 1968. Originally elected to the Earth Sciences Department. Academician Secretary of the Oceanology Department since 1969. He graduated from the University of Perm' in 1939. He has been a professor at Moscow State University since 1953. From 1954 to 1964, he was Director of the Acoustics Institute that was founded in 1953 and that researched bioacoustics, hydroacoustics, quantum acoustics, and ultrasonics--it also had two research ships attached to it. He headed a Department at the university from 1964. His early work was on the scattering of X-rays in crystals and liquids. In 1942 he began working in acoustics and wave propa-

gation. He studied propagation of sound and electromagnetic waves in heterogeneous media. He developed a theory of wave fields from point sources in stratified media and, in particular, produced a complete theory for so-called lateral waves that play an important role in seismological surveys. He discovered the extra long-range propagation of sound in the sea (jointly with L. D. Rozenberg) in 1946. He received the State Prize in 1951. (GSE 4, p. 62.) (See above.)

Druzhinin, Igor P. Corresponding Member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy and of the Far Eastern Department of the Academy since December 1987; academician of both in 1993. Member of the Bureau of the department.

Golitsyn, Georgii S., D. PM. S. Born in 1935. Russian physicist. Corresponding member, 1979; academician since 1987 of the Oceanology, Atmospheric Physics and Geography Department. In 1976, he was Chief of the Climatology laboratory of the Physics of the Atmospheric Physics Institute in Moscow that was established in 1956 and that uses modern physical mathematical means to probe the atmosphere from earth and space by optical and radio physical methods. He was elected to the Presidium of the academy in June 1988. He has headed the Climate Theory Department of the Atmospheric Physics Institute which has four laboratories: the climate theory laboratory, the upper atmosphere physics laboratory, the atmosphere-ocean interaction laboratory, and the mathematical ecology laboratory. In 1990, he became Director of the Atmospheric Physics Institute in Moscow. He is the recipient of the A. A. Friedman prize for his works on "Study of the General Circulation of Atmosphere and Convection."

Il'ichev, Viktor I. Born in 1932 in the village of Tikhonovo, Vladimir Oblast. Russian hydrologist and hydroacoustics specialist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the RAS since 1976, and, academician since 1981. He graduated from the University of Gorkiy in 1955. Between 1955 and 1974 he was on the Acoustics Institute staff. In 1974, he became Director of the Pacific Ocean Oceanology Institute in Vladivostok that was established in 1973 to study the complex hydrophysics of water masses, sea swell, energy exchange, and the interactions of the ocean. It is subordinate to the academy's Far Eastern Department. Since March 1986, he has served as Chairman of the Far Eastern Department of the academy. He has been a Vice President of the academy and on the Presidium since October 1987. His works deal with acoustic and hydrodynamic cavitation, the resistance of liquids to cavitation, and marine hydrology. (GSE 30, p. 440.)

Khublarian, Martin G., D. Tech S. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1984; academician in 1993. Since 1991, he has directed the research of the Water Problems Institute in Moscow. Since its establishment in 1967, the institute has developed some 47 mathematical models ranging from the sedimentation in a tidal river mouth to a model and program for estimating the effect of the accumulation of algae and suspensions on the temperature and gas regime of the near-surface layer of a water body. It has developed flow meters, temperature measurement thermometers, developed some nine major methodologies for prediction and planning for water development, protection, and use, and created several large data banks containing hydrologic information in Russia and the rest of the world. Cartographic materials that its scientists have created include an atlas of content and transfer of moisture over Russian territory, bathymetric maps of the Aral Sea, a hydrographic map of the northern Caspian Sea, diagrammatic maps of world water reservoirs, map of ground water flow of Central and Eastern Europe, and a map of surface and ground water runoff in Mongolia derived from space photography.

Kondrat'ev, (Kondratev) Kirill A., D. PM. S. Born in 1920 in Rybinsk. Russian geophysicist. Specialist in the field of the physics of planets' atmospheres and the

history of the cosmos. Corresponding member, 1968, and academician, 1984. He graduated from Leningrad State University in 1946, and began working there at once, becoming a professor in 1958 and serving as rector of the university from 1964 to 1970. Beginning in 1961, he also worked at the Voeikov Main Geophysical Observatory located in St. Petersburg. His works are in radiation problems in satellite meteorology, atmospheric physics, and actinometry. They also include the study of the "Greenhouse Effect." Since 1969, he has been a member of the International Academy of Astronautics. (GSE 13, p. 362.)

Kotliakov, Vladimir M., D. Geo. S. Born in 1931 in the settlement of Krasnaia (aya) Poliana, now in the city of Lobnia, Moscow Oblast. Russian glaciologist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1976, and academician since 1988. He has been Deputy secretary of the Department since April 1988. He graduated from the Department of geography at Moscow State University in 1954. In 1968, he became Head of the Glaciology Laboratory of the Geography Institute of the Academy in Moscow. Since 1986, he has been Director of the Geography Institute in Moscow whose origin may be traced back to 1918 when the Commission for the Study of Natural Productive Forces of the Academy of Sciences set up its Industrial-Geographical Department in Petrograd. In 1930, the Department became the Geomorphological Institute of the Academy that moved to Moscow in 1934. In 1936, it was called the Institute of Geography. The institute specializes in Russian urbanization and population migration patterns. In 1962, the institute began its investigations into the environment. Its scientists study water quality, the development and evolution of climatic systems, and mineral and water utilization. It operates various research centers in Russia. Kotliakov's own works are in glaciology, the earth's snow cover, and glaciation in the Antarctica, the Caucasus, and the Pamirs. In 1961, he founded a series of published collections--Materials on Glaciological Research: A Chronicle of Discussion--of which he is editor-in-Chief. (GSE 30, p. 535.)

Lisitsyn, Aleksandr P., D. Geog. S. Born in 1923 at the Shatilov Selection Station, Orel Oblast. Russian geologist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1974; academician in 1993. He graduated from the Moscow Geological Prospecting Institute in 1950 and immediately joined the Institute of Oceanography of the AN SSSR. Since 1967, he has been Head of the Physical Geological Research Laboratory and Head of the Geophysics Division of the P. P. Shirshov Oceanology Institute in Moscow. He has established general patterns for the distribution and transport of suspended sedimentary material and the calculation of absolute weights of suspended materials in the oceans. He has identified global zones of sedimentogenesis, published charts of sedimentation rates and the absolute weights of sedimentary material in the world ocean. Recipient of the State Prize in 1971 and 1977. (GSE 30, p. 554.)

Marchuk, Gurii I., D. PM. S. Born in 1925 in Petro-Khersonets, Grachevka Raion, Orenburg Oblast. Russian mathematician. Corresponding member of the RAS since 1962, and academician since 1968. Originally elected to the Earth Sciences Department. Also member of the Oceanology, Atmospheric Physics, and Geography Department. From 1980 to 1986, he was the Chairman of the GKNT (the State Committee for Science and Technology) that develops and monitors a unified state policy for science and technology. From 1981 to 1990, he was been a full member of the Central Committee of the CPSU. He graduated from Leningrad State University in 1949. From 1953 to 1962, he worked at the Physics and Energetics Institute in Obninsk; from 1962-64 he was assigned to the Institute of Mathematics of the Siberian Department of the AN SSSR. In 1969, he was made Deputy Chairman of the Presidium of the Siberian division, and from 1969 to 1980, he was

a member of the Presidium of the Siberian Department. His principal works lie in computer science and applied mathematics. He constructed an algorithm for the numerical solution of the equations of neutron transport that has become the foundation for calculating the of nuclear reactors. He has also conducted theoretical studies on the methods of short-term weather forecasting and the dynamics of the atmosphere and the ocean. He is presently working on solving problems of automated control systems. Since 1980, he has been Director of the Computational Mathematics Department in Moscow, that was established in 1980 and that conducts research in applied mathematics, long-range forecasting, the formulation of mathematical models of atmospheric and immunological systems, and the development of computation methodology. Since 1980, he has been Deputy Chairman of the USSR Council of Ministers. In 1980, he served as Chairman for the exhibition of the Achievements of the National Economy. Since 1982, he has been Deputy Chairman of the Interdepartmental Council to Study Innovations in Socialist Countries. In 1983, he became Chairman of the Committee for Cooperation in Scientific and Technical Research in CEMA. From October 1986 to 1991, he was President of the AN SSSR. Lenin Prize, 1961; Recipient of the State Prize, 1979--for a cycle of works on the development and application of statistical modeling methods for the solution of multidimensional tasks of radiation transfer--with others. In 1975, he received the A. A. Fridman Prize in recognition of his research. In 1980, he was given the M. V. Keldysh Gold Medal for his work in statistics and mathematics. (GSE 15, p. 456.)

Mel'nikov, (Melnikov) Pavel I., D. GM. S. Born in 1908. Corresponding member since 1968, and academician of the Oceanology, Atmospheric Physics, and Geography Department and of the Siberian Department since 1981. Geologist. Specialist in geochronology, engineering geology, and hydrogeology. He graduated from the Leningrad Mining Institute in 1935. From 1935 to 1956, he worked as a scientific researcher at the Permafrost Station in Siberia. In 1960, he was named Director of the Far Eastern Department's Permafrost Institute imeni V. A. Obruchev, that was established in 1956 to conduct glaciological and geocryological studies and expeditions. It is subordinate to the academy's Siberian Department. He served as its Director until 1988, when he received emeritus status. He has been a professor at the Yakutsk State University since 1963. He was a member of the branch office of the Oceanology, Atmospheric Physics and Geography Department of the AN SSSR from 1971. He headed the Scientific Council on the Earth's Cryogenics from 1970. He is the recipient of numerous awards and medals. (GSE 16, p. 103.)

Sarkisian, Artem S., D. PM. S. Born in 1926. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1981; academician since 1988. He is a Deputy Secretary of the Department. Since 1971, he has headed the Marine Current Dynamics Department of the P. P. Shirshov Oceanology Institute in Moscow.

Vinogradov, Mikhail E., D. Bio. S. Born in 1927. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1984; academician since 1993. Since 1959, he has been Head of the Plankton Laboratory and since 1968, he has served as Deputy Director of the P. P. Shirshov Oceanology Institute in Moscow that was established in 1946 and is now the largest Russian research institute for the marine sciences. It is subordinate to the Academy's Oceanology, Atmospheric Physics, and Geography Department. Since 1977, he has been Head of the Biology Division of the Shirshov Oceanology Institute. The Division contains: the Benthos Laboratory; the Biohydrochemistry Laboratory; the Marine Bioacoustics Laboratory; the Marine Ecology Laboratory; the Nekton Laboratory; the Fish Reproduction and Development Department; the Oceanic Ichthyofauna Department; and, the Plankton Laboratory

Vasil'ev, Oleg F., D. Tech. S. Born in 1925 in Moscow. Russian scientist in the fields of applied hydrodynamics and hydraulics. Academician of the Problems of Machine Building, Mechanics, and Control Processes Department of the Russian Academy of Sciences since 1992. He has authored or co-authored 250 scientific works of which four are major monographs. He graduated from the Moscow Institute of Hydromelioration in 1948 and taught at the Moscow Institute of Engineering and Construction until 1959. In 1970, he began working in the Department of applied hydrodynamics in the Institute of Hydrodynamics of the Siberian Department of the AN SSSR. The institute was established in 1957 to conduct theoretical and experimental research on gases, plasma, and the mechanics of fluids. From 1977 to 1980, he served as Deputy Director and Head of a Department and as a specialist at the Institute of Applied Systems Analysis in Austria. In 1980, he organized and was Head of a Laboratory on the Hydrophysics and Ecology of Reservoirs of the Hydrodynamics Institute of the Siberian Department. In 1985 he was the organizer, and in 1987 was named the Director of the Water and Ecological Problems Institute in Barnaul that was subordinate to the Siberian Department. His works are in the theory of non-stationary and eddy currents of liquids and gases, the hydraulics of open river beds, pipe systems, and hydraulic works. Since 1962, he has been a professor at the Novosibirsk State University, and from 1980 to 1987, he was on the faculty of the Engineering Institute in Novosibirsk. He has directed the work of three doctorate students and 25 aspirants for the candidate degree. He has been on the Council on the Biosphere since 1970, on the Council on Mathematical Modeling since 1987; on the Presidium's National Committee on Theoretical and Applied Mechanics, and a member of Interdepartmental Association Reservoir Research. He was made an honorary member of the Hungarian Hydrological Society in 1978 and received an honorary doctorate in engineering sciences from an East German University in 1985. (GSE 4, p. 525.)

Vorob'ev, (Vorobyev) Vladimir V., D. Geog. S. Born in 1929. Geographer. Specialist in the field of economic geography. Corresponding member since 1981, and academician of the Oceanology, Atmospheric Sciences and Geography Department since 1992. He graduated from the Moscow State University in 1952. From 1952 to 1955, he worked in the Eastern Branch of the Academy. From 1955 to 1958, he was an aspirant there. In 1958 he began work at the Geography Institute of the Siberian Branch in the Far East as a junior and then a senior researcher, and eventually headed a sector of the institute. From 1967 to 1976, he was its Deputy Director and in 1977, he became Director of the Geography Institute in Irkutsk. In 1992, the institute had some 286 scientists on its staff, of whom 121 were research scientists and of whom 15 held the doctorate and 63 the candidate degree. There was one Academician on the staff. The institute is comprised of 14 laboratories. The institute maintains the Altai Laboratory of Ecology and Rational Management of Nature that develops environmental protection measures for the Altai territory and adjacent regions and studies land reclamation and water redistribution. Vorob'ev has been a professor at the Irkutsk State University since 1977. He became editor of the journal *Geography and Natural resources* in 1980. In 1981, he was named to Head the Scientific Council on the difficulties of the assimilation of the Taiga.

Zalikhhanov, Mikhail Ch., C. GM. S. Born in 1939. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the RAS since 1984; academician since 1993. Since 1978, he has been Director of the Alpine Geophysics Institute at Nalchik and directly subordinate to the State Committee for Hydrometeorology and Environmental Control. Established in 1934, the institute researches dangerous atmospheric and hydrologic phenomena and searches for methods of artificially controlling them.

Zuev, Vladimir E., D. PM. S. Born in 1927 in Malye Goly, Kachug Raion, Irkutsk Oblast. Russian physicist. Specialist in the fields of the dispersion of

electromagnetic and optical wave bands in the atmosphere. He has been a corresponding member, 1970, and an academician since 1989--of the Oceanology, Atmospheric Physics, and Geography Department. He was originally elected to the General Physics and Astronomy Department. He joined the Presidium of the Siberian Department in 1971. Since 1979, he has been Chairman of the Presidium of the Tomsk Scientific Center, and he is Chairman of the Council for Research Coordination of the Tomsk Oblast Committee. He has authored 69 scientific works of which nine are monographs of importance; co-authored 238 works of which ten are significant monographs and eight are discoveries. He graduated from the University of Tomsk in 1951 and immediately began teaching there. From 1955 to 1969, he worked in the Siberian Physico-Technical Institute, becoming a professor in 1964. Since 1969, he has been Director of the Atmospheric Optics Institute in Tomsk and a member of the Siberian Department Presidium. The Atmospheric Optics Institute was established in 1969 to study spectroscopy, the laser probing of the atmosphere, lasers, and other electro-optical devices. His main work is in atmospheric optics and physics. He has guided the academic work of 23 doctoral candidates and 67 aspirants for the candidate degree. He was a Deputy to the 8th Convocation of the Supreme Soviet of the USSR. He received a State Prize for his scientific work in 1985. He is the recipient of a number of other awards and medals. (GSE 9, p. 696.)

Corresponding Members

Alekin, Oleg A. Born in 1908. Russian hydrochemist. Corresponding member since 1953. Originally elected to the Chemical Sciences Department. Since 1976, he has been the Director of the Limnology Institute in St. Petersburg that is subordinate to the academy's Oceanology, Atmospheric Physics and Geography Department. He is author of works on natural waters and methods of their chemical analysis, and andrology. He is rector of the Leningrad Hydrometeorology Institute. Recipient of the State Prize, 1951. (GSE 1, p. 221.)

Babaev, Agadzhangel G., D. Geog. S. Born in 1929 in Mary. Soviet physical geographer. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1976. He was an academician and from 1975 to 1986, President of the Turkestan Academy of Sciences. He graduated from the geography department of the Ashkhabad Pedagogical Institute in 1949. From 1950 to 1960, he was associated with the A. M. Gorkiy Turkmen University. He served as Director of the Deserts Institute at Ashkhabad from 1960 to 1975. In 1959, he was named Chairman of the Geographical Society of the Turkmen SSR. His works are in the study of nature and on the development of deserts. He was a Deputy to the Supreme Soviet of the USSR from 1979. (GSE 30, p. 20.)

Budyko, Mikhail I., D. PM. S. Born in 1920 in Gomel. Russian geophysicist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1964; academician since 1993. Originally elected to Earth Sciences Department. He graduated from the Leningrad Polytechnic Institute in 1942 and began working at the A. I. Voeikov Main Geophysical Observatory in St. Petersburg, becoming its Director in 1954 and serving in that position until 1973. The Observatory is subordinate to the State Committee for Hydrometeorology, and was established in 1849 to study the atmospheric processes and phenomena affecting weather. His works are in physical climatology, bioclimatology, and actinometry. With A. A. Grigorev, he formulated the periodic law of geographical zonality. He received the Lenin Prize in 1958 for work on the heat balance of the earth's surface. In 1981, he was awarded the A. P. Vinograd Prize for geochemistry and analytical chemistry. (GSE 4, p. 155.)

Kabanov, Mikhail V., D. PM. S. Born in 1937. Physicist. Specialist in the field of atmospheric physics. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1987. He graduated from the Tomsk State University in 1959, and began work as a researcher, was Head of a laboratory of the Siberian Physico-Technical Institute from 1961 to 1975, and Head of a laboratory and Deputy Director of the Atmospheric Optics Institute in Tomsk from 1975 to 1984. In 1984, he was made Director of the Siberian Physico-Technical Institute. He has been a professor at the Tomsk State University since 1981. Chairman of the Interdepartmental Commission on Radiation of the Geophysical Committee of the Presidium of the Russian Academy of Sciences. (Also see: LDA 89-11378.)

Kapitsa, Andrei P., D. Geog. S. Born in 1931 in Cambridge, England. Russian geographer and geomorphologist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1970. From 1953 until 1970, he worked at the department of geography of Moscow State University, becoming a professor in 1966, and serving as dean from 1966 to 1970. He participated in four Antarctic expeditions and in the trans-antarctic crossings from Mirnyi Station to Pionerskaia (aya) (1956), Mirnyi to the south pole (1959-60), and from Vostok Station through the Pole of Inaccessibility to Molodezhaia (aya) Station (1963-64). In 1967-69, he led the Soviet Complex Geophysical Expedition of the AN SSSR to East Africa. He is also member of the Far Eastern Scientific Center. He has been Chairman of the Presidium of the Far Eastern Science Center (now Department) of the AN SSSR since 1970. Son of P. L. Kapitsa. He has been a member of the Presidium of the AN SSSR since 1971. He is Director of the Pacific Institute of Geography of the Far Eastern Scientific Center. His major works are on the dynamics and morphology of the Eastern Antarctic ice cap. State Prize, 1971. (GSE 11, p. 405.)

Khudiakov, Gleb I., D. GM. S. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since December 1987. Also member of the Far Eastern Department. From 1978 to 1980, he was Chief of a laboratory of the (Far Eastern) Geology Institute in Vladivostok. Since 1980, he has been Director of the Pacific Ocean Geography Institute in Vladivostok which was established in 1971 to do physical, economic geographical research and to forecast environmental changes caused by economic development. (LDA 89-11378.)

Kort, Vladimir G., D. Geog. S. Born in 1914. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1979. He was the Director of the Institute of Oceanology of the USSR Academy of Sciences in Moscow until 1965. He supervised a program which had a staff of 20 doctors, 90 candidates and 300 junior-level scientists at that time. In 1966, Kort was Chief of the Hydrological Processes Laboratory of the P. P. Shirshov Oceanology Institute. In 1982, he was the recipient of the S. O. Makarov Gold Medal for his scientific accomplishments in oceanographic research.

Kurbatkin, Gennadii P., C. PM. S. Born in 1930 in Tashkent. Russian meteorologist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1976. He graduated from the Middle Asian University (University of Tashkent) in 1953. He was a staff member of the Institute of Atmospheric Physics of the AN SSSR from 1955 to 1957, the Institute of Applied Geophysics from 1957 to 1961, and the Hydrometeorological Service of the USSR from 1961 to 1963. In 1963, he became affiliated with the Computer Center of the Siberian division (now Department) of the AN SSSR. In 1969, he became Chief of the Long-Range Weather Prediction Department of the Novosibirsk Computer Center, and in 1978 he also became Chief of the Physics of Atmospheres and Oceans Laboratory of the Computer Center in Novosibirsk. His works deal with

numerical modeling of the dynamics of atmospheric processes, the theory of planetary and atmospheric circulation, and hydrodynamic long-range weather forecasting. (GSE 30, p. 537.)

Mel'nikov, (Melnikov) Vladimir P., D. GM. S. Born in 1940. Geologist. Specialist in geocriology, geophysical methods of researching the earth's crust. Corresponding member of the Oceanography, Atmospheric Physics and Geography Department of the AN SSSR from December 1987. He graduated from Moscow Geological Prospecting Institute imeni Sergei Ordzhonikidze in 1962. He worked at there as an engineering student, a participant in geological expeditions, a junior and senior researcher. From 1970 to 1984, he worked at the Permafrost Institute in Yakutsk where he was a senior researcher and headed (from 1984 to 1985) the Department of engineering, geocriology and Deputy Director of the Geology and Geophysics Institute of the Siberian Department. In 1985 he was named Director of Problems of the North Institute in Tiumen--now called the Cryosphere of Earth Institute. He heads the national committee on permafrost, and is a leading member of the Science Coordination Council of the Soviet Union. In 1991, a new International research Center for Northern Territories Development in Siberia was established that links together the work of scientists of three Siberian Department Institutes: the Institute of Cryosphere of Earth in Tiumen, the Institute of Physico-Engineering Problems of the North in Yakutsk, and the Institute of Philology in Akademgorodok-Novosibirsk. As Director of the Institute of Cryosphere Earth, Mel'nikov will collaborate with the Directors of the other two institutes in the development of this new international research center. (LDA 89-11378.)

Mironov, Valerii L., D. PM. S. Born in 1938. Atmospheric physicist. He is a specialist in the field of widespread electromagnetic waves in a heterogeneous environment. Corresponding member since 1991. He is author and co-author of 126 scientific works of which 9 were discoveries and six were extensive monographs--including major works on the characteristics of radio waves. He graduated from the Tomsk State University in 1961 and from 1961 to 1970, he was an aspirant and a senior researcher at that university. From 1970 to 1980 and from 1982 to 1986 he was a senior researchers, head of a laboratory, and Deputy Director of the Institute of Atmospheric Optics of the Siberian Department of the AN SSSR. He was named a professor in 1981 at the Tomsk State University, and from 1986 to 1990, he was a professor, and held a chair while serving as rector of the Altai State University. During this period he also collaborated with the Institute of Water and Ecological Problems of the Siberian Department. He has been a member of the Scientific Council on the problems on environmental surroundings of the Russian Academy of Sciences Presidium. From 1986 to 1990, he organized research on monitoring the environment and developed the collaborative effort between the Institute of Water and Ecological Problems and the Altai University scientists. As a professor, he has guided the work of one doctoral candidate and supervised the work of 12 aspirants for the candidate degree. He has lectured in electrodynamics, molecular physics, statistical methods in radio physics, and similar fields.

Monin, Andrei S., D. PM. S. Born in 1921 in Moscow. Russian oceanographer. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1972. He graduated from Moscow State University in 1942 and worked at the Central Forecasting Institute from 1946 to 1951 and at the Institute of Atmospheric Physics of the AN SSSR from 1951 to 1965. In 1963, he began teaching at Moscow University as a professor. From 1965 to April 1988, he served as Director of the P. P. Shirshov Oceanology Institute in Moscow which is the largest Russian research institute for the marine sciences. Since 1977, he has been Chief of the Physics Division of the Institute, which is subordinate to the academy's Oceanology, Atmospheric Physics, and Geography department and was created in 1946. The institute was named for Shirshov in 1967.

While researching the development of oceanographic methods and equipment, the institute is also active in the use of manned and unmanned submersibles. Since 1979, Monin has been Chief of the Hydrophysics Laboratory of the as well as Chief of the Physics Division. His research is in atmospheric physics, general turbulence, and dynamic processes in the ocean and atmosphere. (GSE 16, p. 516.)

Ozmidov, Rostislav V., D. PM. S. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy in 1993. Since 1970, he has headed the Marine Turbulence Department of the P. P. Shirshov Oceanology Institute in Moscow.

Parin, Nikolai V., D. Bio. S. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy in 1993. Since 1958, he has headed the Oceanic Ichthyofauna Department of the institute.

Sorokin, Aleksandr I. Born in 1924. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1979.

Svanidze, Givi G. Born in 1921. Since 1979, corresponding member of the Earth Sciences department of the Georgian Academy of Sciences. Since 1981, he has been a corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy. Since 1979, he has served as Director of the Hydrometeorology Scientific Research Institute in Tbilisi, subordinate to the State Committee for Hydrometeorology and Environment Control.

Voropaev, Grigorii V. Born in 1932. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1976. Since 1977, he has been Director of the Water Problems Institute in Moscow which is subordinate to the academy's Oceanology, Atmospheric Physics, and Geography department and which does research on terminal lakes and river diversion projects.

Zherebtsov, Gelii A., D. PM. S. Born in 1938. Atmospheric Physicist. Specialist in atmospheric physics, solar-terrestrial radiation physics. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1990. Author of eight scientific works and co-author of 130. Director of the Terrestrial Magnetism, Ionosphere, and Radio Wave Propagation Institute in Irkutsk. He was on the Scientific Council on widespread radiation and "Sun--Earth" of the AN SSSR; Head of the Scientific Council on Cosmic-physical Research of the Siberian Department of the academy, and on the Coordinating Committee of the Ministry of the Radio Industry of the Soviet Union. In 1990, the Siberian Department of the Russian Academy of Sciences established the Siberian Center of Solar-Terrestrial Physics in Siberia--a new international research center that combined the work of scientists in two major institutes: the Terrestrial Magnetism, Ionosphere and Radio Wave Propagation Institute in Irkutsk and the Institute of Cosmophysical Research and Aeronomy in Yakutsk in the establishment of this new international thrust. As Director of the Siberian Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation, Dr. Zherebetsov will play a large role in the development of this new international research center.



Organization of Leading Institutes:

The Oceanology Institute in Moscow far outstrips the others in numbers of scientists assigned to it. It is organized into five divisions, 30 laboratories, and 25 Departments--a very complex structure. It also has a special Design Bureau. Its divisions are: Biology, Geochemistry, Geophysics, Physics, and the Technical Divisions. The Biology Division has six laboratories; the Geochemistry Division has six laboratories; the Geophysics Division has six laboratories; the Physics Division

has nine laboratories, and the Technical Division has four laboratories. The Geography Institute administers 15 laboratories that include biochemistry, biogeography, cartography, climatology, economic geography of the USSR, geography of capitalist countries, geography of peoples democracies, geomorphology, glaciology, history of geography, hydrology, paleogeography, palynology, and photography laboratories. The P. P. Shirshov Oceanology Institute in Moscow has five major divisions: Biology, Geochemistry, Geophysics, Physics, and Technical; These divisions have among them some 19 Departments that have, in turn approximately 25 laboratories and one special design center. The institute also operates laboratories located in St. Petersburg, Gelendzhia, and in Kaliningrad. The Departments include fish reproduction and development, oceanic Ichthyofauna, dynamics of the contact zone of the oceans, tectogenesis and history of shelf development, geochemistry of natural substances and pollution, seismology, electromagnetic fields, paleo-geodynamics, computer oceanology, marine current dynamics, marine wave theory, acoustical wave propagation, sound diffusion and reflection, sound field fluctuation, applied dynamics and oceanology terms, marine turbulence, geophysical hydrodynamics, oceanic and atmospheric interaction physics, space and experimental hydrophysics, computer technology, microelectronics technology, underwater habitats, and others. The Atmospheric Physics Institute in Moscow had one observatory located in Zvenigorod and five large Moscow laboratories in 1980. These labs were the Climatology Laboratory, the Infrared and Inversion Problems Laboratory, the Microwave Laboratory, the Optics of Aerosols Laboratory, and the Theoretical Laboratory.

Research Institutes Directly Subordinate to the Oceanology, Atmospheric Physics, and Geography Department:

The research institutes directly subordinate to the Oceanology, Atmospheric Physics, and Geography Department, by date of founding are given below:

1. Geography Institute in Moscow.

Located at 29, Staromonetnii st., Moscow, 109017. tel. 238-82-77. for telegrams: Moscow Z-17 Geografiya. Directed by Academician Vladimir M. Kotliakov. tel. 238-86-10/

Kotliakov, Vladimir M., D. Geo. S. Born in 1931 in the settlement of Krasnaia (aya) Poliana, now in the city of Lobnia, Moscow Oblast. Russian glaciologist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1976, and academician since 1988. He graduated from the Department of geography at Moscow State University in 1954. In 1968, he became head of the Glaciology Laboratory of the Geography Institute of the AN SSSR in Moscow. Since 1986, he has been Director of the Geography Institute in Moscow. He has been deputy secretary of the Department since April 1988. His works are on glaciology, the earth's snow cover, and glaciation in the Antarctica, the Caucasus, and the Pamirs. In 1961, he founded a series of published collections--Materials on Glaciological Research: A Chronicle of Discussion--of which he is editor-in-Chief. He is presently a deputy to the Academician Secretary of the Department of Ocean research, Atmospheric Physics and Geography of the Academy. (GSE 30, p. 535.)

Retrospect: In 1918, the Commission for the Study of Natural Productive Forces of the Academy of Sciences set up its Industrial-Geographical Department in Petrograd. In 1930, the Department became the Geomorphological Institute of the Academy that

moved to Moscow in 1934. In 1936, it was called the Institute of Geography. The institute specializes in Russian urbanization and population migration patterns. In 1962, the institute began its investigations into the environment. Its scientists study water quality, the development and evolution of climatic systems, and mineral and water utilization. It operates various research centers in Russia. Since 1986, the Director has been Vladimir M. Kotliakov, D. Geog. S.

(older material)

Structure and Scientific Personnel: Director Kotliakov, Vladimir M., D. Geog. S., since '86; Deputy Directors: Lilienberg, Dmitri A., C. Geog. S., since '74; Neishtadt, Mark I., D. Geog. S., since '61; Preobrazhenskii, Vladimir S., D. Geog. S., since '76; and Zonn, Sergei V., D. Agr. S., since '74;

Biochemical Laboratory;

Biogeography Laboratory;

Cartography Laboratory;

Climatology Laboratory;

Economic Geography of Russia Laboratory;

Geography of the Capitalist Countries Laboratory;

Geography of the People's Democracies Laboratory;

Geomorphology Laboratory;

Glaciology Laboratory;

History of Geography Laboratory;

Hydrology Laboratory;

Lithology Laboratory;

Paleography Laboratory;

Palynology Laboratory;

Photography Laboratory;

Stereophotogram Laboratory;

Library. (See: Ruble, Vol. I., pp. 239-240.)



2. P. P. Shirshov Oceanology Institute in Moscow.

Located at 23, Krasikova st., V-218, Moscow, GSP-7, 117218. tel.124-61-49. For telegrams: Moscow V-218 Okeanologiya teletype: 112824 Ocean. Directed by Professor Leonid A. Savostin, tel. 124-59-96.

Retrospect: The academy's Laboratory of Oceanography was elevated to institute status in 1946 and renamed. It is the largest Russian research institute for marine sciences. It uses manned and unmanned submersibles in research. The institute operates laboratories in St. Petersburg, Gelendzhia, Kaliningrad. Its scientists deal with problems of sea pollution and its impact on marine life. It publishes Trudy. The institute has a branch located in Gelendzhik. Director Viacheslav S. Iastrebov, D. Tech. S., has headed the institute since 1988.

(Older material)

Structure and Scientific Personnel: Director Iastrebov; Deputy Directors: Akensov, Andrei A., D. Geog. S., since '64; Arbuzov, Gennadi S., (for administration), since '75; Geodekian, Artem A., D. GM. S., since '75; Vinogradov, Mikhail E., D. Bio. S., since '68; Scientific Secretary Rozenberg, Lev A., since '75;

Biology Division:

Bentos Laboratory;
Biohydrochemistry Laboratory;
Marine Bioacoustics Laboratory;
Marine Ecology Laboratory;
Nekton Laboratory;

Fish Reproduction and Development Department;

Oceanic Ichthyofauna Department:
Plankton Laboratory;

Geochemistry Division:
Ocean Lithodynamics Laboratory;

Dynamics of the Contact Zone of the Ocean Department;

Tectogenesis and the History of Shelf Development Department:
Petroleum in the Sea Laboratory;

Geophysics Division:
Geomagnetic Research Laboratory;
Geomorphology and Ocean Floor Tectonics Laboratory;
Ocean Geology Laboratory;
Physical Geological Research Laboratory;

Geochemistry of Natural Substances and Pollution Department:

Seismology Department:
Seismic Research of the Earth's Core and the Suboceanic Upper Mantle
Laboratory;
Lithospheric Plate Tectonics Laboratory;

Electromagnetic Fields Department:

Paleogeodynamics Department;

Physics Division:
Cosmic Oceanology Laboratory;
Hydrological Processes Laboratory;
Hydrophysics Laboratory;

Computer Oceanology Department;

Marine Current Dynamics Department:

Marine Wave Theory Department:
Marine Meteorology Laboratory;
Ocean Acoustics Laboratory;

Acoustical Wave Propagation Department;

Sound Diffusion and Reflection Department;

Sound Field Fluctuation Department:

Optics Laboratory;

Applied Hydro-optics Department;;

**Ocean optics Department:
Physical Oceanography Laboratory;
Radiochemistry Laboratory;
Theoretical Laboratory;**

Applied Dynamics and Ocean Terms Department;

Geophysical Hydrodynamics Department;

Marine Turbulence Department;

Oceanic and Atmospheric Interaction Physics Department;

Space and Experimental Hydrophysics Department;

**Technical Division:
Computer Systems Laboratory;**

Bionic Memory Systems Department;

**Computer Technology Department:
Experimental Technology Laboratory;**

**Microelectronic Technology Department:
Ocean Measurement Instruments Laboratory;
Underwater Research Laboratory;**

Technical Hydrophysics Research Department;

Underwater Habitats Department;

**Special Design Bureau.
(See: Ruble: Vol. I., p. 242.)**



3. Atmospheric Physics Institute in Moscow.

**Located at 3, Pulzevskii st., Moscow, 109017. tel. 231-55-65. Directed by
Academician Georgii S. Golitsin, tel. 231-55-65.**

Golitsin, Georgii S., D. PM. S. Born in 1935. Russian physicist. Corresponding member, 1979; academician since 1987 of the Oceanology, Atmospheric Physics and Geography Department. In 1976, he was Chief of the Climatology laboratory of the Physics of the Atmospheric Physics Institute in Moscow that was established in 1956 and that uses modern physical mathematical means to probe the atmosphere from earth and space by optical and radio physical methods. He was elected to the Presidium of the academy in June 1988. He has headed the Climate Theory Department of the Atmospheric Physics Institute which has four laboratories: the

climate theory laboratory, the upper atmosphere physics laboratory, the atmosphere-ocean interaction laboratory, and the mathematical ecology laboratory. In 1990, he became Director of the Atmospheric Physics Institute in Moscow. He is the recipient of the A. A. Friedman prize for his works on "Study of the General Circulation of Atmosphere and Convection." He is presently deputy to the Academician Secretary of the Department of Ocean Research, Atmospheric Physics and Geography of the Academy.

Retrospect: Established in 1956. The staff of the institute totaled 380 persons in 1992 of whom 157 were researchers and of whom 24 held doctorates and 79 held candidate degrees. The research in the institute is directed mainly toward investigations of the atmospheric characteristics by modern physico-mathematical, computational and experimental methods applied to solving theoretical and engineering problems. Scientists study the physical aspects of the theory of climate and its changes, atmospheric pollution, and space and wave propagation in the atmosphere. The institute is comprised of five Departments that have among them some 15 laboratories and four "sectors" or sections (groups). The institute maintains three research stations: in the Moscow Region at Zvenigorod, in the Caucasus at Kislovodsk, and in the Rostov Region at Tsimlyansk.

(Older material)

Structure and Personnel: The Departments and their laboratories are as follows:

(1.) the Atmospheric Dynamics Department is under the direction of F. V. Dolzhanskii, D. PM. S. and has four laboratories:

the geophysical hydrodynamics laboratory,
the dynamic meteorology laboratory,
the radio acoustic laboratory, and
the atmospheric boundary layer laboratory;

(2.) the Climate Theory Department is headed by Academician G. S. Golitsin (recipient of the A. A. Friedman prize of the USSR Academy of Sciences for his works on "Study of the General Circulation of Atmosphere and Convection), Director of the institute--
-the Department has four laboratories:

the climate theory laboratory,
the upper atmosphere physics laboratory,
the atmosphere-ocean interaction laboratory, and
the mathematical ecology laboratory;

(3.) the Atmosphere Monitoring by Optic Methods Department is headed by A. P. Galtsev, D. PM. S, who directs the work of four laboratories:

the laboratory of atmospheric spectroscopy,
the laboratory of aerosol optics,
the laboratory for ozonometry,
the spectroscopy of dispersion media, and
the laboratory of optic investigations;

(4.) the Wave Propagation in the Atmosphere Department is headed by A. S. Gurvich, D. PM. S.--a recipient of the State Prize for his work with others on "Regularities of Enhancement of Wave Back Scattering, 1988" and a State Prize in

1990 for work on “Basic Regularities of Wave Propagation Through the Turbulent Media”, and in 1991 with A. V. Sokolovskii their work on “Method for Measuring the Difference of Planet Refraction Angulars by Two Wave Lengths” was recognized as an invention. The Department has two laboratories and one section (sector or group) under it:

the laboratory of atmospheric refractometry,
the laboratory for atmosphere investigations by space aids, and the section of theoretical investigations;

(5.) the Numerical Simulation of Atmospheric Processes and Automation Department is under the direction of V. B. Ponomarev, C. PM. S. who oversees the work of one laboratory and five sections (or research groups):

the software laboratory,
the research automation section,
the computing hydrodynamics section,
the theoretical hydrodynamics and atmospheric ecology section, and
the numerical simulation of salt-dust transfer and orographic effects section.

Other scientists from the institute who have received recognition for their scientific work include: V. I. Tatarskii, and S. S. Kashkarov, who with others shared in the discovery of “The Regularities of Enhancement of Wave Back Scattering, 1988” Academician A. M. Obukhov, Drs. A. S. Gurvich, V. I. Klyatskin, and others for “Basic Regularities of Wave Propagation Through the Turbulent Media, 1990” A. N. Denisov for the invention “A Reflecting Prism to Turn the Polarization Plane--1989--S. V. Dvoryashin and N. S. Pugachev for the invention “Remote Sensing of Water Content in Droplet Clouds”--1990 A. M. Batchaev for his invention “A Device to Form Stratified Fluid”--1990--V. I. Perminov for his invention “Method for Determining Water Vapor Content in the Atmosphere”--1991--and A. V. Sokolovskii and A. S. Gurvich for their invention “Method for Measuring the Difference of Planet Refraction Angulars by Two Wave Lengths”--1991. Since 1990, the Director of the institute has been Georgii S. Golitsin, D. Geog. S.

(Information supplied by Liudmila D. Krasnokutskaja (aya), Scientific Secretary of the Institute, 1992.)



4. Water Problems Institute in Moscow.

Located Users Box 524. Novo-Basmannaia (aya) st. 10, Moscow, 107078. tel. 265-97-57. For telegrams: Moscow-78 Vodniye Problemyi. Directed by Academician Martin G. Khublarian. tel. 265-97-57.

Khublarian, Martin G., D. Tech S. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1984; academician in 1993. Since 1991, he has directed the research of the Water Problems Institute in Moscow. Since its establishment in 1967, the institute has developed some 47 mathematical models ranging from the sedimentation in a tidal river mouth to a model and program for estimating the effect of the accumulation of algae and suspensions on the temperature and gas regime of the near-surface layer of a water body. It has developed flow meters, temperature measurement

thermometers, developed some nine major methodologies for prediction and planning for water development, protection, and use, and created several large data banks containing hydrologic information in Russia and the rest of the world. Cartographic materials that its scientists have created include an atlas of content and transfer of moisture over Russian territory, bathymetric maps of the Aral Sea, a hydrographic map of the northern Caspian Sea, diagrammatic maps of world water reservoirs, map of ground water flow of Central and Eastern Europe, and a map of surface and ground water runoff in Mongolia derived from space photography.

Retrospect: The institute was established in 1967. In 1991, its personnel totaled some 320 employees of whom 29 held doctorates and 100 held candidate degrees in the sciences.

Structure and Personnel: The institute is organized into five Departments:

(Older material)

the Hydrology Department whose laboratories study surface waters, moisture transfer and evaporation, and climatic variability of hydrologic processes

the Hydrogeology Department whose laboratories concentrate on the hydrogeologic problems of environmental protection, forecasts of groundwater resources, and regional hydrogeological problems

the Hydrophysics Department whose laboratories deal with the physics of soil water, mass transfer in boundary layers, hydrodynamics, and channel flow dynamics and ice thermics

the Water Protection Department whose laboratories look at water bodies' interaction with the environment, at water protection and quality, and theoretic problems of water protection, and

the Ecology Department whose laboratories study modeling of aquatic ecological processes, aquatic ecosystems, ground ecosystems dynamics affected by aquatic factors, and

group of medical-biological research.

The institute operates eight independent laboratories:

Modeling of the Land Hydrological Cycle laboratory

Isotopic Research laboratory

Remote-Sensing Studies and Cartography laboratory

Problems of Water Resources Management laboratory

Water Use Optimization laboratory

Economic Problems of Water Use laboratory

Complex Problems of Using Water Resources in Arid Zones laboratory, and Complex Problems of the Caspian Basin laboratory.

The institute manages a field station at Ivankovo, and a field station at Astrakhan. Institute personnel also mount scientific field expeditions from a Northern Expedition Base. Since its establishment the institute has developed some 47 mathematical models ranging from the sedimentation in a tidal river mouth to a model and program for estimating the effect of the accumulation of algae and suspensions on the temperature and gas regime of the near-surface layer of a water body. It has developed flow

meters, temperature measurement thermometers, developed some nine major methodologies for prediction and planning for water development, protection, and use, and created several large data banks containing hydrologic information in Russia and the rest of the world. Cartographic materials that its scientists have created include an atlas of content and transfer of moisture over Russian territory, bathymetric maps of the Aral Sea, a hydrographic map of the northern Caspian Sea, diagrammatic maps of world water reservoirs, map of ground water flow of Central and Eastern Europe, and a map of surface and ground water runoff in Mongolia derived from space photography. Dr. M. G. Khublarian has been the Director since 1991.

(Information provided by letter received 19 December 1991 from Director M. G. Khublarian.) (See: Ruble, Vol. I., p. 243.)



5. Lake Studies Institute (Limnology Institute) in St. Petersburg.

Located at 9, Sevastyanova st. St. Petersburg, 196199. tel. 294-02-60. For telegrams: St. Petersburg M-99 Ozero. Directed by Professor Vladislav A. Rumiantsev.

Retrospect: Founded in 1971 from a laboratory of Lake Studies to develop inter-disciplinary approaches to the study of rational economic exploitation and preservation of lakes, reservoirs, and the natural resources of lake districts throughout Russia. Studies hydrological, hydrochemical, and biological conditions of lakes in the western Soviet Union. Director Rumiantsev, V. A., since 1988. (See: Ruble, Vol. I., p. 266. Listed as Institute of Lake Studies.)



6. The Ecology Institute of the Volzhsk Basin. The institute was organized in 1984.



7. Global Climate and Ecology Institute (under Rosgidromet and the Russian Academy of Sciences) in Moscow

Located at 20b Glebovskaia (aya) st., Moscow, 107258. tel. 169-24-11, fax: 160-08-31; teletype: Moscow 111120 EKLI. Directed by Iurii A. Izrael.



8. Mountainous Geophysical Institute (under Rosgidromet) in Nalchik

Located at 6, Tarchiokov st. Nalchik, 360030. tel. 2-75-44, teletype: 257211 Lavina fax. (8-86600) 70-595. Directed by Academician Mikhail Ch. Zalikhanov, tel. 2-75-44.

The department oversees the research in this institute.

Zalikhanov, Mikhail Ch., C. GM. S. Born in 1939. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the RAN since 1984; academician since 1993. Since 1978, he has been Director of the Alpine Geophysics Institute at Nalchik and directly subordinate to the State Committee for Hydrometeorology and Environmental Control. Established in 1934, the institute researches dangerous atmospheric and hydrologic phenomena and searches for methods of artificially controlling them.



9. Hydrochemical Institute of Rosgidromet in Rostov-on-Don

Located at 198, Stachki prosp., Rostov-on-Don, 344104. tel. 22-44-70.

Directed by Professor Anatolii M. Nikanorov. tel. 28-50-22.

The Department oversees research of this institute.



(1997 Listing)

Institutions and Organizations of the Department: this is the latest list of the institutes and other units under the direct control and research supervision of the department:

1. Institute of Water Problems (IWP)

users box 524, Novo-Basmannaia st. 10, Moscow, 107078
tel.265-97-57, for telegrams: Moscow-78 Vodniie Problemyi
Directed by Academician Martin G. Khublarian, tel.265-97-57

2. Scientific-Coordination Centre "Caspia"

users box 27, 10/1, 1-st Kadashevskii st., Moscow, 113035
Directed by Corresponding Member Grigorii V. Voropaiev, tel.231-68-41

3. Institute of Geography

29, Staromonetnii st., Moscow, 109017
tel.238-82-77, for telegrams: Moscow Z-17 Geografiia
Directed by Academician Vladimir M. Kotliakov, tel.238-86-10

4, Institute of Limnology (InL)

9, Sevastianova st., St.-Petersburg, 196199
tel.294-02-60, for telegrams: St.-Petersburg M-99 Ozero
Directed by Prof. Vladislav Al. Rumiantsev, tel.294-02-60

5. Institute of Oceanology named after P. P. Shirshov (IO RAS)

23, Krasikova st., V-218, Moscow, GSP-7, 117218
tel.124-61-49, for telegrams: Moscow V-218 Okeanologiiia, teletype:
112824 Ocean
Directed by Prof. Leonid Al. Savostin, tel.124-59-96

6. Institute of Atmospheric Physics (IAP)

3, Puizevskii st., Moscow, 109017, tel.231-88-62
Directed by Academician Georgii S. Golitsin, tel.231-55-65

7. Institute of Global Climate and Ecology under Rosgidromet and RAS (IGCE)

20b, Glebovskaia st., Moscow, 107258
tel.169-24-11, fax: 160-08-31, teletype: Moscow 111120 EKLI
Directed by Academician Iurii An. Izrael, tel.169-24-11

8. Mountainous Geophysical Institute under Rosgidromet

(The department carries out scientific-systematic direction)
6, Tarchiokov st., Nalchik, 360030
tel.2-75-44, teletype: 257211 Lavina, fax: (8-86600) 70-595
Directed by Academician Mikhail Ch. Zalikhanov, tel.2-75-44

9. Hydrochemical Institute of Rosgidromet

(The department carries out scientific-systematic direction)
198, Stachki prosp., Rostov-on-Don, 344104
tel.22-44-70, fax: (8-6320) 28-04-85, 22-66-68
Directed by Prof. Anatolii M. Nikanorov, tel.28-50-22

National Research in Oceanography, Atmospheric Physics, and Geography:

There are 22 research institutes that concentrate on research in oceanography, atmospheric physics and geography located in 15 cities in the former Soviet Union. These institutes constitute a major research effort in Russia. Four of the institutes, as described above, are located in Moscow and one in St. Petersburg. The other 17 institutes are scattered across the former Soviet Union as shown in the map below:



Before 1950

1. V. Ia. Struve Astrophysics and Atmospheric Physics Institute in Tartu. 2. Geography Department of the Moldavian Academy in Kishinev. 3. Geography Institute in Baku. 4. Marine Hydrophysics Institute in Sevastopol.

1950s

5. Vakhushti Geography Institute in Tbilisi. 6. Geographical Sciences Institute in Erevan. 7. Geography of Siberia and the Far East Institute (SOAN) [Geography Institute, SOAN, Irkutsk] in Irkutsk. 8. Geography Department of the Lithuanian Academy in Vilnius. 9. Hydromechanics Scientific Research Institute in Kiev. 10. Marine Biology Institute in Vladivostok. 11. Pacific Ocean Geography Institute in Vladivostok. 12. Pacific Ocean Oceanology Institute in Vladivostok. 13. Marine Geology and Geophysics Institute in Novo Aleksandrovsk. 14. Water Problems Institute in Erevan. 15. Space Research of Natural Resources Institute, Baku. 16. Marine Biology Institute in Petropavlovsk-Kamchatskii. 17. Ionosphere Research Institute in Alma Ata.



The Section of the Social Sciences

The Social sciences "section" of the academy includes the five subject-matter Departments of economics, history, literature and language, philosophy and law, and the new Department Problems of World Economics and International Relations established in 1988.

Social science Research: These five Departments controlled 37 research institutes--mostly located in Moscow. In Russia, as a whole, there were 123 research institutes in 1989 that were classified as Social Science Scientific Research Institutes.



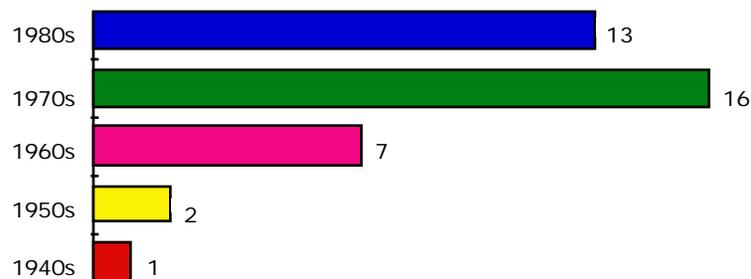
Department of History in Moscow

Located at 32a, Leninskii ave., Moscow, 117993. tel, 938-17-63.

Membership of the History Department: Academicians and corresponding members totaled only 38 scientists in 1987. As Figure 31 illustrates, the current membership of this Department dates primarily from the 1970s.

Figure 31

Membership in the History Department,
by Decade of Election



Compiled from: CR 80-13202, pp. 138-139.

Membership of the History Department--administrative responsibilities: The 19 academicians and 32 corresponding members of the History Department counted 10 Directors and Deputy Directors of major social science institutes among their numbers in 1989; one was on the Presidium of the Kirghizstan SSR Academy of Sciences and another was a member of that academy; one was rector of Novosibirsk State University and the dean of the History faculty at Moscow State University; one was a member of the Armenian SSR academy, and, three were members of the Far Eastern Department. Of the 51 members of the History Department, 29 were members of the in 1989--57 percent.

Academicians--age and schools: The birth dates of 18 of the 19 academicians of the history Department are known. One academician was 95 and seven were in their 80s in 1991. The average age of the remaining ten was 66.6 years. The youngest academician--rector of Novosibirsk University--was 48 years old. Academicians of the History Department of the Russian Academy of Sciences had educational backgrounds that included graduation from these institutions: Moscow State University, five; Leningrad State University, two; the Institute of Red Professors--forerunner of the Social sciences Academy--two; the Moscow Institute of International Relations, two; the Novosibirsk State University, one; the Moscow Institute of History, Philosophy and Literature, one, and, the Vladivostok Pedagogical Institute, one.

Corresponding Members--age and schools: Of those whose birth dates are known, two corresponding members were in their 80s and five in their 70s in 1991. The remaining 13 whose birth dates were known had an average age of 66 years. Not

enough about the educational background of the 30 corresponding members of the History Department of the Russian Academy of Sciences is known to produce meaningful generalizations. Again, three graduated from Moscow State University, one from Leningrad State University, one from the Academy of Social sciences , one from the Higher Diplomatic School of the Ministry of Foreign Affairs, and one from the Dnepropetrovsk Pedagogical Institute. A fairly large number of the rest of the corresponding members hold advanced degrees but their institutions of graduation are not known. Again, the diversity of institutions from which Russian scientists graduate is impressive. While Moscow State University and Leningrad State University are important institutions, Russian scientists have attended universities all over the country--it is after graduation that they receive their advanced degrees in the various research institutes.

(1997 update)

Bureau of the Department

Academician-- Secretary of the Department

Academician Ivan D. Kovalchenko, tel. 938-17-63

Koval'chenko (Kovalchenko), Ivan D., Born in 1923. Corresponding member of the History Department of the Academy since 1972, and academician since December 1987. Academician secretary of the Department since April 1989.

Deputies of the academician-- secretary:

Nikolai N. Bolhovitinov, tel.938-00-97

Bolkhovitinov, Nikolai N. Born in 1930. Corresponding member of the History Department of the Academy since December 1987; academician in 1993. At present he is a deputy to the Academician Secretary of the History Department.

Academician Grigorii N. Sevastianov, tel. 938-19-11

Sevastianov, Grigorii N., D. Hist. S. Born in 1916. Academician of the History Department of the Academy since December 1987. Presently he is a deputy to the Academician Secretary of the History Department.

Academician Aleksandr A. Fursenko, tel. 218-42-02(SPb)

Fursenko, Aleksandr A. D. Hist. S. Born in 1927. Corresponding member of the History Department of the Academy since December 1987; academician in 1993. Presently he is a deputy to the Academician Secretary of the History Department.

Corresponding Member Sergei A. Arutiunov, tel. 938-69-92

Arutiunov, Sergei A., Corresponding member of the History Department of the Academy in 1993. Professor Arutiunov works in the N. N. Miklukho-Maklai Ethnography Institute in Moscow, where he heads a task group who are compiling a dictionary of ethnographic concepts and terms of the Caucasus. He is presently a deputy to the Academician Secretary of the History Department.

Corresponding Member Andrei N. Sakharov, tel. 126-94-66

Sakharov, Andrei N. Corresponding member of the History Department of the Academy in 1993. He is presently a deputy to the Academician Secretary of the History Department. He is the Director of the Institute of Russian History located in Moscow.

Responsible for scientific-systematic questions: Viktor Al. Kumaniev, tel. 938-17-64, 938-58-96

Kumanev, Viktor A. Corresponding member of the History Department of the Academy since December 1987. (LDA 89-11378.)

Members of the Bureau:

Academician Grigorii M. Bongard-Levin, tel. 938-19-12, 938-52-28

Bongard-Levin, Grigorii M., D. Hist. S. Born in 1933. Corresponding member of the History Department of the Academy since 1981; academician since 1993.

Academician Vladimir Al. Vinogradov, tel. 128-89-30

Vinogradov, Vladimir A. Born in 1921 in Kazan'. Russian economist. Corresponding member of the History Department of the Academy since 1966, and academician since 1988. Deputy secretary since April 1988. He graduated from the Moscow Institute of International Relations in 1948 and began work in the Presidium of the AN SSSR. Since 1967, he has simultaneously headed a sector of the Institute of World Economics and International Relations. Since 1961, he has been deputy to the Head scholarly secretary of the Presidium of the AN SSSR. From 1954 to 1960, he taught in the subdepartment of political economy at Moscow State University. In the 1970s, he was on the editorial council for publications of the Institute of the History of Natural Science and Technology of the AN SSSR. His work is in the economic history of the U.S.S.R. and other socialist countries. He is vice-President of the International Economic History Association (1968) and on the Soviet Commission on UNESCO Affairs. Since 1972, he has been Director of the Scientific Information on Social Sciences Institute in Moscow that was established in 1969. The institute collects sociological data and compiles bibliographic and reference works. In 1970, he received the N. G. Chernishev Prize. (GSE 5, p. 481.)

Academician Pavel V. Volobuev, tel. 126-94-80

Volobuev, Pavel V. Born in 1923 in Evgenovka, Kazakh SSR. Russian historian. Corresponding member of the History Department of the Academy since 1970; academician since 1993. He graduated from Moscow State University's history Department in 1950. He became a senior researcher at the Institute of History of the AN SSSR in 1955 and head of its section for the publication of the multi-volume history of the U.S.S.R. in 1966. In 1969, he became Director of the Institute of the History of the U.S.S.R. of the Russian Academy of Sciences. His works concern the economics, politics, and social bases of the history of the Great October Socialist Revolution and its historiography. (GSE 5, p. 576.)

Academician Anatolii P. Derevianko, tel. 35-05-37(N.)

Derevianko, Anatolii P., D. Hist. S. Born in 1943. Archeologist. Specialist in the fields of archeology and of the ancient history of Siberia and the Far East. Corresponding member of the History Department of the Academy since 1979, and

academician since December 1989. He graduated from the Blagoveshchenskii Pedagogical Institute in 1963 and from graduation until 1976 he worked as an aspirant in the Department of the Humanities Research Institute studying the economics and industrial development of Siberia in the Museum of History and Culture. In 1983 he became Director of the History, Philology, and Philosophy Institute of the Siberian Branch in Akademgorodok. He was active in Komsomol organizational activities in the late 70s. He joined the Presidium of the Siberian Department in 1980. From 1980 to 1982, he was rector of the Novosibirsk State University. He is author of 120 scientific works of which 15 are major monographs; he has co-authored 105 scientific works of which six are important monographs. His "History of Science and Culture of Mankind" and "History of the Peoples of Central Asia" both published by UNESCO are major contributions to the literature. He received his doctorate from the German Archeology Institute in the GDR in 1987. In 1991, an agreement was signed between the Siberian Department of the RAN and the Gornĭ Altai Republican Soviet that established an open international non-governmental organization for international research: The Altai International Center for Humanitarian and Biospheric Research. The center will involve the collaboration of three major bodies: the United Institute of History, Philology and Philosophy in Akademgorodok-Novosibirsk, the Cytology and Genetics Institute in Akademgorodok-Novosibirsk, and the Gorno-Altai Republican Soviet in Gorno-Altai, Russia. As head of the United Institute of History, Philology and Philosophy, Derevianko will play a major role in the development of this international research center's development.

Academician Iurii S. Kukushkin, tel. 939-35-66

Kukushkin, Iurii S., D. Hist. S. Born in 1929. Corresponding member of the History Department of the Academy since 1979; academician since December 1987. Since 1971, dean of the History Faculty at the M. V. Lomonosov Moscow State University.

Academician Gennadii G. Litavrin, tel. 938-57-85, 938-55-49

Litavrin, Gennadii G. D. Hist. S. Corresponding member of the History Department of the Academy since December 1987; academician in 1993. He is a member of the Slavic and Balkan Studies Institute in Moscow in the department The History of the Peoples of Central and Southeastern Europe from antiquity to World War II, where research on the socioeconomic and political history of Slavic and Balkan studies of Central and Southeastern Europe from antiquity to 1945 and the nationalism issue and language situation in Central and Southeastern Europe are under his direction and that of T. M. Islamov. (LDA-11378.)

Academician Sergei L. Tikhvinskii, tel. 938-00-87

Tikhvinskii, Sergei L., D. Hist. S. Born in 1918 in Petrograd. Russian historian and diplomat; ambassador extraordinary and plenipotentiary. Corresponding member of the History Department of the Academy since 1968, and academician since 1981. He carried out diplomatic work in China, Great Britain, and Japan from 1939 to 1957. In 1958, he became a professor at the Moscow Institute of International Relations. He has served as Director of the Institute of Sinology of the Russian Academy of Sciences since 1960. He was assistant Director of the Institute of the Peoples of Asia of the AN SSSR from 1961 to 1963 and of the Institute of the Economics of the World Socialist System of the AN SSSR in 1963 and 1964. In 1974, he became editor-in-Chief of *Novaia i noveishaia istoriia* (Modern and

Contemporary History). In the 1970s, he was on the editorial council for publications of the Institute of the History of Natural Science and Technology of the AN SSSR. His works deal with the modern history of the Far East, particularly China, and the history of International Relations. From 1968 to 1974, he represented the U.S.S.R. on the executive board of UNESCO. In 1971, he became chairman of the Palestinian Society of Russia of the Russian Academy of Sciences. He is a member of the Commission for Publication of Diplomatic Documents under the Ministry of Foreign Affairs of the U.S.S.R. (GSE 25, p. 649.)

Corresponding Member Akhmed Ak. Iskenderov, tel. 209-79-08

Iskenderov, Akhmed A., D. Hist. S. Born in 1927. Corresponding member of the History Department of the Academy since 1979. Since 1975, he has been Deputy Director of the General History Institute in Moscow which was established in 1968 when it was split off from the History of the USSR Institute. It is a major center for international studies research.

Corresponding Member Leonid V. Milov, tel. 939-54-40

Milov, Leonid V. Corresponding member of the History Department of the Russian Academy in 1993.

Corresponding Member Anatolii P. Novoseltsev, tel. 123-90-71

Novosel'tsev (Novoseltsev), Anatolii P., D. Hist. S. Corresponding member of the History Department of the Academy since 1984. Since April 1988, he has served as Director of the History of the USSR Institute in Moscow that was created in 1968. It is a major source of historical and demographic research in Russia.

Corresponding Member Iurii Al. Poliakov, tel. 123-90-11

Poliakov, Iurii A., D. Hist. S. Born in 1921 in Tashkent. Russian historian. Corresponding member of the History Department of the Academy since 1966. He graduated from the history department at Moscow State University in 1945. He has taught at Moscow University and at the Academy of Social Sciences where he has been a professor since 1970. Since 1949, he has worked at the Institute of History of the USSR of the AN SSSR. From 1966 to 1969, he was editor-in-Chief of the journal *Istoriia SSSR* (History of the USSR). His works deal with the history of the October Revolution and the Civil War in the USSR, the reconstruction period, and the history of the Russian peasantry. (GSE 20, P. 323.)

Corresponding Member Aleksandr Og. Chubarian, tel. 938-10-09

Chubarian, Aleksandr O. Since 1988, he has been Director of the General History Institute in Moscow which was founded in 1968 as an international studies research center. He has been a corresponding member of the History Department of the Academy since 1993.

Prof. Vladimir K. Volkov, tel. 938-17-80

Prof. Valery Al. Tishkov, tel. 938-17-47

Prof. Boris V. Levshin, tel. 129-19-10

Prof. Rudolf G. Piholia, tel. 206-37-70

Scientist Secretary: Prof. Viacheslav S. Shilov, tel. 938-17-76, 938-54-51

Staff of the Department

Dr. Nikolai Al. Lobanov, tel. 938-58-82

Prof. Iurii Al. Pantsirev, tel. 938-54-67

Irina I. Rodimtseva, tel. 938-17-63

Lubov V. Strelnikova, tel. 938-58-49

Academicians

Bolkhovitinov, Nikolai N. Born in 1930. Corresponding member of the History Department of the Academy since December 1987; academician in 1993. He supervises research in the World History Institute of the evolution of the state-political systems of Western European countries and America in the recent past and in the present era.

Bongard-Levin, Grigorii M., D. Hist. S. Born in 1933. Corresponding member of the History Department of the Academy since 1981; academician since 1993.

Derevianko, Anatolii P., D. Hist. S. Born in 1943. Archeologist. Specialist in the fields of archeology and of the ancient history of Siberia and the Far East. Corresponding member of the History Department of the Academy since 1979, and academician since December 1989. He graduated from the Blagoveshchenskii Pedagogical Institute in 1963 and from graduation until 1976 he worked as an aspirant in the Department of the Humanities Research Institute studying the economics and industrial development of Siberia in the Museum of History and Culture. In 1983 he became Director of the History, Philology, and Philosophy Institute of the Siberian Branch in Akademgorodok. He was active in Komsomol organizational activities in the late 70s. He joined the Presidium of the Siberian Department in 1980. From 1980 to 1982, he was rector of the Novosibirsk State University. He is author of 120 scientific works of which 15 are major monographs; he has co-authored 105 scientific works of which six are important monographs. His "History of Science and Culture of Mankind" and "History of the Peoples of Central Asia" both published by UNESCO are major contributions to the literature. He received his doctorate from the German Archeology Institute in the GDR in 1987. In 1991, an agreement was signed between the Siberian Department of the RAS and the Gorni Altai Republican Soviet that established an open international non-governmental organization for international research: The Altai International Center for Humanitarian and Biospheric Research. The center will involve the collaboration of three major bodies: the United Institute of History, Philology and Philosophy in Akademgorodok-Novosibirsk, the Cytology and Genetics Institute in Akademgorodok-Novosibirsk, and the Gorno-Altai Republican Soviet in Gorno-Altai, Russia. As Head of the United Institute of History, Philology and Philosophy, Derevianko will play a major role in the development of this international research center's development.

Fursenko, Aleksandr A., D. Hist. S. Born in 1927. Corresponding member of the History Department of the Academy since 1987; academician in 1993. He is a leading researcher at the History of the USSR Institute in St. Petersburg where he directs study and research on the history of revolutions and social movements and problems of economic history. (See: A Scholars' Guide. . .)

Kim, Maksim P., D. Hist. S. Born in 1908 in Putsilovka, Ussuriisk Raion, Primore Krai. Russian historian. Corresponding member since 1976, and academician, 1979. Son of a peasant. He graduated from the Moscow Institute of History, Philosophy, and Literature in 1934. Until 1951, he was a teacher in the higher Educational System of Moscow. In 1951, he began teaching at the Institute of History of the USSR of the AN SSSR. From 1954 to 1971, he was Head of the

subdepartment of the Academy of Social sciences under the CC CPSU . He was editor-in-Chief of *Istoriia SSSR* from 1956 to 1960. His work is in the history of Soviet culture. He is also Deputy Head of the editorial committee of the multivolume work, *The History of the USSR from Remote Antiquity to the Present*. (GSE 12, p. 457.)

Koval'chenko, (Kovalchenko) Ivan D. Born in 1923 in Novenkoe, Briansk Oblast. Russian historian. Corresponding member, 1972, and academician, 1989. Academician Secretary to the History Department since April 1989. He graduated from the Department of history at Moscow State University in 1952. In 1955, he began teaching at Moscow State University. In 1966, he became Head of the Department of the study of historical sources of the former Soviet Union and in 1967, he became a professor. Since 1969, he has been editor-in-Chief of the journal *Istoriia SSSR*. His principal works are in agrarian history and the history of the economic development of Russia in the 19th and early 20th centuries and historiography and the study of historical sources. He has served since 1966 as the Chairman of the Commission on the Application of Mathematical Methods and Computers in Historical Research under the History Division of the Academy. In the 1970s, he was on the editorial council for publications of the Institute of the History of Natural Science and Technology of the Academy. In 1986, he received the B. D. Grekov Prize named for the noted historian of science, for his work. He is heading study and research at the Archive of the Russian Academy in Moscow on "Methodology and Historiography, Source Studies and Methods of Historical Research." (GSE 12, p. 618.) (See above.)

Kukushkin, Iurii S., D. Hist. S. Born in 1929. Corresponding member of the History Department of the Academy since 1979; academician since December 1987. Since 1971, dean of the History Faculty at the M. V. Lomonosov Moscow State University.

Likhachev, Dmitrii S. Born in 1906 in St. Petersburg. Russian literary critic and cultural historian. Corresponding member, 1953, and academician since 1970. Principal membership in Literature and Language Department. He graduated from Leningrad State University in 1928. He began his work at Pushkin House in 1939 (Institute of Russian Literature) and became Head of the institute's sector of ancient Russian literature in 1954. From 1946 to 1953, he was a professor at Leningrad State University. His writings are many and distinguished. He has emphasized the aesthetic distinctiveness of the culture of ancient Rus' and the problems of the general theory of art. His works are characterized by a concentration on social ideology, literature, folk poetry, and the fine arts. He is a foreign member of the Bulgarian (1963), Austrian (1968), Serbian (1972), and Hungarian (1973) academies of sciences. He holds honorary degrees from Torun (1964), Oxford (1967), and Edinburgh (1970). Recipient of the State Prize in 1952 and 1969. In 1985, he received the V. G. Belinskii Prize for criticism. (GSE 14, p. 496.)

Litavrin, Gennadii G., D. Hist. S. Corresponding member of the History Department of the Academy since December 1987; academician in 1993. He is a member of the Slavic and Balkan Studies Institute in Moscow in the department *The History of the Peoples of Central and Southeastern Europe from antiquity to World War II*, where research on the socioeconomic and political history of Slavic and Balkan studies of Central and Southeastern Europe from antiquity to 1945 and the nationalism issue and language situation in Central and Southeastern Europe are under his direction and that of T. M. Islamov. (LDA-11378.)

Pokrovskii, Nikolai N., D. Hist. S. Born in 1930. Historian. Specialist in research on the CPSU, source study, and the problems of feudalism. Corresponding member of the History Department and the Siberian Department since December 1987, and academician since 1992. He has authored and co-authored 150 scientific works of which six are major monographs. He graduated from Moscow State University in

1952. From 1964 to 1965, he worked as Head of a Department and Deputy Director of the Vladimir-Suzdal Museum. In 1966, he joined the staff of the History, Philology, and Philosophy Institute of the Siberian Department. In 1975, he headed the sector on the feudalism period, and on the archeography and source study of that institute. He has been a professor at the Novosibirsk State University since 1977, holding the chair in the history of the USSR. In that capacity he has guided the work of one doctoral student and 14 aspirants for the candidate degree. He is Chairman of the Archeography Commission of the Russian Academy of Sciences (1970), and Head of the Siberian Department's Archeography Commission. In 1991, he was named Deputy Director for scientific research for the History Institute of the Siberian Department of the RAS. He also serves on the board of two archeological journals published by the Siberian Department.

Ponomarev, Boris N. Born in 1905 in Zarsk, now in Moscow Oblast. Russian statesman and party figure. Corresponding member, 1958, and academician since 1962. Originally elected to the Historical Sciences Department. Son of an office worker. He joined the Red Army in 1919. From 1920 to 1923, he did Komsomol and party work as secretary of the district committee and on the Riazan provincial committee of the Komsomol and as a secretary of a factory party organization. He graduated from Moscow State University in 1926 and from the Institute of Red Professors in 1932. From; 1926 to 1928, he did party work in the Donbas and in Turkmenia. From 1932 to 1934, he was Deputy Director of the Institute of Party History of the Institute of Red Professors. From 1934 to 1936 he was Director of the Institute of Party History of the Moscow Committee of the ACP (Bolshevik). From 1937 to 1943, he worked for the Executive Committee of the Comintern. From 1944 to 1946, he was Head of the Department of the CC CPSU ACP (Bolshevik). From 1947 to 1949, he was Deputy Head and Head of the Soviet Information Bureau of the Council of Ministers of the USSR. In 1948, he became first Deputy Head of the Central Committee and from 1955 to 1961, he was a Deputy Head of the CC CPSU. In 1961, he became a secretary of the CC CPSU. At the 19th Party Congress he was elected a candidate member of the Central Committee and at the 20th and 22nd through the 25th Congresses, he was a member of the CC CPSU. In May 1973, he became a candidate member of the Politburo of the CC CPSU. He was a Deputy to the 5th through the 9th Convocations of the Supreme Soviet of the USSR. His works are mainly in the history of the CPSU, the foreign policy of the USSR, international communist movements, and the theory of scientific socialism. In 1932, he became Head of the subdepartment of party history of the Institute of Red Professors and then of the subdepartment in that subject at the Academy of Social sciences under the CC CPSU. (GSE 20, p. 402.)

Rybakov, Boris A., D. Hist. S. Born in 1908. Ribakov has been an academician since 1958. Originally elected to the Historical Sciences Department. From 1956 to 1988, he was Director of the Archeology Institute in Moscow. This institute was established in 1937 as the Institute of the History of Material Culture. It took its present name in 1959. It hosts numerous national conferences on archaeology and publishes a journal. In 1983, he was awarded the B. D. Grekov Prize for his historical and archeological research. He is leading the compilation on "Ancient Civilizations: Man, Society, and Culture," a part of a projected 20-volume work. (A Scholars' Guide. . .)

Sevostianov, Grigorii N., D. Hist. S. Born in 1916. Academician of the History Department of the Academy since 1987.

Tikhvinskii, Sergei L., D. Hist. S. Born in 1918 in Petrograd. Russian historian and diplomat; ambassador extraordinary and plenipotentiary. Corresponding member of the History Department of the Academy since 1968, and academician since 1981. He carried out diplomatic work in China, Great Britain, and Japan from 1939 to 1957. In 1958, he became a professor at the Moscow Institute of International Relations.

He has served as Director of the Institute of Sinology of the AN SSSR from 1960. He was assistant Director of the Institute of the Peoples of Asia of the Academy from 1961 to 1963 and of the Institute of the Economics of the World Socialist System of the Academy in 1963 and 1964. In 1974, he became editor-in-Chief of *Novaia (aya) i noveishaia (aya) istoriia* (Modern and Contemporary History). In the 1970s, he was on the editorial council for publications of the Institute of the History of Natural Science and Technology of the Academy. His works deal with the modern history of the Far East, particularly China, and the history of International Relations. From 1968 to 1974, he represented the former Soviet Union on the executive board of UNESCO. In 1971, he became Chairman of the Palestinian Society of Russia of the Russian Academy of Sciences. He is a member of the Commission for Publication of Diplomatic Documents under the Ministry of Foreign Affairs of the former Soviet Union. (GSE 25, p. 649.)

Trukhanovskii, Vladimir G. Born in 1914. Russian historian. Corresponding member of the History Department of the Academy since 1964; academician in 1993. He graduated from the M. N. Pokrovskii Pedagogical Institute in 1940 and from the Higher Diplomatic School of the Ministry of Foreign Affairs of the former Soviet Union in 1941. From 1941 to 1953, he was in diplomatic work. In 1947, he became Head of the subdepartment of world history and then of the subdepartment of the history of International relations and foreign policy of the former Soviet Union at the Moscow State Institute of International Relations. From 1957 to 1960, he served as Deputy Director of the Institute of History of the Academy where he was a senior research worker from 1953 to 1957. In 1960, he became editor-in-Chief of the journal *Voprosy istorii* (Problems of History). In the 1970s, he was on the editorial council for publications of the Institute of the History of Natural Science and Technology of the Academy. His works deal with 20th century Britain and with the history of the International relations and foreign policy of the former Soviet Union. (GSE 26, p. 394.)

Vinogradov, Vladimir A. Born in 1921 in Kazan'. Russian economist. Corresponding member of the History Department of the Academy since 1966, and academician since 1988. Deputy secretary since April 1988. He graduated from the Moscow Institute of International Relations in 1948 and began work in the Presidium of the AN SSSR. Since 1967, he has simultaneously headed a sector of the Institute of World Economics and International Relations. Since 1961, he has been Deputy to the Head Scholarly Secretary of the Presidium of the Academy. From 1954 to 1960, he taught in the subdepartment of political economy at Moscow State University. In the 1970s, he was on the editorial council for publications of the Institute of the History of Natural Science and Technology of the AN SSSR. His work is in the economic history of the USSR and other socialist countries. He is Vice President of the International Economic History Association (1968) and on the Soviet Commission on UNESCO Affairs. Since 1972, he has been Director of the Scientific Information on Social sciences Institute in Moscow that was established in 1969. The institute collects sociological data and compiles bibliographic and reference works. In 1970, he received the N. G. Chernishev Prize. (GSE 5, p. 481.) (See Deputy Secretary above.)

Volobuev, Pavel V. Born in 1923 in Evgenovka, Kazakh SSR. Russian historian. Corresponding member of the History Department of the Academy since 1970; academician since 1993. He graduated from Moscow State University's History Department in 1950. He became a senior researcher at the Institute of History of the Academy in 1955 and Head of its section for the publication of the multi-volume history of the former Soviet Union in 1966. In 1969, he became Director of the Institute of the History of the Academy of Sciences. His works concern the economics, politics, and social bases of the history of the Great October Socialist Revolution and its historiography. (GSE 5, p. 576.)

Yanin, Valentin L. Born in 1929 in Kirov. Russian historian and archaeologist. Corresponding member of the History Department of the Academy since 1966; academician in 1993. His principal works deal with the history of Russian feudalism, numismatics, and sphragistics. He became a professor in 1964 and was named Head of the subdepartment of archaeology of the history Department at Moscow State University in 1978. He has served as a leader of the Novgorod Archaeological Expedition. In 1984, he was awarded the Lenin Prize for his work covering 50 years of research on the archeology of Novgorod. Lomonosov Prize, 1966; Recipient of the State Prize, 1970. (GSE 30, p. 424.)

Corresponding Members

Arutiunov, Sergei A., Corresponding member of the Literature and Language Department of the Academy in 1993. Professor Arutiunov works in the N. N. Miklukho-Maklai Ethnography Institute in Moscow, where he heads a task group who are compiling a dictionary of ethnographic concepts and terms of the Caucasus.

Chistov, Kirill V., D. Hist. S. Born in 1919. Corresponding member of the History Department of the Academy since 1981. He is on the staff of the N. N. Miklukho-Maklai Ethnography Institute in Moscow where he and M. M. Gromyko are leading research on the effect of Russian folk traditions on the world of today--and their potentiality for application to problems.

Chubarian, Aleksandr O. Since 1988, he has been Director of the General History Institute in Moscow which was founded in 1968 as an international studies research center. He was a corresponding member of the History Department of the Academy in 1993.

Dikov, Nikolai N. Born in 1925. Corresponding member of the History department and of the Far Eastern department since 1979. Since 1967, Chief of a Department of the (Northeastern) Complex Scientific Research Institute in Magadan. With V. A. Kavynets, he discovered the northernmost Paleolithic remains in the world on the Pechora and Lena Rivers, in the Aldan River basin, and on Kamchatka. (LDA 89-11378.) (GSE 11, p. 642d.)

Druzhinina, E. I., D. Hist. S. Born in 1916. Corresponding member of the History Department of the Academy since 1981.

Goriushkin, Leonid M., D. Hist. S. Born in 1927. Historian. Specialist in the Regional History of Russia and of the Soviet Period. He has been a corresponding member of the History Department of the AN SSSR from 1990. He has written or co-authored 300 pieces of which 14 are book-length monographs. He is a professor at the Novosibirsk State University where he has guided the work of two doctoral students and supervised the work of 28 aspirants for the candidate degree. In 1986, he became Head of a Department of the Institute of History, Philology and Philosophy of the Siberian Department. He is on the editorial board of the historical series of the journal "Sibirsk" published in the USA. He serves as Head of the historical commission to celebrate the 100th year of the founding of Novosibirsk and is Deputy Chairman of the House of Scientists in Akademgorodok. In 1990 the History Institute was established as a separate entity and he was named its Director. The staff of the institute totals 80 persons, of whom 17 hold the doctorate and 25 the candidate degree. Academicians N. N. Pokrovskii, D. Hist. S., N. Ia. Gushchin, D. Hist. S., and V. L. Soskin are members of the institute. Scientists in the institute research the historical development of the social-demographics, economics, and political and cultural growth of Siberia; the evolutionary development of Siberia and of Russia, and the history of the development of contacts between them; study the economic, political and cultural contacts with China, the USA, Japan, and other countries with Siberia; research methodological problems, historiography, and archeology.

- Grashchenkov, Viktor N.** Corresponding member of the History Department of the Academy since December 1987. (LDA 89-11378.)
- Iskenderov, Akhmed A., D. Hist. S.** Born in 1927. Corresponding member of the History Department of the Academy since 1979. Since 1975, he has been Deputy Director of the General History Institute in Moscow which was established in 1968 when it was split off from the History of the USSR Institute. It is a major center for international studies research.
- Kapitsa, Mikhail S.** Born in 1921. Corresponding member of the History Department of the Academy since 1987. Since 1987, he has been Director of the Oriental Studies Institute in Moscow which traces its origin back to the founding of the Imperial Academy of Sciences itself in 1725. In 1724, the Tsar's oriental museum (Kunstkamera) was taken over as part of the new Imperial Academy of Sciences. For a long period oriental studies along with other arts and humanities were shifted to universities. In 1921, the All-Union Scientific Association of Oriental Studies opened in Moscow with branches in the Ukraine, Siberia, the Caucasus and Central Asia. In 1930, a new Institute of Oriental Studies of the former Soviet Union Academy of Sciences was created. Following a period of uncertain development in the 1930s and 1940s, the institute was reorganized in 1957 becoming for a short period the Institute of Chinese Studies. Since 1969, the Institute has maintained its present structure and is the major Soviet research center for Oriental affairs. The institute is involved with a wide range of disciplines focusing on Oriental studies, including: history, economics, philosophy, philology, and sociology. In 1968, the institute numbered some 27 Departments and maintained a division in St. Petersburg. By 1977, the Institute of Oriental Studies had been reorganized into 15 Departments in Moscow and three in St. Petersburg. Research scientists numbered 653 in 1992, of whom 100 held doctoral and 445 held candidate degrees. (LDA 89-11378.)
- Karakeev, Kurman-Galii K.** Born in 1913 in Kurmenty, Kirghiz Oblast. Russian historian. Corresponding member of the History Department since 1968. Originally elected to the Historical Sciences department. Academician and president of the Academy of Sciences of the Kirghiz SSR since 1960. Son of peasants. He graduated from the Higher Party School in 1946 and from the Academy of Social science in 1959. From 1939 to 1959, he was secretary of the Tien-Shan and Issyk-Kul' Oblast Committee of the party, an editor of the republic newspaper, the Head of the propaganda and agitation section of the CC of the Communist party of Kirghiz, and from 1947, he was secretary of the party's Central Committee. His fields of research are in cultural construction, history of the CPSU, and history of the USSR. He translated Marxist-Leninist works into Kirghiz. He was a Deputy to the 6th, 7th, and 8th convocations of the Supreme Soviet and he was a delegate to the 22nd (1961) and 23rd (1966) Congresses of the CPSU. (GSE 11, p. 426.)
- Kas'ianenko, (Kasianenko) Vasilii I., D. Hist. S.** Corresponding member of the History Department of the Academy since 1987. At the History of the USSR Institute in Moscow, Professor Kas'ianenko heads up the history of the construction of socialism field of study. (LDA 89-11378.)
- Kumanev, Viktor A.** Corresponding member of the History Department of the Academy since December 1987. Responsible for scientific-systematic questions for the department. (LDA 89-11378.)
- Molodin, Viacheslav I., D. Hist. S.** Born in 1948. Historian and Archaeologist. Specialist in the archeology and in the prehistoric and ancient history of Siberia. Corresponding member of the History Department of the AN SSSR from 1987. He graduated for the Novosibirsk State University in 1971 and was Deputy Director of its middle school. In 1973, he joined the History, Philology and Philosophy Institute of the Siberian Department, and in 1983, he was Head of the sector of that institute studying the archeology of the bronze and ages. He has been a professor,

holding the chair of history at the Novosibirsk State University since 1985. He is presently Deputy Director for scientific work in the Archaeology and Ethnography Institute in Akademgorodok which was established in 1990. Scientists research the historical-cultural processes of the development of the Siberian territory and the ethnosocial background of societal development of the bronze and iron ages of Central Asia; the ethnogenesis and ethnicity of tribal histories in Siberia and the history of the development of the first classes in Siberia and the Far East, and the connection between the culture of Northern Siberia and the oceanic regions; research into the traditional culture and ideology of the aboriginal races of Siberia and the Far East; the traditional material and spiritual culture of the Russian Siberian tribes; and the restoration of the memorable history and culture of Siberia. (LDA-11378.)

Novosel'tsev, (Novoseltsev) Anatolii P., D. Hist. S. Corresponding member of the History Department of the Academy since 1984. Since April 1988, he has served as Director of the History of the USSR Institute in Moscow that was created in 1968. It is a major source of historical and demographic research in Russia.

Poliakov, Iurii A., D. Hist. S. Born in 1921 in Tashkent. Russian historian. Corresponding member of the History Department of the Academy since 1966. He graduated from the history department at Moscow State University in 1945. He has taught at Moscow University and at the Academy of Social sciences where he has been a professor since 1970. Since 1949, he has worked at the Institute of History of the USSR of the AN SSSR. From 1966 to 1969, he was editor-in-Chief of the journal *Istoriia SSSR* (History of the USSR). His works deal with the history of the October Revolution and the Civil War in the USSR, the reconstruction period, and the history of the Soviet peasantry. (GSE 20, P. 323.)

Sakharov, Andrei N. Corresponding member of the History Department of the Academy in 1993.

Shchapov, Yaroslav N. Corresponding member of the History Department of the Academy since December 1987. At the World History Institute, Professor Shchapov, with others, is researching the "The Role of Religions in History" with emphasis on the role of religions in the historical development of Europe. (LDA 89-11378.)

Shishkin, Valerii A. Corresponding member of the History Department of the Academy since December 1987. (LDA 89-11378.)

Starushenko, Gleb B., D. Iur. S. Born in 1922. Corresponding member since 1984. Since 1966, he has been Deputy Director of the Africa Institute in Moscow. The institute was created in 1959 to research the economic, socio-political, international, historical, and cultural-ethnological problems of the African states. It coordinates its work with the scientists in the Oriental Institute. It also maintains a branch in St. Petersburg. Starshenko heads the study and research of social and class structures in Africa and the revolutionary processes on that continent for the institute.

Tulepbaev, Baidabek A. Born in 1921. Since 1975, academician of the Social science Department of the Kazakh Academy of Sciences. Corresponding member of the History Department of the RAS since 1981. (LDA 89-11378.)



Organization of Leading Research Institutes:

As can be seen, history in Russia has included ethnography, archaeology, area study institutes, General history, and history of the Soviet Union. When the entire country is considered, there are 32 research institutes located in 23 cities that fall under the broad definitions of what constitutes history in the former Soviet Union. A scanning

of the description of each of these 32 institutes will broaden the readers understanding of the value of the treasures collected, analyzed, and stored in these institutes.



History Department Research Institutes:

Research institutes directly subordinate to the History Department are listed below in the order of the date of their establishment:

1. N. N. Miklukho-Maklai Ethnography Institute in Moscow.

Located on Leninskii ave., 32a, Moscow, 117993. tel. 938-17-93. (E-Mail: anthpub@iea.msk.su) Directed by Professor Valerii A. Tishkov. tel. 938-17-47.

Retrospect: Precursors to this institute may be traced back to the establishment of the first museum in 1714 under Peter the Great--the *Kunstkamera* or the Chamber of Curiosities. Following the Revolution of 1917, a Commission for the study of the Tribal Composition of the Population of Russia and Adjoining Lands was organized, and in 1930, the Institute for the Study of the Peoples of the USSR was established. In 1933, the Institute of Anthropology, Archeology, and Ethnography of the AN SSSR was founded in St. Petersburg, that also incorporated the Museum of Anthropology and Ethnography and the Institute for the Study of the Peoples of Russia. In 1937, in conjunction with the establishment of the Institute of the History of Material Culture, the Miklukho-Maklai Institute of Ethnography was established. Its Directors have been: N. N. Motorin (1930-33), I. I. Meshchaninov (1933-37), V. V. Struve (1937-40), I. N. Vinnikov (1941), S. M. Abramzon (1941-42), S. P. Tolstov (1942-66), Iurii V. Bromlei (1966-89), and since, 1989, the institute has been headed by V. A. Tishkov. With a staff of some 180

researchers of whom 34 hold the doctorate, and 117 hold the candidate degree, the institute is organized into six Departments that have, in turn, sectors, laboratories and groups.

(older material)

The Departments are:

- (1.) General problems;
- (2.) the ethnography of the Eastern Slavic peoples;
- (3.) the ethnography of the peoples of Russia;
- (4.) foreign ethnography;
- (5.) anthropology and ethno-archeology;
- (6.) ethnosociology;
- (7.) task groups on the compilation of a dictionary of ethnographic concepts and terms;

study and publication of the scientific legacy of Miklukho-Maklai;

preparation the volume on ethnic processes in the present-day world;

study of ethnocultural processes among the smaller nationalities and ethnic groups of Russia;

compilation of historical-ethnographic atlases study of the family;

ethnic onomastics;

complex research on human dwellings;

study of modern socialist rituals of the population of Russia and the ethnic aspects of territorial moves in the non-black-earth region of Russia.

Research priorities in the institute include: under E. E. Nerazik and V. N. Basilov, the early ethnic history of the peoples of Central Asia; under K. V. Chistov and M. M. Gromyko, Russian folk traditions and the world of today: potentialities and application problems; under V. P. Kobychyev, housing, daily life and cultural traditions of the peoples of Russia; under S. A. Arutiunov, the ethnography of the Caucasus; under Z. P. Sokolova, the peoples of Siberia in the 19th century; under T. A. Zhdanko, B. Kh. Karmysheva, B. V. Andrianov, N. P. Lobacheva, E. E. Nerazik, and A. N. Zhilina, the traditional culture of the peoples of Central Asia and Kazakhstan; under A. I. Pershits, methodological problems of development of primitive society; under Iurii I. Semenov, A. I. Pershits, V. A. Shnirel'man, war and peace in pre-class and early class society; under M. M. Gromyko, an essay on ethnocultural history; under A. I. Kuznetsov, T. V. Luk'ianchenko, Z. P. Sokolova, Iurii B. Simchenko, the ethnocultural development of the peoples of the North today; under A. Tishkov, the experience of federations and nationality group autonomies abroad and ethnic processes in American cities; under O. A. Gantskaia (aya) and M. S. Kashuba, the experience of ethnosocial research; under N. N. Gratsianskaia (aya), family customs and rites of the peoples of Europe in the 19th and 20th centuries; under V. P. Alekseev, the anthropology of Russia; under A. A. Zubov and I. M. Zolotareva, the unity and diversity of mankind; under M. A. Itina, development of water and land resources in the Aral delta region in the past and today; under O. I. Shkaratan, ethno-economics; under L. M. Drobizheva, spiritual culture and ethnic self-awareness; under S. Ia. Kazlov and E. L. Nitoburg, racism in the late 20th century: concept and social practice; under V. I. Kozlov, ethnic ecology of migrants; under O. I. Shkaratan, national tradition and improvement of the socialist way of life, and under S. I. Bruk, the preparation of a map of the peoples of the world. The institute is in process of producing a collection of ethnographic concepts and terms, and publishing works on the family and marriage. and on customs and rites of the life cycle under the guidance of M. A. Chlenov and B. Kh. Karmysheva. The institute maintains cooperation with institutes throughout large parts of the world, publishes a number of scholarly journals, and maintains an important scientific archives. It has been directed by Dr. Valerii A. Tishkov, D.

Hist. S., since 1989. (See: A Scholars' Guide. . .)(See: Ruble, Vol. III, pp. 19-23, for an extended discussion of this institute.)



2. Museum of Anthropology and Ethnography named after Peter the Great (Kunstcamera) in St. Petersburg.

Located at Universitetskaia (aya) quay, 3, V-164, St. Petersburg, 199164, tel. 218-07-. Directed by Professor Aleksandr S. Mylnikov, tel. 218-08-12.



3. Archives of the Russian Academy of Sciences in Moscow.

Located Novocheryemuishinskaia (aya) st., 34, V-218, Moscow, 117218. tel. 129-19-10. Directed by Professor Boris V. Levshin, tel. 129-19-10.

Retrospect: This is one of the oldest of institutions in Russia having been established three years after the founding of the Russian Academy of Sciences in 1725 and is the first scholarly archive in Russia. Although in the beginning the archive collected only documents of scientific conferences, in 1922 it received independent status and was authorized to house all documents produced in the subsidiary units of the academy. In 1925, the archive received official status as an institute, and in 1934 was transferred to Moscow. In 1963, the Moscow division was reorganized to become the Archive of the USSR Academy of Sciences as a whole and making the St. Petersburg (Leningrad) a subordinate division of the Moscow Archive.

(older material)

The archive is divided into seven Departments:

acquisitions,

preservation;

insurance record files,

information reference mechanisms and accounting,

private collections,

information provision, and publications.

The archive is staffed by 62 researchers in Moscow of whom two hold doctoral degrees and six hold candidate degrees. There is one corresponding member of the Russian Academy of Sciences on the staff. In terms of holdings, the archive in Moscow and in its division in St. Petersburg maintain some one million files that constitute the richest collections of documents from scientific institutions and scientists of the former Soviet Union in the world. Research priorities from 1989 to 1993 include: under the supervision of S. O. Shmidt, the "Documentary Relics of History and Culture, Problems of Search, Description, and Publication"--the N. E. Vernadskaia

(aya)'s collection of V. I. Vernadskii's letters, the A. O. and V. O. Kovalevskii correspondence, the P. P. Lazarev correspondence, and S. B. Vdeselovskii's documents on the Printed Order (the Pechatnyi prikaz); under the direction of I. D. Koval'chenko "Methodology and Historiography, Source Studies and Methods of Historical Research", the A. S. Lapapo-Danilevskii scientific legacy; under the guidance of B. B. Piotrovskii "The History of World Culture," documents of N. I. Vavilov in the Archive of the Russian Academy of Sciences, autobiographical materials of biologists, the Central Astronomical Observatory history, the P. S. Pallas correspondence from 1741 to 1811, and the history of Russian-French scientific ties in the 18th century. The Archive has been headed by Dr. Boris V. Levshin, D. Hist. S., since 1963.



- 4. Archive of the Russian Academy of Sciences, St. Petersburg Division,** was established in 1963 as a division of the Moscow Archive. Its staff of 16 persons includes six candidate of science degree holders. It preserves documents of constituent institution of the Russian Academy of Sciences and collections of individual scholars and scientists from the early 18th century to the present. Altogether there are some 735 collections and 16 "special" collections with a total of some 479,000 files housed in the St. Petersburg division. The St. Petersburg division is headed by Vladimir S. Sobolev, C. Hist. S.



5. Archeology Institute in Moscow.

**Located at Dm. Ulyianova st., 19, Moscow, V-36, 117036. tel. 126-94-43.
Directed by Professor Rauf M. Munchaev. tel. 126-47-98.**

Retrospect: The first governmental institution for the supervision of archeological research was established in 1859 in the Imperial Archeological Commission. In 1867, publications on archeology began and provisions were made for periodic archeological conferences. In 1919, the Commission's functions were given to the Russian Academy of the History of Material Culture in St. Petersburg (Leningrad), and art studies and the development of human culture were added to the scientific concerns of this academy. At the same time an Institute of Archeological Technology was established. (1919) This Academy was renamed in 1926 to the State Academy of the History of Material Culture and headed by N. Ia. Marr until 1934. This State Academy was responsible for inaugurating archeological expeditions that bolstered the discipline considerably. It was also during Marr's tenure that the structure of the academy was changed by organizing into three major divisions: the archaic sector--pre-class society; the slave-owning society sector, and the feud asocial formation sector. This resulted in transforming the academy from an archeological institution into a center for the historical research of pre-capitalist societies. In 1932, a Moscow branch of the State Academy (GAIMK) was organized. In 1937, GAIMK and its Moscow Branch were reorganized into the **Institute of the History of Material Culture of the AN SSSR**, becoming an all-union institution focusing all of its efforts on archeological research.

(Older material)

The divisions of this new institute included:

Paleolithic and Neolithic;
the Bronze Age and Early Iron Age;
the Ancient Black Sea Basin, Central Asia, and the Caucasus;
Ancient Russia and Eastern Europe, and
the pre-feudal and feudal periods.

M. I. Artamonov became Head of the institute in 1939 leading the institute to major scientific and organizational gains before the outbreak of WWII. During the war, institute scientists monitored the damage done to museums and architectural and archeological monuments. The headquarters of the institute were transferred to Moscow from Leningrad, and the part remaining in Leningrad was made a branch of the Moscow Institute by the AN SSSR Presidium in 1945. The postwar years saw a wide range of field work covering the entire territory of the USSR. Extensive work was also done during these years in the preservation of archeological monuments. In 1958, another reorganization took place that eliminated duplication between the Moscow and Leningrad branches, and in 1959, the Institute of Material Culture was renamed **the Institute of Archeology of the Russian Academy of Sciences**. In succession, the Directors of the Institute in its various forms have been: N. Ia. Marr (1919-34), F. V. Kiparisov (1934-36), I. A. Orbeli (1937-39), M. I. Artamonov (1939-43), B. D. Grekov (1944-45), A. D. Udal'tsov (1946-55), B. A. Rybakov (1956-88), and V. P. Alekseev has served as Director since 1988. The present institute is organized into eight Departments, a natural l-scientific methods laboratory, and three research groups. The Departments include:

- (1.) theory and methods;**
- (2.) Neolithic and Bronze Age;**
- (3.) Scythian and Sarmatian archeology;**
- (4.) the archeology of antiquity;**
- (5.) Slavic and Russian archeology;**
- (6.) safeguarding digs;**
- (7.) field research, and**
- (8.) archeological compendia.**

The three groups of the institute are:

Foreign archeology,

Siberian archeology, and

The archeology of the Caucasus.

In 1991, the institute had a staff of 156 researchers that included two academicians of the Russian Academy of Sciences, 29 doctoral degree holders, and 72 persons with

candidate degrees. Research priorities in the institute included: under the supervision of V. P. Alekseev, "Ancient Societies: The Relationship of Environment, Culture and History"; under B. B. Piotrovskii and V. P. Alekseev, "Man, Science, Society" and a subprogram "Ancient Civilization: Man, Society, and Culture"; under B. A. Rybakov, institute scholars are compiling a 20-volume work on The Archeology of Russia; under Iurii A. Krusnov, a compendium of historical and cultural monuments of the RSFSR; under G. E. Afanas'ev, archeological services at new construction sites, and under S. Z. Chernov, an archeological study of Moscow. (See: A Scholars' Guide. . .)



6. Institute of Materials Culture in St. Petersburg

Located on Dvortsovaia (aya) quay, 18, D-65, St. Petersburg, 191065. tel. 312-14-84. Directed by Corresponding Member of Turkestan Academy of Sciences Vadim M. Masson. tel. 314-06-85.

Retrospect: This branch was from 1943 to 1959, the St. Petersburg Branch of the Institute of the History of Material Culture. Its Directors have been V. I. Ravdonikas (1945, 1947-49), P. N. Tretiakov (1946), A. P. Okladnikov (1949-51), M. M. Diakonov (1951-53), B. B. Piotrovskii (1953-64), M. K. Karger (1964-71), V. P. Shilov (1971-76), N. N. Gurina (1976-81), and since 1982, the institute has been headed by Dr. V. M. Masson, who is also a corresponding member of the Turkmen Academy of Sciences.

(older materials)

It is organized in three Departments:

- (1.) the Paleolithic era;
- (2.) Central Asia and the Caucasus;
- (3.) Slavo-Finnic archeology.

Its three laboratories are:

tracology,
archeological technology, and
field processing.

Its three groups include:

the archeology of antiquity,
safeguarding digs, and one on the
problems of the archeology of Southern Siberia.

Its staff is comprised of 98 researchers that includes one corresponding member of the Turkmen Academy of Sciences, 14 holders of doctoral degrees and 64 persons with candidate degrees. Research thrusts include: under N. D. Praslov, the territory of Russia and contiguous western areas in the Paleolithic era--early stages of the Upper Paleolithic in Eastern Europe; under V. I. Timofeev, the Neolithic-Mesolithic periods of the forest belt of North-Eastern Europe and the Baltic region; under V. M. Masson, the Bronze and Early Iron Ages in the Eurasian steppe; under V. M. Masson, the culture of Agricultural tribes of Central Asia and the Caucasus; under Iu V. Andreev, the history and culture of ancient states in the Black Sea region; under E. A. Riabinin, Finno-Urgic tribes in the structure of Old Russia; under G. I. Zatseva, radio-carbon dating; under G. F. Korobkova, the dynamics of ancient

economic systems. A. N. Kirpichnikov is leading the work on the history and culture of Russia of the Middle Ages. The institute branch maintains relationships with archeological institutes worldwide and is involved in joint research with a number of them. Its library and archives house documents dating from 1793, the records of the pre-revolutionary Archeological Commission and the Russian Archeological Society (1896-1924), the Moscow Archeological Society (1865-1920), the Ministry of Internal Affairs, the Ministry of the Imperial Court, and the Ministry of Landed Property. It holds the documentary collections of the Academy of the History of Material Culture from 1919, and the personal collections of some 70 major Russian and Soviet scientific figures. The scientific branch archives of photographic negatives and positives have a collection of some 613,000 items dating from 1851 to 1988. (See: A Scholars' Guide. . .)



7. Miklukho-Maklai Institute of Ethnography in St. Petersburg.

Retrospect: Evolving from the Museum of Anthropology and Ethnography and the Institute for the Study of the Peoples of Russia. This branch of the Moscow institute was constituted in 1943 and while the official center of Soviet ethnographic research was moved to Moscow at that time, this branch has continued to be one of the country's most important anthropological research centers. It is organized in nine Departments and into three research groups.

(Older materials)

The Departments include:

- (1.) the Eastern Slavs;
- (2.) the ethnography of the peoples of Siberia;
- (3.) the ethnography of the peoples of Central Asia and Kazakhstan;
- (4.) the ethnography of the peoples of Africa;
- (5.) the general problems of ethnography;
- (6.) the ethnography of the peoples of Asia outside the USSR ;
- (7.) the ethnography of the peoples of America;
- (8.) ethnic anthropology, and
- (9.) accounting and storage of collections belonging to the Museum of Anthropology and Ethnography.

The groups are:

the ethnography of the peoples of Australia, Oceania and Indonesia;

the ethnography of the peoples of the Caucasus, and

the propaganda of scientific knowledge.

The institute branch has some 100 researchers in all which includes one corresponding member of the Russian Academy of Sciences and 12 scientists with the doctorate and 59 with candidate degrees. The Museum of Anthropology and Ethnography of the Russian Academy of Sciences is a part of this institute. The museum traces its origin to the Kunstkamera of Peter the Great in St. Petersburg. The present museum was founded in 1879 and contains collections numbering some one million exhibits--500,000 archeological, 300,000 anthropological, and 200,000 ethnographic. The Director of the institute in 1991 was Nikolai M. Girenko, C. Hist. S. (See: A Scholars' Guide. . .)



8. Slavic and Balkan Studies Institute in Moscow.

Located Leninskii ave., 32a, Moscow, 117993. tel. 938-17-80. Directed by Professor Vladimir K. Volkov.

Retrospect: Although works on Slavic literatures of the 19th and 20th centuries began appearing in the 1920s and 1930s, it was not until 1946, that the Presidium of the AN SSSR established the Institute of Slavic Studies. In 1948, the institute was reorganized with broader tasks that included the study of the history and culture of Albania, Hungary, Rome, Greece, and Cyprus and the ties between European Turkey and the Slavic and Baltic peoples. At that time the name of the institute was changed to the Institute of Slavic and Balkan Studies. Institute Directors have been: B. D. Grekov (1946-51), P. I. Tretiakov (1951-59), I. I. Udal'tsov (1959-62), I. A. Khrenov (1962-68), D. F. Markov (1969-87), and since 1987, V. K. Volkov, D. Hist. S. The institute is organized in four Departments with sectors and research groups.

(Older materials)

The Departments include:

- (1.) the history and culture of the countries of Central and Southeastern Europe under socialism;
- (2.) the history of the peoples of Central and Southeastern Europe from antiquity to World War II;
- (3.) history and literature, and
- (4.) linguistics.

In 1991, the institute had some 220 researchers, among whom were two academicians and three corresponding members of the Russian Academy of Sciences. Of the 220 research scientists, 57 held doctors degrees and 119 held candidate degrees. Research priorities included:

history, history of culture and language of the foreign Slavic and Balkan Peoples--supervisor: V. K. Volkov;

the socioeconomic and political history of Slavic and Balkan studies of Central and Southeastern Europe from antiquity to 1945--supervisors: G. G. Litavrin, and T. M. Islamov;

the nationalism issue and language situation in Central and Southeastern Europe--supervisors: G. G. Litavrin, T. M. Islamov, R. P. Grishina, and L. N. Smirnov;

Central and Southeastern Europe within the framework of international relations--supervisors: V. K. Volkov and V. N. Vinogradov;

the history of socialism in the countries of Central and Southeastern Europe in the context of European and world culture--supervisors: Iurii S. Novopashin and V. V. Marina;

the history of the spiritual culture of the peoples of Central and Southeastern Europe in the context of European and world culture--supervisors N. I. Tolstoy and L. A. Sofronova;

Slavic literature of the East European countries--supervisors: V. A. Khorev and S. A. Sherlaimova;

patterns of historical development and present-day functioning of the Slavic and Balkan languages--supervisors: Z. A. Zalizniak, V. V. Ivanov, and L. N. Smirnov.

The institute maintains cooperative ties with institutes throughout the area of its major interests. Since 1988, its Director has been Vladimir K. Volkov, D. Hist. S., and its Deputy Directors have included Iurii V. Bogdanov, C. Phlg. S., since 1975; Aleksandr I. Nedorezov, D. Hist. S., since 1975, and, Vladilen N. Vinogradov, D. Hist. S., since 1975. (See: A Scholars' Guide. . .)



9. Military History Institute in Moscow (IVI of Moscow Region).

**Located Universitetskii ave., 14, Moscow, V-330. 117330. tel. 147-45-65.
Directed by Professor Vladimir A. Zolotarev, tel. 147-50-70.**

Retrospect: Organized in 1966 by a decree of the CC CPSU, the institute was subordinated to the USSR Ministry of Defense and the General Political Directorate of the Soviet Army and Navy, but at the scientific level its work is guided by the Russian Academy of Sciences and the institute is incorporated into the Department of History of the Russian Academy of Sciences. Until 1991, the institute was headed by Colonel-General D. A. Volkogonov. Since 1991, it has been headed by Major-General Anatolii G. Khorkov, (Khorkov) D. Hist. S. Organized in scientific and auxiliary subdivisions, an academic Council on coordination of research in the field of military history and two specialized academic councils for hearing the defense of doctoral and candidate dissertations in advanced studies in the military sciences.

(Older materials)

The institute researches in the following areas: questions of Marxist-Leninist methodology in military history, military-historical problems of World War II;
the history of military organizations of the Russian proletariat and its experience in armed struggle;
general lessons from the military-historical experience of revolutionary wars, uprisings of oppressed classes, wars of national liberation and guerrilla movements;
pre-revolutionary military history of the Russian and other Soviet peoples;
topical problems of foreign military history;
history of the art of warfare;
coordination of scientific research activities in the field of military history, and
the criticism of the falsifiers of the military history of the USSR

Institute personnel are at work with personnel from the Institutes of Marxism-Leninism, World History, and the History of the USSR on The Great Patriotic War of the Soviet People, and they are also preparing the second edition of the Soviet Military Encyclopedia. Completion of these two multi-volume works is scheduled for 1995-96. (See: A Scholars' Guide. . .)



10. History of Russian History Institute in Moscow.

**Located Dm Ulianova st., 19, Moscow, V-36, 117036, tel. 126-94-49.
Directed by Corresponding Member Andrei N. Sakharov.**

Sakharov, Andrei N. Corresponding member of the History Department of the Academy in 1993. He is presently a deputy to the Academician Secretary of the History Department. He is the Director of the Institute of Russian History located in Moscow.

Novosel'tsev (Novoseltsev), Anatolii P., D. Hist. S. Corresponding member of the History Department of the Academy since 1984. Since April 1988, he has served as Director of the History of the USSR Institute in Moscow that was created in 1968. It is a major source of historical and demographic research in Russia.

Retrospect: Founded in 1968 upon the reorganization of the Institute of History of the AN SSSR that had, in its turn, emerged from the 1936 merger of the Academy's Historical and Archeographical Institute and the Institute of the History of the Communist Academy. The present reorganized institute also has a branch in St. Petersburg. Directors of this institute have been: B. A. Rybakov (1969-69), P. V. Volobuev (1969-74), A. L. Narochnitskii (1974-79), S. S. Khromov (1979-86), and from 1986 until 1992, the Director was A. P. Novosel'tsev (Novoseltsev).

(Older materials)

The institute is organized into 18 Departments with a number of subdivisions:

history of the most ancient states of the USSR;

history of the feudal period;

history of capitalism; history of imperialism;

history of the foreign policy of Russia;

historical geography and demography;

historiography;

study of sources on the history of the pre-October period;

history of the Great October Socialist Revolution and Civil War;

complex problems in the history of Soviet society;

history of the period of World War II;

history of the Soviet working class and industrial development; history of the Soviet peasantry and agriculture;

history of Soviet culture;

history of the foreign policy of the Soviet state;

the study of sources on the history of Soviet society;

the study of monuments, and

general problems in the history of the peoples of the USSR

Groups include those studying the history of culture before 1917; those dealing with historical and sociological research; those developing the history of Moscow, and

the group dealing with the application of mathematical methods and the use of computers in historical research. The institute had in 1991 some 370 researchers that included four academicians and four corresponding members of the Russian Academy of Sciences. Of the 370 scientists, 113 held doctoral degrees and 151 held candidate degrees. In its research priorities, P. V. Volobuev is directing work on the historical experience of the Great October Socialist Revolution; V. I. Kas'ianenko heads up the history of the construction of socialism; Z. P. Novosel'tsev leads in the study of the historical development of the peoples of the USSR before 1917; B. B. Piotrovskii heads up the study in the history of international relations and Soviet foreign policy, ethnic history and contemporary ethnic processes, and the history of world culture, and V. A. Vinogradov directs the problems in economic history. The institute maintains a number of relationships with foreign university departments and institutes. The institute houses the Scientific Archive that was initially started in 1948 on the basis of materials of the Commission on the History of World War II. It was moved to the Institute in 1968 and consists of 52 collections and 50,000 files among which the personal collections of 29 historians are included. The institute has been under the Directorship of Anatolii P. Novosel'tsev, corresponding member of the Russian Academy of Sciences, since 1986. (See: A Scholars' Guide. . .)



11. History of the USSR Institute, St. Petersburg Branch, in St. Petersburg.

Shishkin, Valerii A. Corresponding member of the History Department of the Academy since December 1987. He has headed the History of the USSR Institute, St. Petersburg Branch since 1981, replace N. E. Nosov. The institute has seven departments, a staff of some 93 researchers of whom 30 hold doctoral degrees, and 47 the candidate degree. (LDA 89-11378.)

(Older materials)

This institute branch was also established in 1968. Until 1981, it was headed by N. E. Nosov. Since 1981, Valerii A. Shishkin, corresponding member of the Russian Academy of Sciences has headed the institute branch. The branch institute is organized in seven Departments:

the history of Soviet society; the history of the Great October Socialist Revolution and workers' movement; the capitalist period of the history of the USSR; the feudal period of the history of the USSR; general history; the study and publication of historical sources--together with the Archive of the St. Petersburg Branch, and the history of Novgorod.

The institute branch in St. Petersburg has a staff of some 93 researchers that includes two corresponding members of the Russian Academy of Sciences, 30 persons with doctoral degrees, and 47 holders of candidate degrees. Research priorities in the institute branch is organized around 11 comprehensive subject matter areas established by the Division of History of the AN SSSR:

- (1.) the world historical process--supervisor: I. P. Medvedev;
- (2.) the history of revolutions and social movements--supervisor: A. A. Fursenko;
- (3.) the history of the Great October Socialist Revolution--supervisors: S. I. Potolov, O. N. Znamenskii; V. A. Shishkin;

- (4.) the history of the construction of socialism in Russia--supervisors: V. A. Shiskin and V. M. Koval'chuk;
- (5.) the historic development of the peoples of the USSR before 1917--supervisors Iurii G. Alekseeva and V. G. Chernukha;
- (6.) the history of international relations and the foreign policy of the USSR--supervisor: V. A. Shiskin;
- (7.) the history of world culture--supervisors: L. N. Semenova and I. P. Medvedev;
- (8.) the role of religion in history;
- (9.) methodology and historiography: the study of sources and methods of historical research;
- (10.) documentary monuments of history and culture--supervisor: M.P.Iroshnikov, and
- (11.) problems of economic history--supervisor: A. A. Fursenko.

The library of the institute branch holds some 283,000 items. The archives house fundamental collections of documents dealing with the national history of Russia from the late 13th century to the 16th century among many other important documents. It is a depository for documents on national and world history from the 7th to the 20th centuries--some 200,000 items. (See: A Scholars' Guide. . .)



12. General History Institute in Moscow.

Located on Leninskii ave., 32a. Moscow, 117993. Directed by Corresponding Member Aleksandr O. Chubarian. tel. 938-10-09

Chubarian, Aleksandr O. Since 1988, he has been Director of the General History Institute in Moscow which was founded in 1968 as an international studies research center. He has been a corresponding member of the History Department of the Academy since 1993.

Retrospect: Established in 1968 upon the division of the Institute of History of the AN SSSR into two separate institutes. Its Director since 1988 has been Aleksandr O. Chubarian, D. Hist. S. Its Deputy Directors include: Akhmed A. Iskenderov, D. Hist. S., since 1975; Nikolai P. Kalmikov, C. Hist. S., since 1983, and Ivan I. Zhigalov, D. Hist. S., since 1970.

(Older materials)

It is organized into 11 Departments that include:

- ancient history;
- the history of the Middle Ages;
- modern history of the Western European countries;
- current history of the Western European countries;
- historical and theoretical problems;
- foreign historiography;
- the history of social thought;
- the Enlightenment and the history of Utopian socialism;
- the history of the United States and Canada, and,
- the history of the Latin American countries.

The institute had a staff in 1991 of some 248 researchers of whom 69 had doctoral degrees and 135 held candidate degrees. The staff included one academician and two corresponding members of the Russian Academy of Sciences. Research priorities in

the institute include eight major subject areas that are academy level programs and programs of the History Department of the AN SSSR:

- (1.) "Man, Science, Society": man in history--supervisors: V. I. Ikolova, N. Ia. Bromlei, A. Ia. Gurevich;
- (2.) "General laws and Specific Features of the World Historical Process": problems of changes of socioeconomic formations, the general and specific in the historical process, problems of economic history--supervisor: V. L. Mal'kov; methodological problems of the history of civilizations-- supervisor: M. .A. Barg; current history of the Latin American countries--supervisors: N. M. Lavrov, N. P. Kamykov, E. A. Larin; recent and current history of the African countries--supervisor: A. B. Davidson; analysis of demographic processes in the countries of Europe--supervisor: Iurii L. Bessmertnyi; man in the ancient world--supervisor L. P. Marinovich; problems of Byzantine history--supervisor: G. G. Litavrin; major trends and regional and territorial particularities of the development of feudalism in Western Europe--supervisors: Z. A. Svanidze and E. V. Gutnova; history of the state-political system and ruling classes in medieval Europe--supervisor: A. A. Svanidze; evolution of the state-political system in the Western European countries and America in the recent past and present era--supervisors: S. P. Pozharskaia (aya), M. M. Narinskaia (aya), and N. N. Bolkhovitinov; social and political doctrines, social utopias and utopian socialism from the 16th to the first half of the 19th centuries and problems of the European Enlightenment and Renaissance--supervisors: K. M. Anderson, L. S. Chikolini, and A. E. Shtekli;
- (3.) "The Process of Historical Development in Europe": the essence and factors of formation of European civilization--supervisor: A. O. Chubarian; dialectics of class, national-specific and general human features in the historical development of Western Europe in the 20th century--supervisor: M. M. Narinskii; the history of Spain from antiquity to the present day--supervisor: S. P. Pozharskaia (aya); the history of Denmark--supervisor: O. V. Chernyshova;
- (4.) "The History of Revolutions and Social Movements": preparation of the collective work "Revolution and Social Progress"--supervisor Ia S. Drabkin; preparation of the collective work "European Revolutions of the First Half of the 19th Century"--supervisors: S. P. Pozharskaia (aya) and A. S. Namazova;
- (5.) "The History of International Relations and Foreign Economic Activity in the Soviet Union": preparation of a collective work titled "An Interdependent World"--supervisor B. M. Tupolev;
- (6.) "The Role of Religions in History": the role of religions in the historical development of Europe--supervisors: V. I. Ukolova, L. N. Ponomareva, M. G. Trofimova, and Ia. N. Shchapov;
- (7.) "The History of World Culture": problems of the history of world culture--supervisors: A. Ia. Gurevich, V. I. Ukolova, K. M. Anderson, Iurii L. Bessmertnyi, and E. M. Kozhokin;
- (8.) Methodology and Historiography, the Study of Sources and Methods of Historical Research and Their Role in the Development of Historical Science": preparation of the collective work on the historiographic problems of the English bourgeois revolution--supervisor: M. A. Barg; current trends in Western non-Marxist historiography--supervisors: V. V. Sogrin and O. V. Vishlev.

The institute is involved in three major cooperative works with historians of other nations: "Causes of World War II" with historians from Hungary, Germany, Bulgaria, Poland, Czechoslovakia, and Vietnam; "The USSR , the USA, and Great Britain: Allies of World War II" which is a British-American-Soviet project, and "Anthology of Peace"--an American-Soviet project. (See: A Scholars' Guide. . .)



13. State Historical Library of Russia in Moscow

Located at Starosadskii st., 9, Moscow, 101000. tel. 925-65-14. Directed by Mikhail D. Afanasiev. tel. 925-65-14.

The Russian Academy of Sciences History Department directs the research of the library.



14. Russian Institute of Culture in Moscow

Located on Bersenevskaja (aya) quay, 20, Moscow, 109072. tel. 230-01-77. Directed by Professor Kirill E. Rozlogov.

The Russian Academy of Sciences History Department directs the research of the library.

(1996 update)

THE INSTITUTE OF RUSSIAN CULTURE

Director-- Professor A. K. Matveev, Corresponding Member of the RAS, Doctor of Philology.

Telephone: (3432) 557-495

Staff: 120 members, among them one Corresponding Member of the RAS 12 Doctors of Sciences and 48 Candidates of Sciences

Major Fields of Research: organization of field work and its implementation (archaeographic, dialectologic and toponymic, folk-lore, archaeological, ethnographic research), focused on discovering monuments of spiritual and material culture, on how to preserve them, description of their present state and tendencies in the development of Russian culture; interaction of languages in the northern territories of Russia, the Urals and Western Siberia; a study of Urals folklore, icon-painting, metal plastic art, handicrafts; Russian artistic culture in the 18th-20th century; Russian literature of the Urals; history of the late 19th c. and early 20th c. Russian philosophy.

(1997 update)

Institutions and Organizations of the Department: this is the latest list of research institutes and other units under the direct control or the research supervision of the department:

1. Institute of Archeology (IA)

Dm. Ulyianova st., 19, Moscow, V-36, 117036, tel. 126-94-43
Directed by Prof. Rauf M. Munchaev, tel. 126-47-98

2. Institute of Orient Science (IOS RAS)

Rozdestvenka st., 12, Moscow, K-31, 103031, tel. 925-64-61
Directed by Prof. Rostislav B. Rybakov, tel. 921-18-84

3. Institute of General History (IGH)

Leninskii ave., 32a, Moscow, 117993, tel. 938-68-26
Directed by Corresponding Member Aleksandr Og. Chubarian, tel. 938-10-09

4. Institute of Russian History (IRH)

Dm. Ulianova st., 19, Moscow, V-36, 117036, tel. 126-94-49
Directed by Corresponding Member Andrei N. Sakharov, tel. 126-94-66

5. Institute of Materials Culture (IMC)

Dvortsovaia quay, 18, D-65, Saint-Petersburg, 191065, tel. 312-14-84
Directed by Corresponding Member of Turkestan AS Vadim M. Masson,
tel. 314-06-85

6. Institute of Slavonic and Balkans Sciences (ISBS)

Leninskii ave., 32a, Moscow, 117993, tel. 938-17-80
Directed by Prof. Vladimir K. Volkov, tel. 938-17-80

7. Institute of Ethnology and Anthropology named after N. N. Mikluho-Maklai

Leninskii ave., 32a, Moscow, 117993
tel. 938-17-93, e-mail anthpub@iea.msk.su
Directed by Prof. Valery Al. Tishkov, tel. 938-17-47

8. Museum of Anthropology and Ethnography named after Peter the Great (Kunstkamera)

Universitetskaia quay, 3, V-164, Saint-Petersburg, 199164,
tel. 218-07-12
Directed by Prof. Aleksandr S. Mylnikov, tel. 218-08-12

9. Archives of Russian Academy of Sciences (A RAS)

Novocheriemushinskaia st., 34, V-218, Moscow, 117218, tel. 129-19-10
Directed by Prof. Boris V. Levshin, tel. 129-19-10

10. Institute of Military History (IVI of Moscow Region)

(Russian Academy of Sciences carries out scientific-systematic direction)
Universitetskii ave., 14, Moscow, V-330, 117330 tel. 147-45-65
Directed by Prof. Vladimir An. Zolotarev, tel. 147-50-70

11. State Historical Library of Russia

(Russian Academy of Sciences carries out scientific-systematic direction)
Starosadskii st., 9, Moscow, 101000, tel. 925-65-14
Directed by Dr. Mikhail D. Afanasiev, tel. 925-65-14

12. Russian Institute of Culture

(Scientific-systematic direction is carried out jointly by DH and by DLL)
Bersenevskaya quay, 20, Moscow, 109072, tel. 230-01-77
Directed by Prof. Kirill Em. Rozlogov, tel. 230-01-77

National History Research Effort:

In addition to the 11 research institutes directly subordinate to the History Department of the RAS there are another 25 research institutes located in other areas of the former Soviet Union that do research in the same fields as the institutes just cited.

Early Institutes

1. M. T. Aibeka Museum of the History of the Peoples of Uzbekistan in Tashkent.
2. G. Ibragimova Language, Literature and History Institute in Kazan'.
3. I. A. Dzhavakhishvili History, Archeology and Ethnography Institute in Tbilisi. No date given for founding. This institute is a major center of anthropological study in the republic. The institute also houses the Department of Concrete Sociological Research which conducts studies of family relations and development in Georgia. Its library, founded in 1917 as the Library of the Caucasian Historico-Archeological Institute, contains the personal libraries of former eminent professors.
4. History Institute in Kiev.
5. History, Language and Literature Institute in Makhachkala. Derived from the Institute of Daghestani Culture in Makhachkala founded in 1924, expanded and renamed the Scientific Research of National Cultures until 1945 when it came under its present name.
6. Institute of History, Archeology and Ethnography of the Peoples of the Far East in Vladivostok.
7. History Institute in Tashkent.

1940s

8. Museum of Ethnography in Tartu. Probably dates to 1945 with the founding of the academy.
9. History Institute in Baku.
10. History Institute in Riga.
11. Ch. Ch. Valikhanova History, Archeology and Ethnography Institute in Alma-Ata. Shortly after the organization of the Kazakh Academy of Sciences in 1946, an ethnography section was established that has become the center of anthropological research in the republic.
12. Language, Literature and History Institute in Petrozavodsk. No date given for founding in source.
13. Language, Literature and History Institute in Syktyvkar. No date for founding given in source.
14. History Institute in Minsk. No date given in source.
15. History Institute in Vilnius. The institute offers the Candidate of Science degree with specializations in the History of the USSR and in Archeology. It was from this institute that the Department of Philosophy, Law and Sociology was taken to be given institute status.
16. History Institute in Tallinn. No date of founding given in source.
17. History Institute in Frunze. No date of founding given in source.
18. Akhmada Donisha History Institute in Dushanbe.
19. Sh. B. Batyrova History Institute in Ashkhabad.
20. History, Language and Literature Institute in Ufa.
21. Art Studies, Ethnography and Folklore Institute in Minsk.
22. Archeology and Ethnography Institute in Erevan. In 1959, the Archeology sector and the ethnography group of the Institute of History were combined to form a separate Institute of Archeology and Ethnography within the Armenian Academy of Sciences.
23. History Institute in Kishinev.
24. Department of Ethnography and Art in Kishinev.
25. Archeology Institute in Samarkand.

The Philosophy Sociology and Law Department in Moscow

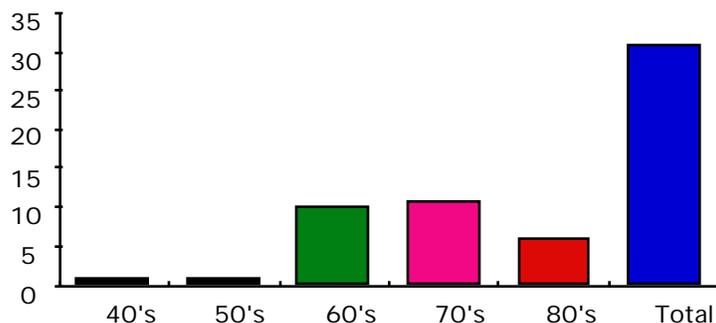
Located at Volhonka st., 14, Gk-19, GSP-3,; Moscow, 119842. tel. 203-92-12. Academician Secretary: Boris N. Topornin.

Topornin, Boris N. Born in 1929. Corresponding member of the Philosophy and Law Department of the Academy since December 1987; academician in 1993. The State and Law Institute in Moscow is under the direction of Boris N. Topornin, It traces its beginnings back to the establishment of a section on Soviet Construction at the Socialist Academy--the Communist Academy--in 1923 and was initially organized as the Soviet Construction Institute in 1925. It passed through several name changes and reorganizations until in 1960 its present name was finally adopted. He is presently Academician Secretary of the Philosophy, Sociology and Law Department of the Russian Academy of Sciences

Retrospect: There were only four Scientific Research Institutes directly subordinate to the Philosophy and Law Department in 1987. These were located in Moscow. However, there are another 10 philosophy and law research institutes located in 10 other cities in the former Soviet Union. The fact that the Vice President for the Social Sciences Sector is an academician of the Philosophy and Law Department of the Russian Academy of Sciences reflects the ranking given to these subjects in the hierarchy of the social sciences in Russia. These institutes play a role in Soviet legal practice that is not well-understood in the West. Their numbers do not reflect their significance.

Figure 32

Members of the Philosophy and Law Department of the Academy



Compiled from: CR 80-13202, pp. 153-154.

Membership of the Philosophy and Law Department--administrative responsibilities: In 1987, 90 percent of the academicians and corresponding members of the Department were members of the CPSU; in 1989 that number had dropped to 76 percent--or 29 of the 38 members of the Department. One person was on the GKNT Board; one was Chairman of the Governing Council of the International Institute for Applied Systems Analysis in Vienna; one was Prorector of the A. A. Zhadanov State University in St. Petersburg ; one was Vice President of the national academy's Social sciences Section; two were members of the national academy's Presidium; one was President of the Tadzhik SSR Academy of Sciences; one a member of the Azerbaiian, and one a member of the Ukrainian academies. One member was Vice President of the International Union of Psychological sciences . Five served as Directors of subordinate SRIs, and one served as a Deputy Director of an SRI. The prestige of such a small group of scientists in and out of Russia is great.

Academicians--age and schools: The birth dates of all 12 of the academicians of the philosophy and law Department of the Russian Academy of Sciences are known. One person was in his 90s; three in their 80s; one in his 70s, and the average age of the other seven was 67 in 1991. Eight of the 12 academicians received degrees from the following six institutions: the N. K. Kurpskaia (aya) Academy of Communist Upbringing (undergraduate) and the Communist University of Teachers of the Social sciences (graduate)--one; the Moscow State Pedagogical Institute; the Gorkiy Pedagogical Institute (one); the Moscow State University (two); the Moscow Institute of International Relations (one), and the Institute of Red Professors (two).

Corresponding Members--age and schools: The birth dates of 20 of the 26 corresponding members is known. Among the 20, four are in their 90s; two in their mid-80s; four in their 70s, and the average age of the ten remaining was 64.5 years in 1991. The educational background of only 10 is known. Institutions from which they graduated include: the Alisher Novoi Uzbek University; the Higher Party School of the CC CPSU ; the Academy of Communist Education; the Leningrad State University (three); the University of Kazan'; the V. I. Lenin Moscow Pedagogical Institute; the K. Liebnicht Moscow Pedagogical Institute, and the Moscow Institute of Law. While a number of the other corresponding member hold advanced degrees the institutions from which they graduated is not known at present. Again, as in the other social sciences, many of the academicians and corresponding members of the Philosophy and Law Department of the Russian Academy of Sciences have strong academic backgrounds in the orthodoxy of Communism. In the case of members of this Department and the role played by law as developed and taught by many of these individuals, they become particularly important for an understanding of the development of the modern Soviet State.

Academician Secretary

Topornin, Boris N. Born in 1929. Corresponding member of the Philosophy and Law Department of the Academy since 1987; academician in 1993. The State and Law Institute in Moscow is under the direction of Boris N. Topornin, It traces its beginnings back to the establishment of a section on Soviet Construction at the Socialist Academy--the Communist Academy--in 1923 and was initially organized as the Soviet Construction Institute in 1925. It passed through several name changes and reorganizations until in 1960 its present name was finally adopted. Its research directly affects Soviet legislation. It has a staff that includes over 100 scientists who hold the doctoral degree and over 120 who hold candidate degrees. It counts one academician and three corresponding members of the national academy among its members. The four Departments of the institute include: (1.) theory of the state and the law; (2.) legal problems of economic and social development; (3.) international

law problems of the state and law in foreign countries, and (4.) the information Department.

Deputies to the Academician Secretary:

Osipov, Gennadii V., D. Phil. S. Born in 1929. Corresponding member of the Philosophy and Law Department of the Academy since 1987; academician in 1993. In 1991, he was made Director of the Sociopolitical Studies Institute in Moscow which was organized in 1991. The institute has a staff of 109 researchers, 82 of whom have advanced postgraduate degrees. Institute structure: The institute is structured into three centers, two Departments, and four sectors as follows: Centers: (1.) the center for sociopolitical and methodological problems with sectors on inter-ethnic relations, sociology of public consciousness, the sociology of religion, and a group on social movements; (2.) the center for social information and public opinion with a Department on comparative sociological studies, and (3.) the consultation center for sociopolitical problems. Departments: (1.) the Department on the theory and methodology of sociology with sectors on the preparation of manuals and teaching aids on sociology, and the theory of sociology with groups on the compilation of international and Soviet dictionaries on sociology, the creation and use of systems of indicators and the explanation of indexes of social development; (2.) the Department on fast public opinion polls. Sectors: (1.) the sector on socioeconomic problems; (2.) the sector on the sociology of agriculture; (3.) the sector on the sociology of youth, and (4.) the sector on the dynamics of social groups. Current research thrusts: Research in this institute is subordinated to the research program of the Department of Philosophy and Law of the AN SSSR (Russian Academy) and all of it is under the general supervision of Director G. V. Osipov.

Stepin, Viacheslav S., D. Phil. S. Corresponding member of the Philosophy and Law Department of the Academy since 1987; academician in 1993. In 1988, he was named the Director of the Philosophy Institute in Moscow that dates back to 1929 and researches all aspects of philosophy. It was in this institute that the first sociological sections were formed. The Institute for Sociological Research and the Institute of Concrete Social Research both grew out of this institute. The institute has a staff of some 326 researchers of whom 101 hold doctoral degrees and 169 have candidate degrees. There are two academicians and four corresponding members of the Russian Academy of Sciences on the staff. The institute has six Departments with sectors and three laboratories: (1.) dialectics, the theory of cognition and logic: the theory of cognition; the theory of dialectics; general methodology of science, and philosophical problems of thinking and creative work; (2.) philosophy of science and technology: patterns of historical development of sciences; socioethnic problems of science; philosophy of physics; philosophy of biology, and philosophy of technology; (3.) social philosophy: historical materialism; philosophical and methodological problems of the social sciences; philosophy of politics, and a Laboratory for Philosophical Problems of Ethnology; (4.) philosophical anthropology, ethics and esthetics: philosophical problems of man; ethics; esthetics, and philosophy of culture; (5.) history of Marxist philosophy and problems of socialism: Marxist philosophy in the 19th-early 20th centuries; Marxist philosophical thought in the 20th century, and concepts of socialism and modern civilization; (6.) the history of philosophy: history of Western philosophy; history of Russian philosophy; philosophy of the non-Soviet Orient, and contemporary Western philosophy--with laboratories in post-classical philosophy (literature, arts, and policy); sociocultural forecasting; coordination of philosophical and social problems of science and technology. Stepin is heading research in the human dimension of scientific-technical progress.

Dmitriev, Anatolii V., D. Phil. S. Corresponding member of the Philosophy, Sociology and Law Department of the Academy in 1993. In 1976, he was a Deputy Director of the Social Economic Problems Institute in St. Petersburg which was established in 1975. He is also a Deputy to the Academician Secretary of the department and is responsible for scientific-organizing questions.



(1997 update)

Members of the Bureau

Gvishiani, Dzhermen M., D. Phil. S.

Egorov, Anatolii G., D. PhiS.

Kudriavtsev, Vladimir N., D. Iur. S.

Laptev, Vladimir V.

Oyzerman, Teodor Ilich., D. Phil. S.

Smirnov, Georgii L., D. Phil. S.

Frolov, Ivan T.

Brushlinskiy, A. V.

Kerimov, Dzhangir Ali Abbas ogly., D. Iur. S.

Lapin, Nikolai I., D. PhiS.

Meliukhin, Serafim T., D. Phil. S.

Rutkevich, Mikhail N., D. Phil. S.

Spirkin, Aleksandr G.

Starushenko, Gleb B., D. Iur. S.

Stepanian, Tsolak A., D. Phil. S.

Chekharin, Evgenii M.

Yanovskii, Rudolf G., D. Phil. S.

Professor Vilen N. Ivanov.

Professor Valdislav A. Laktorskii.

Scientific Secretary: Dr. Boris L. Zelenko.

Staff of the Department:

Olga N. Zaitseva

Dr. Iurii A. Kovalev

Natalia Romanovskkais

Academicians

Egorov, Anatolii G., D. PhiS. Born in 1920 in Skopin, Riazan Oblast. Russian philosopher. Corresponding member, 1962, and academician of the Philosophy and Law Department of the Academy since 1974. Academician Secretary of the Department from 1975 to 1988. He graduated from the Moscow State Pedagogical Institute in 1941. In 1946, he began a career of teaching and journalism, becoming editor-in-Chief of Politicheskoe samoobrazovanie in 1956. In 1961, he was Deputy Head of the CC CPSU Department of Agitation and Propaganda and, in 1965, editor-in-Chief of Kommunist and, in 1974, Director of the Marxism-Leninism Institute under the CC CPSU . At the 22nd Congress he was made a member of the Central Auditing Commission and at the 23rd and 24th Congresses he was a candidate member of the CC CPSU . (GSE 9, p. 81.)

Frolov, Ivan T. Born in 1929 in Dobroe, Lipetsk Oblast. Russian philosopher. Corresponding member of the Philosophy and Law Department of the Academy since 1976, and academician since December 1987. He graduated from the

Department of philosophy of the Moscow State University in 1953. From 1962 to 1965, he worked as an editor, first in Moscow, and then in Prague. From 1965 to 1968, he was engaged in party work. From 1968 to 1977, he was editor-in-Chief of the journal *Voprosy filosofii*. His work is in dialectical materialism, philosophical problems in contemporary natural science, and the social and philosophical problems of the scientific and technological revolution. In the 1970s, he was on the editorial council for publications of the Institute of the History of Natural Science and Technology of the AN SSSR. (GSE 28, p. 389.)

Gvishiani, Dzhermen M., D. Phil. S. Born in 1928 in Akhaltsikhe, Georgian SSR. Philosopher and sociologist. Corresponding member of the Philosophy and Law Department of the Academy since 1970, and academician since 1979. He graduated from the Moscow Institute of International Relations in 1951. From 1951 to 1955, he served in the Soviet navy. In 1955, he began work with the State Committee for New Technology of the Council of Ministers of the former Soviet Union, and in 1965, he became vice-Chairman of the GKNT. In 1969, he was made Head of the Laboratory for Research Into Complex Problems of Management of the Institute for Concrete Social Research of the Academy. He has been Chairman of the governing Council of the International Institute for Applied Systems Analysis in Vienna since 1972. In the 1970s, he was on the editorial council for publications of the Institute of the History of Natural Science and Technology of the Academy. Since 1977, he has been Director of the All-Union Systems Research Scientific Research Institute in Moscow, subordinate to the Information Sciences, Computer Technology and Automation Department of the Academy. He has led research on information problems--stressing the principles of managing fundamental science. (GSE 6, p. 493.)

Kudriavtsev, Vladimir N., D. Iur. S. Born in 1923 in Moscow. Russian iurist. Vice President of the Academy for the Social sciences since 1988. Corresponding member of the Philosophy and Law Department of the Academy since 1974; and, academician since 1984. From 1952 to 1960 he taught and researched at the V. I. Lenin Military Political Academy. From 1960-63 he was Deputy Chief and Chief of organizational inspection division of the Military Collegium of the Supreme Court of the former Soviet Union. In 1963 he joined the All-Union Institute for the Study of the Causes of Crime and the Development of Crime Prevention Measures. From 1969 to 1973 he was Director of that institute. Since 1973, he has served as Director of the State and Law Institute in Moscow that was established in 1938 and is Russia's most prestigious and important facility for conducting research on governmental, legal and political affairs. Its research directly affects Russian legislation. His principal works are on criminal law and criminology. Since 1975, he has been Deputy Chairman of Soviet Sociological Association, Moscow. Since 1983, he has served as a member of the Presidium of the Soviet Committee for the Defense of Peace. Since 1985, he has been member of the Presidium of the Academy. Since 1988, he has been the Academician Secretary of the Philosophy and Law Department of the Academy. (GSE 30, p. 536.) (See Academician Secretary above.)

Laptev, Vladimir V. Born in 1924. Corresponding member since 1979. Academician since December 1987. Member of the Bureau of the department.

Osipov, Gennadii V., D. Phil. S. Born in 1929. Corresponding member of the Philosophy and Law Department of the Academy since 1987; academician in 1993. In 1991, he was made Director of the Sociopolitical Studies Institute in Moscow which was organized in 1991. The institute has a staff of 109 researchers, 82 of whom have advanced postgraduate degrees. Institute structure: The institute is structured into three centers, two Departments, and four sectors as follows: Centers: (1.) the center for sociopolitical and methodological problems with sectors on inter-ethnic relations, sociology of public consciousness, the sociology of religion, and a

group on social movements; (2.) the center for social information and public opinion with a Department on comparative sociological studies, and (3.) the consultation center for sociopolitical problems. Departments: (1.) the Department on the theory and methodology of sociology with sectors on the preparation of manuals and teaching aids on sociology, and the theory of sociology with groups on the compilation of international and Soviet dictionaries on sociology, the creation and use of systems of indicators and the explanation of indexes of social development; (2.) the Department on fast public opinion polls. Sectors: (1.) the sector on socioeconomic problems; (2.) the sector on the sociology of agriculture; (3.) the sector on the sociology of youth, and (4.) the sector on the dynamics of social groups. Current research thrusts: Research in this institute is subordinated to the research program of the Department of Philosophy and Law of the AN SSSR (Russian Academy) and all of it is under the general supervision of Director G. V. Osipov..

Oyzerman, Teodor Ilich., D. Phil. S. Born in 1914 in Petroverovka, Oktiabrskii Raion, Odessa Oblast. Russian philosopher. Corresponding member, 1966, and academician since 1981. Veteran of the Great Patriotic War, 1941-1945. He graduated from the Department of philosophy of the Moscow Institute of Philosophy, Literature, and History of the Academy in 1938. From 1954 to 1968, he headed a subdepartment of the history of foreign philosophies of the Department of Philosophy of Moscow State University. In 1971, he became Head of the section on the History of Western European and American Philosophy at the Institute of Philosophy of the Academy. His works deal with pre-Marxist history, Marxist and contemporary Western European philosophy and the theory of the history of philosophy. He is presently heading research in the history of world philosophy at the institute. (GSE 18, p. 415.)

Smirnov, Georgii L., D. Phil. S. Born in 1922. Corresponding member of the Philosophy and Law Department of the Academy since 1981. Academician since 1987. From 1983 to 1988, he was been Director of the Philosophy Institute in Moscow, which was founded in 1936 from a number of predecessor philosophical institutions. The institute has a staff of some 326 researchers of whom 101 hold doctoral degrees and 169 have candidate degrees. There are two academicians and four corresponding members of the Russian Academy of Sciences on the staff. Institute researchers are working within four comprehensive scientific research programs: (1.) The human dimension of scientific-technical progress; (2.) Socialization of man, formation of new value orientations, progress in education and culture; (3.) Philosophy in the historical development of society and culture; and, (4.) Dialectics of the development of socialism today.

Stepin, Viacheslav S., D. Phil. S. Corresponding member of the Philosophy and Law Department of the Academy since 1987; academician in 1993. In 1988, he was named the Director of the Philosophy Institute in Moscow that dates back to 1929 and researches all aspects of philosophy. It was in this institute that the first sociological sections were formed. The Institute for Sociological Research and the Institute of Concrete Social Research both grew out of this institute. The institute has a staff of some 326 researchers of whom 101 hold doctoral degrees and 169 have candidate degrees. There are two academicians and four corresponding members of the Russian Academy of Sciences on the staff. The institute has six Departments with sectors and three laboratories: (1.) dialectics, the theory of cognition and logic: the theory of cognition; the theory of dialectics; general methodology of science, and philosophical problems of thinking and creative work; (2.) philosophy of science and technology: patterns of historical development of sciences; socioethnic problems of science; philosophy of physics; philosophy of biology, and philosophy of technology; (3.) social philosophy: historical materialism; philosophical and methodological problems of the social sciences; philosophy of politics, and a

Laboratory for Philosophical Problems of Ethnology; (4.) philosophical anthropology, ethics and esthetics: philosophical problems of man; ethics; esthetics, and philosophy of culture; (5.) history of Marxist philosophy and problems of socialism: Marxist philosophy in the 19th-early 20th centuries; Marxist philosophical thought in the 20th century, and concepts of socialism and modern civilization; (6.) the history of philosophy: history of Western philosophy; history of Russian philosophy; philosophy of the non-Soviet Orient, and contemporary Western philosophy--with laboratories in post-classical philosophy (literature, arts, and policy); sociocultural forecasting; coordination of philosophical and social problems of science and technology. Stepin is heading research in the human dimension of scientific-technical progress.

Topornin, Boris N. Born in 1929. Corresponding member of the Philosophy and Law Department of the Academy since 1987; academician in 1993. The State and Law Institute in Moscow is under the direction of Boris N. Topornin, It traces its beginnings back to the establishment of a section on Soviet Construction at the Socialist Academy--the Communist Academy--in 1923 and was initially organized as the Soviet Construction Institute in 1925. It passed through several name changes and reorganizations until in 1960 its present name was finally adopted. Its research directly affects Soviet legislation. It has a staff that includes over 100 scientists who hold the doctoral degree and over 120 who hold candidate degrees. It counts one academician and three corresponding members of the national academy among its members. The four Departments of the institute include: (1.) theory of the state and the law; (2.) legal problems of economic and social development; (3.) international law problems of the state and law in foreign countries, and (4.) the information Department.

Corresponding Members

Alekseev, Sergei S. Corresponding member of the Philosophy and Law Department of the Academy and of the Urals department since 1987. Since the establishment of the Philosophy and Law Institute in Ekaterinburg in 1988, he has been Director of that Institute which includes seven task groups on law and the individual, law and the economy, socialism and humanism, rational analysis of socialist society, philosophy of history and man, participation in the political process, and social rationality and humanism. It also houses a laboratory for collection of legal information. (LDA 89-11378.)

Asimov, Mukhamed S., D. Phil. S. Born in 1920. Russian philosopher. From 1965 to 1988, he was President of the Tadzhik Academy of Sciences. Since 1965, he has been an academician of the Social Science Department of the Tadzhik Academy. He has been a corresponding member of the Philosophy and Law Department of the RAS since 1974. He graduated from the Alisher Novoi Uzbek University in 1941. From 1946 to 1952, he was assistant Director of the Leninabad Pedagogical Institute. He was rector of the Dushanbe Polytechnic Institute from 1956 to 1962. From 1962 to 1965, he was minister of public education of the Tadzhik SSR, secretary of the Central Committee of the Tadzhikistan communist party, and Deputy Chairman of the Council of Ministers of the Tadzhik SSR. He was a member of the Central Committee of the Tadzhik CP. He was a Deputy to the 6th convocation of the Supreme Soviet of the Tadzhik SSR and to the 7th Convocation of the Supreme Soviet of the USSR (GSE 2, p. 403.)

Bikkenin, N. B. Corresponding member of the Philosophy and Law Department of the Academy in 1993.

Boyko, Vladimir I., D. Econ. S. Born in 1926. Corresponding member of the Philosophy and Law Department of the Academy since 1987. Sociologist. Specialist in research on the sociological processes of the Far North, Siberia and the Far East, and studies of the effectiveness of socialist development in those areas. He

graduated from the Novosibirsk Institute Water Transportation Engineering in 1949 and from the Academy of Social sciences in 1965. He worked at the Ministry of Transportation. From 1953 to 1962, he was a Communist Party Worker. In 1965, he joined the History, Philology and Philosophy Institute of the Siberian Department where he served as a senior researcher, Scientific Secretary, Head of the division, and Head of the Department of Philosophy and Sociology. In 1984, he was named Head of the entire institute. He has been a professor at the Novosibirsk Party School. He is Chairman of the regional interdepartmental commission on the coordination of the social-economic complex--medical-biological and linguistic research--and Head of the Council on the Siberian Department's Sociology Association. He is an Honored Scientist of the former Soviet Union. He is an Honored Scientist of the former RSFSR. At present he is Director of the Institute of Philosophy and Law in Akademgorodok which was established in 1990. Its staff includes a total of 93 persons, of whom one corresponding member of the RAS, one academician of the Academy of Pedagogical Sciences, 12 doctoral degree holders and 35 candidate of science degree scientists. The balance of the staff are scientific workers. The institute is comprised of three Departments: the Department of Philosophy and Sociology and the Department of Philosophy of Science, and the Department of Law. He is an Honored Scientist of the former RSFSR (1986). (LDA 89-11378.)

Brushlinskiy, A. V. Corresponding member of Philosophy, Sociology and Law Department of the Academy in 1993. He is a member of the Bureau of the Department.

Chekharin, Evgenii M. Born in 1924 in Gubino, Kozelsk Raion, Kaluga Oblast. Russian iurist. Corresponding member of the Philosophy and Law Department of the Academy since 1976. From 1954 to 1959, he taught at Moscow State University. He has held a responsible party position since 1959. From 1972 to 1978, he was Rector of the Higher Party School of the Central Committee CPSU. He is currently a member of the Bureau of the Department. (GSE 29, p. 88.)

Chkhikvadze, Viktor M. Born in 1912 in Zestafoni Raion, Georgian SSR. Russian iurist. Corresponding member since 1964. He was Director of the Institute of State and Law of the AN SSSR from 1964 to 1973. He was President of the International Association of Legal Science from 1968 to 1972, and Vice President of the International Political Science Association from 1968 to 1970. He has been a foreign member of the Bulgarian Academy of Sciences since 1970. (GSE 29, p. 178.)

Dmitriev, Anatolii V., D. Phil. S. Corresponding member of the Philosophy, Sociology and Law Department of the Academy in 1993. In 1976, he was a Deputy Director of the socioeconomic Problems Institute in St. Petersburg which was established in 1975. He is also a Deputy to the Academician Secretary of the department.

Kerimov, Dzhangir Ali Abbas ogly., D. Iur. S. Born in 1923 in Baku. Russian iurist. Corresponding member of the Philosophy and Law Department of the AN SSSR from 1966. Since 1967, academician of the Azerbaiian Academy of Sciences History, Economics Philosophy and Law Department. From 1951 to 1957, he headed the subdepartment of theory and history of state and law at the M. I. Kalinin Institute of Law in St. Petersburg and at the Leningrad State University. From 1957 to 1959, he was a professor at the Ulbricht German Academy of State and Law and at the University of Berlin in East Germany. From 1959 to 1965, he headed the subdepartment of state and law at Leningrad State University and since 1968, he has served as a Prorector of that University. Between 1969 and 1971, he was a senior researcher at the Institute of Marxism-Leninism. Since 1971, he has headed the subdepartment of the theory of state and law at the Academy of Social sciences of the CC CPSU. His works deal with the philosophical problems of iurisprudence,

with the theory of state and law, and with the problems of applying cybernetics to social research and of social management and planning. (GSE 12, p. 421.)

Lapin, Nikolai I., D. Phil. S. Corresponding member of the Philosophy and Law Department of the Academy since 1987. From 1987 to May of 1988, he acted as Director of the Philosophy Institute in Moscow. He was replaced by Viacheslav S. Stepin. He is heading study and research in the dialectics of the development of socialism today and the essential contradictions and qualitative renewal of socialist society at the Philosophy Institute. (LDA 89-11378.)

Meliukhin, Serafim T., D. Phil. S. Born in 1927. Corresponding member of the Philosophy and Law Department of the Academy since 1981. Member of the Bureau of the Department.

Romodanovskiaia (aya), Elena K., D. Philological S. Born in 1937, she graduated from the Leningrad State University in 1959. She has been a corresponding member of the Language and Literature Department of the AN SSSR from 1991. From 1962 to 1967, she was an aspirant at the Institute of Russian Literature located at Pushkin House. In 1968 she completed her candidate dissertation, and in 1975 she became a leading senior scientific researcher there. In 1988, she completed her doctoral degree. She is a specialist in the literature of the 17th-century Siberian Territory. She has participated in a number of scientific conferences, and is an editor of a number of publications.

Rutkevich, Mikhail N., D. Phil. S. Born in 1917 in Kiev. Philosopher. Corresponding member of the Philosophy and Law Department of the Academy since 1970. He graduated from the Department of Physics at the University of Kiev in 1939 and started teaching philosophy in 1947. From 1953 to 1966, he headed the Subdepartment of Philosophy at Urals University in Ekaterinburg--then Sverdlovsk, and from 1966 to 1972 he served as dean of the university's Department of Philosophy. From 1972 to 1976, he was Director of the Institute of Sociological Research of the Academy in Moscow. His works are on dialectical materialism, historical materialism, and sociological research. He holds various medals and orders. (GSE 22, p. 513.)

Shinkaruk, Vladimir I., D. Phil. S. Born in 1928. (Philosophy). Corresponding member of the Philosophy and Law Department of the Academy since 1981. Since 1968, he has been Director of the Philosophy Institute in Kiev. Since 1978, he has been an academician of the Literature, Linguistics and Art department of the Ukrainian Academy of Sciences. The Ukrainian Academy's Council on Philosophical and Social Problems of Science and Technology is under Academician V. I. Shinkaruk, who was awarded the Manuil'skii Prize for History, Philosophy, and Law in 1977 and who was the recipient of the State Prize for Science and Technology in 1982.

Soktoev, Aleksandr B., D. Philological S. Born in 1931. Specialist in literature and folklore. Corresponding member of the Philosophy and Law Department of the Academy and of the Siberian Department since 1990. Head of a sector of the History, Philology and Philosophy Institute of the Siberian Department in Novosibirsk-Akademgorodok. In 1991, he assumed the Directorship of the Institute of Philology in Akademgorodok. In the 1990s, the institute joined with the Institute of the Physico-Engineering Problems of the North under corresponding member Larionov, and with the Cryology of the Earth Institute under corresponding member Melnikov in Tiumen to form a new International research Center for Northern Territories Development in Siberia. As Director of the new Institute of Philology in Akademgorodok-Novosibirsk, Dr. Soktoev will play a major role in the development of this new international research center. He has authored 119 scientific works, of which two monographs have particular significance, and he is the co-author of 10 publications of which two are monographs, of which "The History of Buriat Soviet Literature" is one (1967). He teaches at the Buriat State Pedagogical

Institute imeni Dorzhi Banzarova where he has guided the work of three aspirants for the candidate degree. He was on the Scientific Council on folklore of the Academy and a member of the coordination council for the comparative study of the Russian and American cultures.

Spirkin, Aleksandr G. Born in 1918 in Chiganak, Saratov Oblast. Russian philosopher and psychologist. Corresponding member of the Philosophy and Law Department of the Academy since 1974. He graduated from the V. I. Lenin Moscow Pedagogical Institute in 1941, and has taught since 1946. From 1960 to 1970, he headed the philosophy department of the Sovetskaia (aya) Entsiklopediia Publishing House and was an assistant editor-in-Chief of the *Encyclopedia of Philosophy*. He has been a senior researcher at the Institute of Philosophy of the Academy since 1962, and Vice President of the Philosophy Society of the USSR since 1974. (GSE 24, p.427.)

Starushenko, Gleb B., D. Iur. S. Born in 1922. Corresponding member of the Philosophy, Sociology and Law Department of the Academy since 1984. Since 1966, he has been Deputy Director of the Africa Institute in Moscow. The institute was created in 1959 to research the economic, socio-political, international, historical, and cultural-ethnological problems of the African states. It coordinates its work with the scientists in the Oriental Institute. It also maintains a branch in St. Petersburg. He is currently a member of the Bureau of the Department.

Stepanian, Tsolak A., D. Phil. S. Born in 1911 in Satkhe, Georgia. Philosopher. Corresponding member of the Philosophy and Law Department of the Academy since 1964. He graduated from the K. Liebnicht Moscow Pedagogical Institute. He has taught philosophy in higher educational institutions in Moscow since 1933. In 1946, he joined the Institute of Philosophy of the Academy and in 1965, he became Head of the sector (since 1972, the department) of scientific communism. His works are in historical materialism and scientific communism. (GSE 24, p. 530.)

Yanovskii, Rudolf G., D. Phil. S. Born in 1929. Corresponding member of the Philosophy and Law Department since December 1987. Currently also a member of the Bureau of the Department. (LDA 89-11378.)

Yusupov, Erkin Iurii, D. Phil. S. Born in 1929. Academician of the Philosophy, Economics and Law Department of the Uzbek Academy of Sciences since 1984. Vice President of the Uzbek Academy since 1979. Corresponding member of the Philosophy and Law Department of the AN SSSR from December 1987.



Organization of Leading Institutes:

The State and Law Institute in Moscow is organized into 17 sections and divisions, that include: Universal Problems of Socialist States and Legal Systems; State and Law of Bourgeois and Developing States; Deposition of State Legal Problems in Socialist Systems; History of State and Law; Socialist Administration of Justice; Civil Law and Civil Procedure; Civil Law and Economic Law; Land Law; Agricultural Management Law; Labor Law; Criminal Law and Criminal Procedure; International Law; People's States; People's States and Socialist States; Space Law; Scientific Information, and the Laboratory for Concrete Social and Legal Research. The Sociology Institute in Moscow was reorganized in 1978, and was divided into at least six Departments with some 18 sectors. The Departments included: 1. Department of the Social Structure of Soviet Society; 2. Department of Social Problems of the Labor Collective; 3. Department of Social Forecasting; 4. Department of Sociological Investigation of Ideological Processes; 5. Department of the History of Marxist-Leninist Sociology and Criticism of Bourgeois Sociology, and 6. Department of Applied Mathematical Methods and Methods of Automatic

Processing. Survey research bases are maintained in Gorkiy, Leningrad and in the Moldavian SSR. The institute does basic and practical sociological research. The numbers of the current membership of the AN SSSR Department by the decade of their appointment is shown in Figure 43. These figures suggest a relative stability of turnover of membership in the Department.

Philosophy and Law Department Research Institutes:

The research institutes directly subordinate to the Department, are given below in the order of their founding:

1. State and Law Institute in Moscow.

Located at Znamenka st., 10, Moscow, G-19. 119841. for telegrams: Moscva G-19, INPRAV. Directed by Academician Boris N. Topornin. tel. 291-88-16.

Topornin, Boris N. Born in 1929. Corresponding member of the Philosophy and Law Department of the Academy since December 1987; academician in 1993. The State and Law Institute in Moscow is under the direction of Boris N. Topornin. It traces its beginnings back to the establishment of a section on Soviet Construction at the Socialist Academy--the Communist Academy--in 1923 and was initially organized as the Soviet Construction Institute in 1925. It passed through several name changes and reorganizations until in 1960 its present name was finally adopted. He is presently Academician Secretary of the Philosophy, Sociology and Law Department of the Russian Academy of Sciences

Retrospect: This institute traces its beginnings back to the establishment of a section on Soviet Construction at the Socialist Academy--the Communist Academy--in 1923 and was initially organized as the Soviet Construction Institute in 1925. It passed through several name changes and reorganizations until in 1960 its present name was finally adopted. The institute is under the direction of Boris N. Topornin, an academician of the Russian Academy of Sciences. It does research on governmental, legal and political affairs. Its research directly affects Soviet legislation. It has a staff that includes over 100 scientists who hold the doctoral degree and over 120 who hold candidate degrees. It counts one academician and three corresponding members of the national academy among its members.

(Older material)

Institutional structure: In addition to the four Departments into which it is organized, the institute also maintains some 35 research sectors and groups. The four Departments of the institute include:

- (1.) theory of the state and the law;
- (2.) legal problems of economic and social development;
- (3.) international law problems of the state and law in foreign countries, and
- (4.) the information Department.

Scientific Personnel: Director Kudriavtsev, Vladimir N., D. Iur. S., since '73; Deputy Directors: Kazimirchuk, Vladimir P., since '78; Lunev, Aleksandr E., D. Iur. S., since '67; Movchan, Anatoli P., C. Iur. S., since '75; Pustogarov, Vladimir V., since '83; Sheremet, Konstantin F., since '77; Tikhomirov, Iurii A., D. Iur. S., since '73; and, Vasiliev, Andrei M., since '80. (See: **Ruble, Vol. I., pp. 440-442. This is a well-documented statement on this institute.**)



2. Philosophy Institute in Moscow.

Located Volhonka st., 14, Moscow, 119842. tel. 203-91-09. Directed by Academician Viacheslav S. Stepin. tel. 203-95-69.

Stepin, Viacheslav S., D. Phil. S. Corresponding member of the Philosophy and Law Department of the Academy since December 1987; academician in 1993. In 1988, he was named the Director of the Philosophy Institute in Moscow that dates back to 1929 and researches all aspects of philosophy. It was in this institute that the first sociological sections were formed. The Institute for Sociological Research and the Institute of Concrete Social Research both grew out of this institute. He is presently a deputy to the Academician Secretary of the Department.

Retrospect: Founded in 1936 from a number of predecessor philosophical institutions. Until the middle of the 1980s the work of the institute was task-directed by the Congresses and by the CC CPSU. Directors since its inception have been: V. V. Adoratskii (1936-39), P. F. Iudin (1939-44), V. I. Svetlov (1944-46), G. S. Vasetskii (1946-47), G. F. Aleksandrov (1947-55), P. N. Fedoseev (1955-62), F. V. Konstantinov (1962-67), P. V. Kopnin (1968-71), S. F. Oduev (1971-73), B. M. Kedrov (1973-74), B. S. Ukraintsev (1974-83), G. L. Smirnov (1983-85), N. I. Lapin (1985-88) and, since 1988, V. S. Stepin. The institute has a staff of some 326 researchers of whom 101 hold doctoral degrees and 169 have candidate degrees. There are two academicians and four corresponding members of the Russian Academy of Sciences on the staff.

(Older material)

Institute structure: The institute has six Departments with sectors and three laboratories:

- (1.) dialectics, the theory of cognition and logic: the theory of cognition; the theory of dialectics; general methodology of science, and philosophical problems of thinking and creative work;
- (2.) philosophy of science and technology: patterns of historical development of sciences; socio-ethnic problems of science; philosophy of physics; philosophy of biology, and philosophy of technology;
- (3.) social philosophy: historical materialism; philosophical and methodological problems of the social sciences; philosophy of politics, and a laboratory for philosophical problems of ethnology;
- (4.) philosophical anthropology, ethics and esthetics: philosophical problems of man; ethics; esthetics, and philosophy of culture;
- (5.) history of Marxist philosophy and problems of socialism: Marxist philosophy in the 19th-early 20th centuries; Marxist philosophical thought in the 20th century, and concepts of socialism and modern civilization;
- (6.) the history of philosophy: history of Western philosophy; history of Russian philosophy; philosophy of the non-Soviet Orient, and contemporary Western philosophy--with laboratories in post-classical philosophy (literature, arts, and policy); sociocultural forecasting; coordination of philosophical and social problems of science and technology.

Priorities of research task groups: Institute researchers are working within four comprehensive scientific research programs:

- (1.) The human dimension of scientific-technical progress under the overall supervision of V. S. Stepin: science at the turn of the third millennium under V. S. Stepin, V. G. Gorokhov, and V. A. Smirnov; rationality, science, and culture under V. A. Lektorskii, and P. P. Gaidenko; fundamental natural Sciences : a philosophical analysis under Iurii V. Sachkov;
- (2.) Socialization of man, formation of new value orientations, progress in education and culture under the overall supervision of V. S. Stepin: problems of sociocultural forecasting under F. T. Mikhailov; changes of value orientations under F. T. Mikhailov;
- (3.) Philosophy in the historical development of society and culture under the overall direction of L. N. Mitrokhin: history of world philosophy under T. I. Oizerman, and N. V. Motroshilova; problems of the history of Marxist-Leninist philosophy under B. V. Bogdanov; philosophy and politics; esthetics; the theory and history under K. M. Dolgov; philosophical and ethical trends and the world of today under A. A. Guseinov;
- (4.) Dialectics of the development of socialism today under the overall direction of N. I. Lapin: essential contradictions and qualitative renewal of socialist society under N. I. Lapin; renewal of spiritual life, new thinking and the development of man under A. A. Guseinov; renewal of socialism and the development of sociopolitical relations under P. I. Simush, and human interests and reconstruction of economic and social relations under Iurii K. Pletnikov. (**See: A Scholars' Guide. . .**)



3. History of the Natural Sciences and Technology Institute in Moscow (1953).

Retrospect: This institute traces its beginning back to the establishment of a Commission for the Study of the History of Science, Philosophy, and Technology in 1921 at the initiative of V. I. Vernadskii. It has passed through a number of changes over the years until in 1953--the founding date of the present institute--the History of the Natural Sciences Institute and the Commission on the History of Technology of the Technical Sciences Division of the AN SSSR and a number of other Commissions were merged into the new History of Natural Sciences and Technology Institute. Directors of the institute since 1953 have included: A. M. Samarin (1953-55), I. V. Kuznetsov (1955-56), N. A. Figurovskii (1956-62), B. M. Kedrov (1962-74), S. R. Mikulinskii (1974-86), and V. S. Stupin (1987-88). N. D. Ustinov has been the Director since 1988. **Institute structure:** The institute has a staff of 184 researchers of whom 36 hold doctoral degrees and 116 hold candidate degrees. There is one corresponding member of the Russian Academy of Sciences on the staff.

(Older material)

The institute is organized into four Departments with 17 sectors and several research groups:

- (1.) the history of the natural sciences: the history of mathematics; the history of physics and mechanics; the history of chemistry; the history of geological and geographical sciences, and the history of biology;
- (2.) the history of technology and the scientific-technical revolution: the interdisciplinary study of the history, structure and dynamics of the scientific-technical revolution; the history of technology; the history of aviation and astronautics;

- (3.) the comprehensive study of the development of science (study of science): the preparation of “The History of Science and Logic”; historiography and source study of the history of the natural sciences and technology; systems analysis of the development of science; sociological problems of science; the history and the theory of the organization of scientific work; the history of the AN SSSR and other scientific institutions; the history and the theory of evolutionary doctrine, and the history and the theory of the Technical Sciences.
- (4.) and, the Department in Leningrad. Research task groups:

In 1991, there were 10 special research task groups in being to deal with these issues:

the history of the earth sciences;
 the history of nuclear physics;
 the preparation of the volume on “The Founders of National Science”;
 the compilation of the scientific biographies of the founders of national technology;
 the teaching and propaganda of the history of science and technology;
 the location and study of the monuments of science and technology;
 the history of shipbuilding;
 the psychology of scientific creativity;
 the history of international scientific ties,
 and the history of the natural scientific foundations for the agro-industrial complex.

Research priorities: The institute supports and does research within these general Academy-level programs:

- (1.) Man-Science-Society, 1989-1993--research directed by V. Zh. Kelle, M. G. Iaroshevskii, S. G. Kara-Murza, and A. A. Pechenkin;
- (2.) Evaluation and forecasting of socioeconomic development, 1989-93--research directed by V. I. Maslennikov, V. M. Oriol, and G. A. Lakhtin;
- (3.) Biospherical and ecological research, 1989-93--research directed by I. V. Krut’;
- (4.) The history of the natural sciences and technology in sociocultural context, 1990-92, research directed by N. D. Ustinov, A. A. Pechenkin, V. M. Oriol;
- (5.) The history of technology and the Technical Sciences, 1989-91, research directed by B. V. Raushenbakh, A. Iurii Ishlinskii, K. V. Frolov, A. T. Grigor’ian, and N. K. Laman, and
- (6.) The elaboration of the theoretical foundations for complex soil studies as a basis for the solution of problems of the interaction between society and nature, 1990-92, research directed by A. V. Postnikov.

The archives of the institute were organized in 1954, and, at present hold some 61,000 items of which some 3,000 include the personal papers of a number of major Russian scientists. (See: **A Scholars’ Guide. . .**)



4. Sociology Institute in Moscow.

Located in Krzisenobdkoho st., 24/35. build. 5, IV-259, Moscow, 117259. tel. 128-91-61. Directed by Professor Vladimir A. Yadov. tel.128-91-09.

Retrospect: In 1968 an Institute for Concrete Social Research was established within the AN SSSR system taken from the History Institute. In 1972, this institute was reorganized as the Institute for Sociological Research. In 1988, the Sociological Research Institute was reorganized and given the name of the Institute of Sociology.

The Directors of this institute through its many organizational and name changes were: A. M. Rumiantsev (1968-71); N. I. Lapin (1971-72); N. M. Rutkevich (1972-76); T. V. Riabushkin (1976-83); V. N. Ivanov (1983-88), and since 1988 it has been headed by Vladimir A. Yadov, D. Phil. S. The institute has a staff of 284 researchers among whom 36 have doctorates and 128 hold candidate degrees. The institute has two members who are corresponding members of the Russian Academy of Sciences.

(Older Material)

Institute structure: The institute is divided into Departments, sectors, groups, laboratories, and collectives as follows: Departments:

- (1.) the theoretical and methodological problems of sociology Department with a sector on general sociological theory and groups on terminological elaborations and indexes and tendencies of social development of Soviet society;
- (2.) the social demography Department with groups on social problems of migration, problems of health, and problems of demographic development;
- (3.) sociopolitical problems and ideological processes Department with sectors on social and ideological problems of affirmation of the “new thinking”, ideological processes, inter ethnic relations, sociopolitical interests of youth in the field of inter ethnic relations, sociological problems of restructuring the political system, church-state relations, and groups on inter ethnic relations of the peoples of the USSR, analysis of tensions in inter ethnic relations, and sociopolitical analysis of concepts;
- (4.) the methodology of sociological research, information and methodical provision Department with sectors on methods of comparative analysis and data quality, information provision and groups on sampling techniques and telephone interviews;
- (5.) the study of public opinion Department with sectors on public opinion and moods, operative study of public opinion, and public opinion of Muscovites.

The sectors include:

- (1.) the sector on the history of non-Marxist sociology with groups on the history of theoretical sociology, the history of empirical sociology, and a group on the sociological heritage;
- (2.) the sector on the history of Marxist-Leninist sociology;
- (3.) the sector on the social efficiency of social production;
- (4.) the sector on the social problems of working collectives;
- (5.) the sector on the sociology of the village;
- (6.) the sector on the social development of the intelligentsia with a group on the sociology of technology;
- (7.) the sector on social problems of youth with a group on life tracks of generations;
- (8.) the sector on the dynamics of positions of social groups;
- (9.) the sector on problems of new political thinking in international relations;
- (10.) the sector on comprehensive research on life styles;
- (11.) the sector on work and leisure time;
- (12.) the sector on family social problems;
- (13.) the sector on young families;
- (14.) the sector on the methodology of analysis of social processes with a group on the study of human ecology;
- (15.) the sector on forecasting and the evaluation of social innovations;
- (16.) the sector on processing and classification of data.

The groups include:

- (1.) the group on problems of production self-government;
- (2.) the group on the regulation of distributional relations;

- (3.) the group on rural family problems;
- (4.) the group on social problems of orphans;
- (5.) the group on conditions of life of orphan children;
- (6.) the group on the sociodynamics of culture;
- (7.) the group on social planning forecasting;
- (8.) the group on the democratization of science problems;
- (9.) the group on communicative adequacy of polls,
- (10.) the group on data acquisition methods;
- (11.) the group on the application of mathematical methods;
- (12.) the group on the preparation of analytical materials. laboratory: there is one laboratory on the problems of the introduction of managerial innovations.

There are a number of scientific collectives organized by the institute:

- (1.) a provisional scientific collective on the general problems of social structure with groups on the sociology of education and the research of the genesis and structure of bureaucracy;
- (2.) a provisional scientific collective on the study of the development of the cooperative movement in Russia, and
- (3.) a provisional scientific collective on the social problems of alcoholism and drug abuse.

The institute maintains a Department in the city of Nizhnii Novgorod and a sector in the city of Krasnoda.

Research thrusts: there are three main programs of institute-wide research concern:

- (1.) Man in the process of restructuring social relations and the institutions of renewed socialism under V. A. Iadov (1989-92);
- (2.) Social processes under perestroika under V. A. Iadov (1989-92),
- (3.) Theoretical and methodological problems and the history of sociology.

Personnel: Director Vladimir A. Yadov, since '88; Deputy Directors: Levikin, Ivan T., D. Phil. S., since '81; Mansurov, Nikolai S., D. Phil. S., since '75; and Sbitov V. F., since '83.

1997 update: The Institute of Sociology of the Russian Academy of Sciences has various groups that conduct survey research. The largest, most experienced group is headed by Drs. Polina Kozyreva and Mikhail Kosolapov. Dr. Kozyreva heads the Department of Social Topology, reflecting her interest in the social structure of society. She is the author of many articles on this topic. Dr. Kosolapov heads the Department of Methods and Methodology. He is the former vice president of Committee 33 (The Methodology and Logic of Sociology) of the International Sociological Association, and the vice director of the same committee in the Soviet Sociological Association. He is the author of many scientific works on data collection, measurement, sampling, conceptualization in empirical sociology, and the analysis of data.

Drs. Kozyreva and Kosolapov have been involved in survey research for twenty years. Prior to 1989, their surveys were normally based on people in institutions such as factories and schools because surveys of the general population were prohibited. When drawing samples of territories became feasible in 1990, their group became one of the first to undertake national surveys of the Soviet Union, or of entire republics within the Soviet Union.

Although their group has been approached by international polling organizations, they have declined to become primarily a marketing research organization with responsibility for conducting several surveys a month. Rather, they accept a handful of demanding governmental and academic projects each year. Among their distinguished clients have been the University of North Carolina, Harvard University, the World Bank, USAID, and the BBC. For several years, under a contract with UNC, they advised the Russian governments Bureau of Statistics (GOSKOMSTAT) in a major panel survey.

Much of their work has been conducted in collaboration with Michael Swafford of Paragon Research International, Inc. (615-383-7733). They can be contacted directly in Moscow via PAULINA@SOVAM.COM.

(See: Ruble, Vol. I., p. 510. Originally called the Institute of Concrete Social Research. See: Ruble, Vol. II., p. 18. For a lengthy and well-documented discussion of this institute, see particularly: Ruble, Vol. II., pp. 345-347--Formerly named the Sociological Research Institute.)



5. Psychology Institute in Moscow.

Regular mail: 13, Yaroslavskaya St., Moscow, 129366, RUSSIA

E-mail: postmaster@ipras.msk.su (Postmaster Ekaterina Yakushina)

Fax: +7(095)282-9201

Located in Yaroslavskaya (aya) st., 13, I-366, Moscow., 129366. tel. 282-51-49. Directed by Corresponding Member Andrei V. Brushlinskii.

Brushlinskii, Andrei V. Corresponding member of the Department of Philosophy, Sociology and Law of the Russian Academy in 1993. He is currently head of the Psychology Institute in Moscow which was established in 1971. He has headed the institute since 1990.

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Retrospect: Established in 1971. From 1971 to 1988 the institute was headed by B. V. Lomov. Since 1990, Andrei V. Brushlinskii, corresponding member of the Russian Academy of Sciences has been its Director. The institute does basic psychological research. The institute has a staff of 137 researchers of whom 21 hold doctoral degrees and 81 have candidate degrees.

(Older material)

Structure of the institute: The institute is organized into 18 laboratories and five research groups:

1. V. D. NEBILITSYN LABORATORY OF THE PSYCHOLOGY AND PSYCHOPHYSIOLOGY OF INDIVIDUALITIES

Head of the laboratory-- Rusalov Vladimir M. PhD, professor
E-mail: drus@ipras.msk.su

The laboratory continues traditions of the comparative psychophysiology laboratory created in 1972 by corresponding member of the former Pedagogical Sciences Academy, USSR Nebylitzyn V.D. The work is being done on development of the general and a specific theory of the individuality; on the search of specific integral psychophysiological characteristics which determine the structure of mental traits of the subject; on the discovery of the connection between the temperament and other structures of personality such as the intellect, motivation, creativity; on the psychophysiological study of anticipation and on psychogenetic problems.

2. LABORATORY OF PERSONALITY PSYCHOLOGY

Head of the laboratory-- active member of the Russian Academy of Education Abilkhanova-Slavskaya Kseniia A., PhD, professor
E-mail: tabl@ipras.msk.su

Problems of life-span research of motion, development, personality activity typology and of coping strategies in overcoming difficulties of life; problems of individual consciousness and social thinking of a person in period of social changes. In the Group "Personality and thinking" (headed by Brushlinskii A.V.) the theme of the research includes the subject's determinants of thinking as continuous process, and also interconnection of intellectual and moral development of personality.

3. LABORATORY OF SMALL GROUPS AND OF COLLECTIVES

Head of the laboratory-- Zhuravlev Anatoly (Anatolii) L., doctor of psychology
E-mail: sazhur@ipras.msk.su

The problems studied in the laboratory are as follows: cooperative activity, its motivation, structure, effectiveness etc.; dynamics of vitality and activity of an individual and group subject under extreme conditions; economic psychology (psychology of entrepreneurship etc.); political psychology; psychological problems of public mind; the state and history of social psychology in Russia.

4. LABORATORY OF INTERGROUP RELATIONS

Head of the laboratory-- Shikhirev Peter N., PhD
E-mail: ipns@ipras.msk.su

The laboratory works on social-psychological and ethnic problems of interethnic relations. Interethnic conflicts are analyzed including motivation, conflict mediation and peace activity. Techniques of intergroup conflict resolution are being developed.

5. LABORATORY OF HISTORY OF PSYCHOLOGY

Head of the laboratory-- Koltzova Vera A., doctor of psychology
E-mail: postmaster@ipras.msk.su

The laboratory develops methodology of historic-psychological research' studies the history of Russian psychology and some of its branches (comparative, ethnic and clinical psychology), started concrete research of psycho-historical nature. The laboratory has a scientific archive.

6. LABORATORY OF COGNITIVE PSYCHOPHYSIOLOGY

Head of the laboratory-- Lebedev Arthur N., PhD, professor
E-mail: @ipras.msk.su

The main goal of the laboratory is the search for neural codes of the memory, development of the integrated activity theory and work on new quantitative laws in psychophysics and cognitive psychology. The work is being done in the directions of the analysis of electrophysiological indicators of information processes; of the volume, speed and correctness of perception, of the speed and correctness of mnemonic and visual scanning, of the correctness of individual assessment in the tasks of multimeasured scaling, the search for new laws in the sphere of quantitative linguistics.

7. LABORATORY OF PSYCHOLOGICAL DEVELOPMENT UNDER CONDITIONS OF SENSORY DEFICIENCY

Head of the laboratory-- Sirotkin Sergey A., doctor of philosophy
E-mail: postmaster@ipras.msk.su

The laboratory develops conception of formation and development of personality as of an active subject on the sensory-limited basis. Directions of the studies are as follows: comparative analysis of human psychological development under conditions of sensorial norms and conditions of sensory deficiency; the search for typical ways of personality formation in the circumstances of different sensory deficiencies (blindness, deafness, blindness and deafness combined etc)

8. LABORATORY OF SPEECH PSYCHOLOGY AND OF PSYCHOLINGUISTICS

Head of the laboratory-- corresponding member of the Russian Academy of Education Ushakova Tatiana N.
E-mail: postmaster@ipras.msk.su

The main research direction include the study of natural and social components of the speech; development of the systemic model of speech communication; modeling of the communicative structure of the dialogue; the study of the structure and of the process of argumentation; the speech in situations of conflict; genesis of speech communication. The laboratory carries on applied research too, such as optimization of speech communication in different social conditions and diagnostics of individual specifics of a person as communicator.

9. LABORATORY OF NONVERBAL COMMUNICATION

Head of the laboratory-- corresponding member of the Russian Academy of Creativity
Morozov Vladimir P., doctor of biology, professor
E-mail: vmorozov@ipras.msk.su

The object of the research constitute psychology-sociological and psycho-acoustic foundations of non-verbal communication which are studied on the models of speech, voice, music and dramatic art. Amongst the experimental and theoretical problems are the laws of the perception and formation by an active subject of different types of non-verbal information; emotional-esthetic and artistic type of personality in the light of non-verbal communication theory; development of advanced methods of professional selection, of teaching and of the medical psychology.

10. LABORATORY OF PSYCHOLOGY OF ABILITIES

Head of the laboratory-- Druzhinin Vladimir N., PhD, professor
E-mail: vdruzhin@ipras.msk.su

The laboratory was organized with the initiative of academician of the Russian Academy of Education Shadrikov V.D. The main directions of the research work are as follows: psychological diagnostics of general cognitive abilities; the study of social microenvironment influence on the development of abilities; typology of personality and the structure of abilities; development of comparative psychometrics (models of tests; situational testing, techniques of test, data analysis); development of consulting and professional orientation methods

11. LABORATORY OF MATHEMATICAL PSYCHOLOGY

Head of the laboratory-- Krylov Vladimir Yu. PhD, professor
E-mail: postmaster@ipras.msk.su

The goals of the research are as follows: mathematical modelling of individual spaces; development of the model of psychological measurements; modelling of behaviour in situation of conflict; methods of the presentation and the analysis of psychological experimental data

12. LABORATORY OF THE PSYCHOLOGY OF REFLEXIVE PROCESSES

Head of the laboratory-- Lepskii Vladimir E., doctor of psychology
E-mail: lepsky@ipras.msk.su

Research problems of the laboratory include the analysis and development of mathematical models of the reflexive processes; the study of reflexive processes and of the emotions, of reflexive processes and the perception of arts

13. LABORATORY OF WORK PSYCHOLOGY

Head of the laboratory-- Dikaya Larissa G., doctor of psychology
E-mail: wdik@ipras.msk.su

The principal goal of the laboratory is development of a theory of the work activity under special and extreme conditions. The work is going on in following directions: the study of the activity of man in the man-machine systems; the development of a theory explaining the regulation of human functional states and activity; development of approaches to the analysis of intersystemic interaction of humans with complex machines

14. LABORATORY OF ENGINEERING PSYCHOLOGY

Head of the laboratory-- Vavilov Valery A., doctor of psychology
E-mail: postmaster@ipras.msk.su

The problem studies are as follows: psychological and engineering principles of the design and of the assessment of display information systems; psychology of the formation of the high-class professionals; the engineering and psychological design of the means of intellectual activity

15. LABORATORY OF COGNITIVE PSYCHOPHYSIOLOGY

Head of the laboratory-- Lebedev Arthur N., PhD, professor
E-mail: @ipras.msk.su

The main goal of the laboratory is the search for neural codes of the memory, development of the integrated activity theory and work on new quantitative laws in psychophysics and cognitive psychology. The work is being done in the directions of the analysis of electrophysiological indicators of information processes; of the volume, speed and correctness of perception, of the speed and correctness of mnemonic and visual scanning, of the correctness of individual assessment in the tasks of multimeasured scaling, the search for new laws in the sphere of quantitative linguistics

16. LABORATORY OF THE NEUROPHYSIOLOGICAL BASIS OF PSYCHOLOGY

Head of the laboratory-- Aleksandrov Yuri I., Ph.D
E-mail: nyualex@ipras.msk.su

The laboratory was initiated by the academician P. K. Anokhin. The first head of the laboratory was recently deceased prof. Shvyrkoff V. B. (1939-1994)

In this work of the laboratory follows along three directions: the study of neural bases of memory components interaction; the development of the methods for the EEG analysis in the study of cognitions localizations, the memory components activation and the brain bases of different characteristics of behaviour; and also the study of psychophysiological bases of the psychological dependence formation for the alcohol

17. LABORATORY OF THE PSYCHOLOGY OF POST-TRAUMATIC STATES (PTSD)

Head of the laboratory-- Tarabrina Nadezhda V., doctor of psychology
E-mail: tarab@ptsd.ipras.msk.su

The main research problem is the study of psychological consequences of the effects on humans of the stress generating factors (deasters, military actions, industrial accidents, etc), including the study, diagnostic and correction of specific manifestations of the post traumatic stress syndrom (PTSD)

18. LABORATORY OF THE SYSTEMIC RESEARCH IN PSYCHOLOGY

Head of the laboratory-- Barabanschikov Vladimir A., PhD, professor
E-mail: sbar@ipras.msk.su

The strategic task of the laboratory is the study of the systemic aspects of psychics. Directions of the studies include: development of human creative potential, systemic organization of the sensory and cognitive structures, psychology of practical thinking.

CONSULTING CENTER

E-mail: postmaster@ipras.msk.su

The scientists of the Institute organized consulting, psychodiagnostic and psychotherapeutic Service. Advanced education seminars and courses are arranged for the psychologists in practice.

Applied studies ordered by state institutions, commercial firms and private citizens are also done by the Institute.

The research groups include:

1. GROUP FOR THE STUDY OF PSYCHOLOGICAL PROBLEMS OF COMMUNICATION UNDER

CONDITIONS OF MODERN COMMUNICATION TECHNOLOGIES

Head of the Group-- Alexandr (Aleksandr)a V. Belyaeva, doctor of philology

E-mail: abelyaeva@home.vega.msk.su

The Group's research is concentrated on the study of specifics of communicative situations in the new telecommunicational space and on peculiarities of human inclusion in this space. Under realization is also the system of cognitive and communicative development of children with the help of computer communication. The group works in close collaboration with the International Laboratory VEGA (under directorship of Alexandr (Aleksandr)a V. Belyaeva) which is engaged in the study of participation of Russian scientists working in social and humanities field in the activities of international scientific community with the help of computer communication

2. GROUP OF INFORMATION AND COORDINATION OF PSYCHOLOGICAL RESEARCH

Head of the Group-- Artemieva Tamara I., doctor of psychology

E-mail: artem@ipras.msk.su

The task of the Group is the search, collection, analysis and systematization of all information relevant to the psychological for institution and activities and necessary coordinating activities of the Institute. The stores of useful information are being created. The Group prepares and publishes reference and informational publications

3. "PSYCHOLOGY OF INTERACTION OF HUMAN BEING AND OF PHYSICAL ENVIRONMENT" GROUP

Head of the Group-- Nosulenko Valery N., doctor of psychology

E-mail: postmaster@ipras.msk.su

The group investigates from perspectives of the ecological psychology the human influence on the physical environment and the influence of this environment on humans

INTERNATIONAL RELATIONS

E-mail: postmaster@ipras.msk.su

The Institute is involved in a very international scientific cooperation. It takes part in a number of international research projects; organizes conferences, symposia, "Round tables", seminars etc.; supports relationships on bylateral and multi-lateral bases with psychological institutions of many countries. In the line of the most

active participators of these scientific contacts might be listed naturally psychologists from the countries of the Independent States Union such as Belorussia, Khazakhstan, Ukraine, Uzbekistan, Estonia and also from Bulgaria, Hungary, Poland, Germany, Vietnam, Chechia, Slovakia as well as from USA, Greece, Israel, Canada, China, France, Finland, Iapan, Sweden, Switzerland, Norge.

Research area direction: I. T. Frolov is heading the research in the Academy-level program on man-science-society that includes the following subjects: the psychology of the development and realization of man's creative potential under Iurii A. Ponomarev; man's individuality, structure and determinants of development under V. M. Rusalov; cognitive development under E. A. Sergienko; the search for regularities in human information processing under A. N. Lebedev; man and social group as a self-regulating system under V. Iurii Krylov; dialectics of the natural and social in the development of the artistic culture of man under V. P. Morozov; the psycho physiological foundations of human behavior determination under V. B. Shvyrkov; the methodology and the theory of the psychic development of man under V. A. Barabanshchikov, and the psycho physics of active subjects under K. V. Bardin. Personnel: Director Lomov, Boris F., D. Ped. S., since '72; Deputy Directors: Shorokhova, E. V., D. Phil. S., since '74; and, Zabrodin, Iurii M., D. Psy. S., since '76. (See also: **A Scholars' Guide.** . .)



6. Human Being Institute in Moscow.

Located on Volhonka st.,; 14, G-19, GSP-3. Moscow., 119842, Directed and organized by Academician Ivan T. Frolov. tel. 203-90-67.

Frolov, Ivan T. Born in 1929 in Dobroe, Lipetsk Oblast. Russian philosopher. Corresponding member of the Philosophy and Law Department of the Academy since 1976, and academician since December 1987. He graduated from the Department of philosophy of the Moscow State University in 1953. From 1962 to 1965, he worked as an editor, first in Moscow, and then in Prague. From 1965 to 1968, he was engaged in party work. From 1968 to 1977, he was editor-in-chief of the journal *Voprosy filosofii*. His work is in dialectical materialism, philosophical problems in contemporary natural science, and the social and philosophical problems of the scientific and technological revolution. In the 1970s, he was on the editorial council for publications of the Institute of the History of Natural Science and Technology of the AN SSSR. He organized and now directs the Human Being Institute in Moscow. (GSE 28, p. 389.)



7. All-Union Scientific Research Institute of Systems Research in Moscow was established in 1976 and made jointly subordinate to the GKNT and the AN SSSR. Its first Director was D. M. Gvishiani. (Also listed under the Information Science, Computer Technology, and Automation Department institutes.)



8. Socioeconomic Problems of the Development of the Agrarian Industrial Complex Institute in Saratov.

(Older materials)

Established in 1980 with Vladimir B. Ostrovskii, D. Hist. S., as its first and current Director (1992). The institute staff numbers some 113 researchers of whom four have doctoral and 32 have candidate degrees. Structure of the institute: There are two Departments--social and economic--and eight sectors:

- (1.) methodology of planning;
- (2.) economic mechanisms and management;
- (3.) economics and forecasting scientific-technical progress;
- (4.) analysis of mathematical data;
- (5.) demography and labor resources;
- (6.) forming the living environment;
- (7.) coordination and scientific information, and
- (8.) an Ul'ianovsk affiliate with the full rights of a sector.

The institute also maintains 20 task groups. Researchers working on the problems dealt with in these sectors include: V. D. Khlopov, O. V. Ermolova, P. P. Velikii, V. N. Kriuchkov, and A. G. Blinov. (See: A Scholars' Guide. . .)



9. St. Petersburg Philosophy Faculty in St. Petersburg.

Located Grivtsov st., 5, St. Petersburg, 190000. Directed by Professor Iurii I. Efimov. tel. 315-85-53.

Retrospect: This branch was established in 1989 and is under the direction of Boris M. Firsov, D. Phil. S. The new institute has five sectors: social policy; sociocultural transformations; social consciousness; sociology of social movements, and the urban way of life. It also has four groups: the sociology of deviant behavior; family social reproduction; general problems of sociology, and public opinion. The staff of the branch has 65 researchers of whom seven hold the doctoral and 20 hold the candidate degree.

(Older materials)

Research thrusts: Under V. B. Golofast, trends of sociocultural transformation; under P. N. Lebedev, the subject and mechanism of shaping social policy, under B. M. Firsov, the scientific basis of the study and the shaping of the ecological consciousness of people; under V. V. Kostiushev, modern social movements; under S. I. Golod, prostitution in the context of a changing sexual ethic; under L. E. Keselman, the evolution of political consciousness among various social groups in a large city; under B. Z. Doktorov, the molding of economic consciousness; under V. M. Voronkov, the formation of civil society in Russia; under Ia. I. Gilinskii, social determination and social control over deviant behavior under unchanging social conditions; under S. I. Golod, perspectives of family development and social reproduction; under K. Muzdybaev, theoretical problems of social iniustice, and under I. A. Golosenko, the history or Russian sociology.

The archives of the branch institute is compiling an archive of biographies of Soviet citizens and Soviet people who are living abroad. At the present time there are some 300 such biographies in the collection.

(See: A Scholars' Guide. .)



10. Social-Political Research Institute in Moscow

Located on Leninskii ave., at 32a, V-334. Moscow, 117334. tel. 938-69-44. Directed by Academician Gennadii V. Osipov. tel. 938-19-10.

Osipov, Gennadii V., D. Phil. S. Born in 1929. Corresponding member of the Philosophy, Sociology and Law Department of the Academy since December 1987; academician in 1993. In 1991, he was made director of the Sociopolitical Studies Institute in Moscow which was organized in 1991. He is also a deputy to the Academician Secretary of the Department.

Retrospect: This institute was organized in 1991 and Gennadii V. Osipov, corresponding member of the RAS was made its first Director. The institute has a staff of 109 researchers, 82 of whom have advanced postgraduate degrees.

(Older materials)

Institute structure: The institute is structured into three centers, two Departments, and four sectors as follows: Centers:

- (1.) the center for sociopolitical and methodological problems with sectors on inter ethnic relations, sociology of public consciousness, the sociology of religion, and a group on social movements;
- (2.) the center for social information and public opinion with a Department on comparative sociological studies, and
- (3.) the consultation center for sociopolitical problems.

Departments:

- (1.) the Department on the theory and methodology of sociology with sectors on the preparation of manuals and teaching aids on sociology, and the theory of sociology with groups on the compilation of international and Soviet dictionaries on sociology, the creation and use of systems of indicators and the explanation of indexes of social development;
- (2.) the Department on fast public opinion polls.

Sectors:

- (1.) the sector on socioeconomic problems;
- (2.) the sector on the sociology of agriculture;
- (3.) the sector on the sociology of youth, and
- (4.) the sector on the dynamics of social groups.

Current research thrusts: Research in this institute is subordinated to the research program of the Department of Philosophy and Law of the AN SSSR (Russian Academy) and all of it is under the general supervision of Director G. V. Osipov. Some specific studies being undertaken include: scientific background of a concept of social development of Soviet society under G. V. Osipov and V. O. Rukavishnikov, A. V. Dmitriev, and N. T. Kremlev; social ecology--the indexes of the interaction between society and nature--under A. D. Naletova and G. V. Subbotina; the sociology of economics--the indexes of social efficiency in social production (productivity)--under N. I. Alekseev, N. V. Andreenkova, K. V. Andreev, and A. V. Goriushin; the indexes of the improvement of the social structure and its qualitative renewal under V. I. Staroverov and V. I. Chuprov; the indexes of changes in the nature and content of sociopolitical activity of the Soviet people under Iurii P. Kovalenko and V. G. Britvin; factors of social tension and social problems of national and ethnic

relations under G. I. Bondarevskii, T. V. Kovaleva, M. F. Dorogovtsev, and N. R. Malikova; indexes of the new social thinking--the sociology of consciousness--under M. S. Sanin and S. D. Iakovlev; indexes of socio demographic reproduction under L. L. Rybakovskii; indexes of refinement of the Soviet social structure under V. G. Smolianskii, N. V. Merzlikin, and methodological approaches to social patterns--social modeling--under V. G. Andreenko. (See: A Scholars' Guide. . .)



11. Philosophy Faculty in Moscow.

Located on Leninskii ave., at 32a, Moscow. 117993. tel 938-17-80.
Directed by Professor Vladimir E. Volkov.



National Research in Philosophy and Law:

While there are four Philosophy and Law Scientific Research Institutes directly subordinate to the Philosophy and Law Department of the RAS in Moscow, there are 11 other institutes in the former Soviet Union whose scientists are engaged in similar research. Those institutes are listed below:



Philosophy and Law Institutes in the Soviet Union

1930s

1. Philosophy and Law Institute in Minsk. This institute emerged from a Department of Law that was established in 1935.
2. Philosophy Institute in Kiev.
3. Philosophy and Law Institute in Alma-Ata. Established in 1947, the institute employs more than 60 scholars in its research on the theory and history of state and law. Director: Abaldin, Zh. A. (See: Ruble, Vol. I., p. 468.)
4. State and Law Institute in Kiev.
5. Philosophy and Law Department in Ashkhabad.

1950s

6. History, Philology and Philosophy Institute in Novosibirsk. No date given in source.
7. Philosophy and Law Institute in Frunze.

1960s

8. Philosophy and Law Department in Kishinev. This Department has not yet achieved institute status.
9. Philosophy and Law Institute in Baku. No date of founding in source.
10. Philosophy and Law Institute in Tashkent. No date of founding given in

source. 11. Philosophy, Sociology and Law Institute (IFSP), Vilnius. Associated with the Center of Scientific Information on the Social sciences (TsNION).



The Economics Department in Moscow

**Located at 32, Krasikova st., V-418, Moscow, 117418. tel. 129-07-44
Academician Secretary: Stanislav S. Shatalin. tel. 129-07-11**

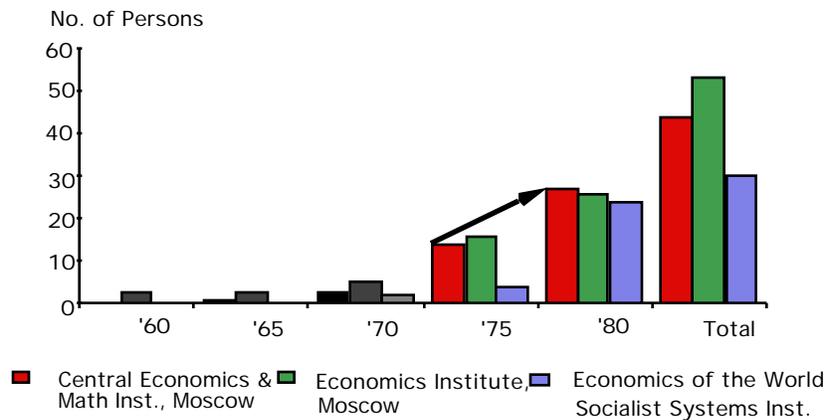
Shatalin, Stanislav S., C. Econ. S. Born in 1934 in Pushkin, Leningrad Oblast. Russian economist. Corresponding member of the Economics Department of the Academy since 1974, and academician, 1987. He graduated from the economics Department of Moscow State University in 1958. From 1959 to 1965, he was a research worker and head of the intersector balance section of the SRI of Economics of the State Planning Committee of the USSR. (GOSPLAN). From 1965 to 1976, he was a Deputy Director of the Central Economic Mathematical Institute of the AN SSSR and in 1976 he became Deputy Director of the Systems Research Scientific Research Institute in Moscow and in 1977, Department head of the All-Union SRI of Systems Research for the State Committee for Science and Technology (GKNT) and for the AN SSSR. He also became the head of the subdepartment of mathematical methods of economic analysis in the economics Department at Moscow State University. His primary work is in constructing mathematical economic models and in national economic planning. In 1985, he joined the staff of the newly organized Economics and Forecasting of Scientific-Technical Progress Institute in Moscow. Recipient of the State Prize, 1968. In 1987, he received the V. S. Nemchinov Prize for economics and statistics. He is presently the Academician Secretary of the Economics Department of the Russian Academy of Sciences and also heads the Economic Forecasting Institute in Moscow.(GSE 29, p. 546.)

Retrospect: The Economics and Mathematics Institute in Moscow, together with its St. Petersburg Branch, was the central research point for economic decision-making in the Soviet system, and its scientists will undoubtedly play a major part in the changing Russian economy under the new governmental structures. It had over 23 separate Departments in Moscow, and a large computer center. The names of the Economics and Mathematics Institute's Departments are descriptive of the activities in each of the units. The subdepartments included: 1. The Automated Control Systems and Information Processing Department; 2. The Automated Systems of Material Technical Supply Department; 3. The Chemical Industries Department; 4. The Computer Mathematics Department; 5. The Computer Technical Department; 6. The Demography and Statistics Department; 7. The Development of Methods for Economic Research Department; 8. The Economic Forecasting Department; 9. The Economic Problems of Natural Resource Use Department; 10. The Foreign Relations Department; 11. The International research Department; 12. The Material

Technical Supply Department; 13. The Mathematical Methods for Calculation of Economic Values Department; 14. The Methodology of Complex National Economic Planning and Automated Systems of Plan Calculation Department; 15. The Mid-Term Predictions Department; 16. The Optimal Growth of Multibranch Complexes Department; 17. The Problems of the Economic Mechanism for Optimal Functioning of the Economy Department; 18. The Problems of Multiple Stage Optimization Department; 19. The Problems of the Standard of Living Department; 20. The Programming Department; 21. The Systems of Medium Range Optimal National and Regional Planning Department; 22. The Transportation Department, and, 23. One "unidentified" Department.

Figure 29

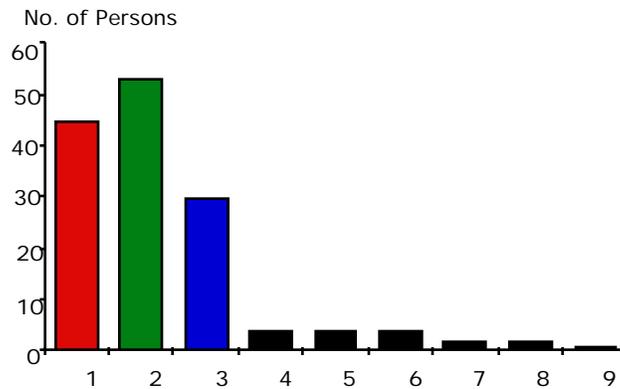
Personnel of the Top Three SRI's of the Economics Department, 1960-1980



Compiled from: CR 80-13202, pp. 227-235.

The social scientists in the Economics Department of the academy are in the very forefront of the "restructuring" of the economy of the USSR and, until its withdrawal from Eastern Europe, of the member CEMA countries. The other eight SRI's of the Department have increased their personnel since the early 1980s.

Figure 30
Personnel of the Economics
Department SRIs, 1980



Key: 1. Economics and Mathematics Institute in Moscow; 2. Economics Institute in Moscow; 3. Economics of the World Socialist System Institute in Moscow; 4. World Economics and International Relations Institute in Moscow; 5. Africa Institute in Moscow; 6. United States and Canada Institute in Moscow; 7. Latin America Institute in Moscow; 8. Socioeconomic Problems Institute in Moscow; and, 9. Cybernetics Scientific Research Institute in Moscow.

Compiled from: CR 80-13202, pp. 171-417.

Membership of the Economics Department: Among the 10 academicians and the 15 corresponding members of the Department listed as members of the Economics Department in 1989, there were 10 Directors of institutes--some located outside of Moscow--and four Deputy Directors. A Vice President of the Ukrainian Academy of Sciences and the President of the Lenin Academy of Agricultural sciences were members of the Economics Department. Eighteen of the 25 academicians and corresponding members were listed as members in 1989--72 percent. One member served on the board of the General Assembly of the GKNT. Several academicians of the Economics Department were moved into the new Department Problems of World Economics and International Relations, created in 1988.

Academicians--age and schools: The birth dates of three academicians is unknown at present. Only one academician was in his 80s in 1981. The average age of the other academicians of the Economics Department of the Russian Academy of Sciences was 64.7 years. All academicians of the Department were members of the Communist Party, supporting the orthodoxy of Soviet economic theory. Only four of the academicians of the Economics Department are known to have graduated from two institutions: Moscow State University, three, and the Military Chemical Academy, one. Four of the 10 academicians apparently do not have advanced degrees.

Corresponding Members--age and schools: The birth dates of only seven of the 15 corresponding members of Economics Department are known. One member was in his 90s and two in their 80s in 1991. Of the four remaining, the average age was 66 years. Fewer of the corresponding members held advanced degrees--nine in number--while three graduated from Moscow State University; one graduated from the G. V. Plekhanov Institute of the National Economy in Moscow; one from the Moscow Institute of Finance Economics, and one from the S. M. Kirov Urals

Polytechnic Institute. The results of this analysis may be attributed more to the lack of background information on the members of the Economics Department than that on members of other Departments of the Russian Academy of Sciences. They should, therefore, be treated with caution.

1997 update:

Department of Economics (DE)

32, Krasikova st., V-418, Moscow, 117418, tel. 129-07-44

Bureau of the Department

Academician-Secretary

Academician Stanislav S. Shatalin, tel. 129-07-11

Shatalin, Stanislav S., C. Econ. S. Born in 1934 in Pushkin, Leningrad Oblast. Russian economist. Corresponding member of the Economics Department of the Academy since 1974, and academician, 1987. He graduated from the economics Department of Moscow State University in 1958. From 1959 to 1965, he was a research worker and head of the intersector balance section of the SRI of Economics of the State Planning Committee of the U.S.S.R. (GOSPLAN). From 1965 to 1976, he was a Deputy Director of the Central Economic Mathematical Institute of the AN SSSR and in 1976 he became Deputy Director of the Systems Research Scientific Research Institute in Moscow and in 1977, Department head of the All-Union SRI of Systems Research for the State Committee for Science and Technology (GKNT) and for the AN SSSR. He also became the head of the subdepartment of mathematical methods of economic analysis in the economics Department at Moscow State University. His primary work is in constructing mathematical economic models and in national economic planning. In 1985, he joined the staff of the newly organized Economics and Forecasting of Scientific-Technical Progress Institute in Moscow. Recipient of the State Prize, 1968. In 1987, he received the V. S. Nemchinov Prize for economics and statistics. He is presently the Academician Secretary of the Economics Department of the Academy. (GSE 29, p. 546.)

Deputies of the academician-secretary:

Academician Leonid Iv. Abalkin, tel. 129-02-54

Abalkin, Leonid I., D. Econ. S. Born in 1930. Russian economist. Corresponding member of the Economics Department of the AN SSSR and the RAN in 1984; and, an academician in 1987. He was selected as director of the Economics Institute in Moscow in 1986. That institute was founded in 1955 and its scientists study general economic theory, agricultural and labor economics, and Russian economic development. He is leading research in population, manpower and labor protection. He has been a member of the Presidium of the AN SSSR and of the Russian Academy of Sciences since October 1988. He is deputy to the Academician Secretary of the Economics Department of the Academy and director of the Economy Institute (IE) located in Moscow.

Academician Dmitry (Dmitrii) S. Lvov, tel. 129-08-22

L'vov, Dmitrii S., Corresponding member of the Economics Department of the Academy since December 1987; academician in 1993.

Academician Valerii (Valerii) L. Makarov, tel. 129-10-11

Makarov, Valerii L., D. PM. S. Corresponding member since 1979; academician in 1993. Head scientific secretary of the Siberian Department since 1981. Since 1974, he has been Deputy Director of the Mathematics Institute in Novosibirsk and Head of the Economic Mathematics Department of that institute. From 1966, he served as director of the Central Economic-Mathematical Institute in Moscow (1963). Since 1984, he has been Director of the Organization and Management Problems Scientific Research Institute in Moscow. The institute does research under a program called "Creating a New Concept of Managing the Economy Using Modern Technologies in Economic-Mathematical Modeling" under the overall supervision of Dr. Makarov which include studies on improvements in managing the socialist economy under L. I. Abalkin; in biospheric and ecological research under G. I. Marchuk; on the prospects of socioeconomic development--substantiation and forecasting--under Iu. V. Iuremenko; on Man-Science-Society under V. A. Iadov; on mathematical methods of modeling and managing the national economy with the application of a new generation of computers under A. A. Samarskii; on the development of the automated system of planning estimates--on the increased cooperation with the automated control system of branch, Departmental and territorial managers during further computerization of the national economy under S. A. Aivazian; on the development of the theory of mathematical modeling of the socialist economy--on analysis and cost accounting mechanisms of management and planning under V. L. Makarov; on the scientific and methodological basis for determining the efficiency of production at various levels of the national economy with the use of mathematical modeling and in coordination with the general system of economic management under D. S. L'vov; on the transition to new methods of economic management at all levels of the national economy--on economic norms in an economy of the intensive type under E. G. Iasin; on the improvement of planning and management of socialist natural resources under K. G. Gofman; on territorial city planning--on the use of mathematical methods for optimizing structure of capital investments under M. M. Albegov; on the elaboration of the methodology for the program "Social Development and Raising the Living Standard" under A. Iu. Sheviakov; on the development of the methodology of balance estimates and substantiations--the creation and use of economic-mathematical methods and models under A. Iu Sheviakov; on mathematical, program-algorithmic and informational aspects of methods in applied statistics of informatics used in economic research, management and planning under S. A. Aivazian; and on modeling the influence of the parameters of the economic mechanism on the dynamics of economic growth under N. Ia. Petrakov. He is presently director of the Central Economical Mathematical Institute (CEMI) in Moscow.

Academician Iurii V. Iaremenko, tel. 129-39-44

Yaremenko, Iurii V. Born in 1935. Corresponding member of the Economics Department of the Academy since December 1987; academician in 1993. He has been the Director of the Economics and Forecasting of Scientific-Technical Progress Institute in Moscow which was established in 1985 and has some 15 laboratories: methods and models of medium and short-term forecasting laboratory; the organization and methodological provision of complex socioeconomic forecasting laboratory; information provision of complex socioeconomic forecasting laboratory; long-term problems of development of the sociocultural sphere laboratory; regional problems of socioeconomic development laboratory; problems

of the function of science in the national economy laboratory; organizational and economic problems of controlling scientific-technical development laboratory; problems of analysis and socioeconomic decision-making laboratory; problems of the mechanism of the realization of scientific-technical decisions laboratory; analysis of current economic processes laboratory; software and use of personal computers laboratory; computing technique laboratory; analysis and comparison of trends in international economic and scientific-technical development laboratory; methods of evaluation and choice of economic objects for development; and, the forecasting laboratory. He is presently the director of the National Economy Prediction Institute in Moscow. (INEP)

Responsible for scientific-systematic questions:

Prof. Valentin N. Kashin, tel. 129-34-00

Members of the Bureau:

Academician Abel G. Aganbegian, tel. 434-83-89

Aganbegian, Abel G. Born in 1932 in Tbilisi. Russian economist. Corresponding member of the Siberian Department since 1964; academician of the Economics Department of the AN SSSR and the RAN and of the Siberian Department since 1974. He was named academician secretary of the Economics Department of the Academy of Sciences in 1986. He graduated from Moscow State University in 1955. From 1955 to 1961 he worked for the State Committee of the Council of Ministers of the U.S.S.R. on problems of labor and wages. In 1961, he became Chief of a laboratory of the Institute of Economics and Organization of Industrial Production of the Siberian Division of the AN SSSR and the RAN. He was named its director in 1966. From 1967 to 1971, he was the director of the Economics and Organization of Industrial Production Institute at Novosibirsk. His principal works are on labor productivity, wages, standard of living, and in developing models for future economic planning. In 1988, he was one of the economics advisers to Mikhail Gorbachev. (GSE 1, p. 130.)

Academician Oleg T. Bogomolov, tel. 120-82-00

Bogomolov, Oleg T. Academician of the Economics Department of the Academy since 1981. Since 1969, he has been Director of the Economic World Socialist System Institute in Moscow that was founded in 1961 and studies theoretical and practical principles and problems of building a world socialist economic order. In 1977, he was a member of the editorial council for publications of the Institute of the History of Natural Science and Technology of the Russian Academy of Sciences. He is presently director of the International Economical and Political Research Institute in Moscow.

Academician Nikolai Ia. Petrakov, tel. 129-10-00

Petrakov, Nikolai Ia. Corresponding member of the Economics Department of the Academy since 1984; academician in 1993. Since 1973, he has been a deputy director of the Central Economic and Mathematics Institute in Moscow. The institute engages in contemporary mathematical economic work and has a major responsibility for developing national economic and industrial plans. In late 1990,

he was named Director of a new institute--the Market Problems Institute in Moscow.

Academician Stepan Ar. Sitarian, tel. 930-11-95

Sitarian, Stefan A. D. Econ. S. Corresponding member of the Economics Department of the Academy since 1984; academician since December 1987. He is presently director of the Foreign Economy Research Institute (FERI) located in Moscow.

Academician Nikolai P. Fedorenko, tel. 129-06-33

Fedorenko, Nikolai P., D. Econ. S. Born April 1917 in Zaporozh'e Oblast, Ukrainian SSR. Russian economist. He was elected a corresponding member in 1962. Since 1964, he has been an academician of the Economics Department of the Academy of Sciences. Since 1977, he has been a board member of the GKNT General Assembly. Since 1985, he has been on the Presidium of the Academy. He graduated from the Military Chemical Academy in 1942. From 1949 to 1962 he taught at the Moscow Institute of Fine Chemical Technology where he headed the Department of Chemical Industrial Economics and served as a Deputy Director of the institute. In 1963, he became Director of the Central Economic Mathematical Institute of the national academy. He is editor-in-Chief of Economics and Mathematical Methods that is a major Soviet economics journal. His principal works deal with Soviet economics: the economics of the chemical industry, optimal functioning of the national economy, and the use of mathematical methods and electronic computers in planning and management. State prize, 1970. In 1979, he received the G. M. Krzhizhanovskii Prize named after the well-known power engineer for his work in energy planning. In 1981, he received the V. S. Nemchinov Prize for economics and statistics. (GSE 3, p. 370.)

Corresponding Member Anna An. Anfinogentova, tel. 24-24-26(Saratov)

Anfinogentova, Anna A. Economist in Saratov. Corresponding member of the Economics Department of the RAS and member of the Bureau of the Economics Department of the Academy in 1993. She is presently the director of the Institute of Social-Economical Development Problems of Agricultural-Industrial Complex (ISEDPAIC) in Saratov.

Corresponding Member Hamid N. Gizatulin, tel. 34-31-41(Ufa)

Gizatulin, Kh. Hamid N. Economist in Ufa. Corresponding member of the Academy in 1993.

Corresponding Member Valerii (Valerii) V. Kuleshov, tel. 35-79-11(Novosibirsk)

Kuleshov, Valerii V. D. Econ. S. Born in 1942. Economist. Specialist in forecast planning for multibranch complexes, the methodology and methods of economic-mathematical modeling for industrial development in the national economy and of the problems of the utilization of natural resources in Siberia. Corresponding member of the Economics Department and of the Siberian Department since 1987. He graduated from the Moscow Institute of the National Economy in 1965. From 1965 to 1966, he worked in the laboratory of economic and mathematical research of the Novosibirsk State University. In 1966, he joined the staff of the Economics and Organization of Industrial Production Institute of the Siberian Department. He was

an aspirant, a junior and senior researcher, and head of a sector, and of a Department on planning multibranch complexes. In 1986, he was named Director of that Institute. He has been a professor at Novosibirsk State University since 1985, holding the chair in planning and forecasting of the national economy. He edited the journal "Izvestia of the Siberian Department of the AN SSSR.--the series on economic and applied sociology." (LDA 11378.)

Corresponding Member Konstantin Iv. Mikulskii, tel. 374-67-31

Mikul'skii, Konstantin I., D. Econ. S., Corresponding member of the Economics Department of the Academy since December 1987. Since 1979, he has been one of the Deputy Directors of the Economics of the World Socialist System Institute in Moscow that was established in 1961 to act as a model for other Socialist States to follow in their economic planning. He headed the Growth subdepartment of that institute from 1978. In 1985, he was the recipient of the N. G. Chernishev Prize for his work. He is presently director of the Institute of Employment Problems in Moscow which is under the Russian Academy of Sciences as well as under the Russian Ministry of Employment. (LDA 89-11378.)

Scientist Secretary: Ludmila Al. Anosova, tel. 129-07-11

Staff of the Department

Ludmila M. Bavidova, tel. 129-04-11
Galina P. Kuznetsova, tel. 129-07-22
Elena Iv. Naumova, tel. 129-07-22
Raisa P. Nedzvetskaia, tel. 129-07-44
Dr. Elena V. Tiagunenko, tel. 129-07-44

Academicians:

Abalkin, Leonid I., D. Econ. S. Born in 1930. Russian economist. Elected member of the Presidium of the Academy in 1988. Corresponding member of the Economics Department of the Academy in 1984; and, an academician in 1987. He became Director of the Economics Institute in Moscow in 1986. That institute was founded in 1955 and its scientists study general economic theory, agricultural and labor economics, and Russian economic development. He is leading research in population, manpower and labor protection. The institute has a staff of 350 researchers of whom 63 hold the doctorate and 186 hold candidate degrees. One academician and three corresponding members of the Russian Academy of Sciences are on the staff. Structure of the institute: The institute is organized into eight Departments: general problems of the political economy of socialism; reproduction and efficiency; problems of labor; complex problems of the economic mechanism; theoretical problems of the management of the national economy; the study of foreign experience and criticism of bourgeois theory; scientific information, and an editorial-publishing Department. Dr. Abalkin is heading research on the major theme of refining the economic mechanism in the management of the economy from 1988 to the year 2000.

Aganbegian, Abel G. Born in 1932 in Tbilisi. Russian economist. Corresponding member of the AN SSSR from 1964; academician of the Economics Department of the Academy of the AN SSSR from 1974. He was named Academician Secretary of the Economics Department of the Academy of Sciences in 1986. He graduated from Moscow State University in 1955. From 1955 to 1961 he worked for the State Committee of the Council of Ministers of the former Soviet Union on problems of labor and wages. In 1961, he became Chief of a laboratory of the Institute of Economics and Organization of Industrial Production of the Siberian Department of

the Academy. He was named its Director in 1966. From 1967 to 1971, he was the Director of the Economics and Organization of Industrial Production Institute at Novosibirsk. His principal works are on labor productivity, wages, standard of living, and in developing models for future economic planning. In 1988, he was one of the economics advisers to Mikhail Gorbachev. (GSE 1, p. 130.) (See Above).

Bogomolov, Oleg T. Academician of the Economics Department of the Academy since 1981. Since 1969, he has been Director of the Economic World Socialist System Institute in Moscow that was founded in 1961 and which studies theoretical and practical principles and problems of building a world socialist economic order. In 1977, he was a member of the editorial council for publications of the Institute of the History of Natural Science and Technology of the Russian Academy of Sciences. The staff consists of 291 researchers of whom 28 hold doctoral degrees and 131 hold candidate degrees. One academician and two corresponding members serve on the staff. The institute under this reorganization and renaming has also taken on new research priorities that are reflected in the organization of the institute. The institute is a major graduate training center in economics. Its library houses some 100,000 items.

Fedorenko, Nikolai P., D. Econ. S. Born April 1917 in Zaporozh'e Oblast, Ukrainian SSR. Russian economist. He was elected a corresponding member in 1962. Since 1964, he has been an academician of the Economics Department of the Academy of Sciences. Since 1977, he has been a board member of the GKNT General Assembly. Since 1985, he has been on the Presidium of the academy of sciences. He graduated from the Military Chemical Academy in 1942. From 1949 to 1962 he taught at the Moscow Institute of Fine Chemical Technology where he headed the Department of Chemical Industrial Economics and served as a Deputy Director of the institute. In 1963, he became Director of the Central Economic Mathematical Institute of the national academy. He is editor-in-Chief of Economics and Mathematical Methods that is a major Soviet economics journal. His principal works deal with Soviet economics: the economics of the chemical industry, optimal functioning of the national economy, and the use of mathematical methods and electronic computers in planning and management. State prize, 1970. In 1979, he received the G. M. Krzhizhanovskii Prize named after the well-known power engineer for his work in energy planning. In 1981, he received the V. S. Nemchinov Prize for economics and statistics. (GSE 3, p. 370.)

Granberg, Aleksandr G., D. Econ. S. Born in 1936. Specialist in planning for the national economy and the development of modeling of economic research. Academician since 1992. He graduated from the Moscow State University in 1960 and began working at the Computer Center of GOSPLAN, and at the Moscow Institute of the National Economy. From 1963 to 1969, he was at the Novosibirsk State University, and from 1965 he has held the chair on applied mathematical methods for economic planning. In 1969, he joined the Economy and Organization of Industrial Production Institute of the Siberian Department, heading the sector on economic-mathematical modeling and methods of optimizing territorial planning, becoming its Deputy Director in 1975 and its Director in 1985. He has been on the Siberian Presidium since 1986. He has been Head of the Scientific Council of the Academy on the Economic Sciences since 1985. In 1988, he became Head editor of the journal Economics and the Organization of Industrial Production. He received the Lenin Komsomol Prize in 1968. In the early 1990s the Siberian Department established the Siberian International Center for Regional Studies in Novosibirsk that had as its Scientific Research Director Professor Granberg. The Center's base institution is the Institute of Economics and Industrial Engineering of the Siberian Department in Akademgorodok-Novosibirsk of which Dr. Granberg is also the Science Director. In the process of being organized at present, the center will involve the Siberian Department, the International Regional Science Association and

Geographic Union will be its founders and its activities will involve research groups from universities and research centers from the United States, Germany, Canada, Sweden, Israel, Hungary in research into regional economics. Recipient of the Lenin Komsomol Prize in 1968. He is a recipient of the Order of the Red Banner Badge of Honor Medal.

Lukinov, Ivan I., D. Econ. S. (Agricultural Economics) Born in 1927. Academician of the Economics Department of the Ukrainian Academy since 1976, and, academician of the Economics Department of the Russian Academy since 1984. He received the State Prize for Science and Technology in 1979. Since 1979, he has served as a Vice President of the Ukrainian Academy. Since 1976, he has been the Director of the Economics Institute, which is organized into 20 departments, in Kiev that is subordinate to the Economics Department of the Ukrainian Academy and that studies the economics of industry and agriculture and the history of the Ukrainian economy. He heads the Ukrainian Council on Economic Normality of Mature Socialism.

L'vov, (Lvov) Dmitrii S., Corresponding member of the Economics Department of the Academy since 1987; academician in 1993.

Makarov, Valerii L., D. PM. S. Corresponding member of the Economics Department of the Academy since 1979; academician in 1993. Head Scientific Secretary of the Siberian Department since 1981. Since 1974, he has been Deputy Director of the Mathematics Institute in Novosibirsk and Head of the Economic Mathematics Department of that institute. From 1966, he served as Director of the Central Economic-Mathematical Institute in Moscow (1963). Since 1984, he has been Director of the Organization and Management Problems Scientific Research Institute in Moscow. The institute does research under a program called "Creating a New Concept of Managing the Economy Using Modern Technologies in Economic-Mathematical Modeling" under the overall supervision of Dr. Makarov which include studies on improvements in managing the socialist economy under L. I. Abalkin; in biospheric and ecological research under G. I. Marchuk; on the prospects of socioeconomic development--substantiation and forecasting--under Iurii V. Iuremenko; on Man-Science-Society under V. A. Iadov; on mathematical methods of modeling and managing the national economy with the application of a new generation of computers under A. A. Samarskii; on the development of the automated system of planning estimates--on the increased cooperation with the automated control system of branch, Departmental and territorial managers during further computerization of the national economy under S. A. Aivazian; on the development of the theory of mathematical modeling of the socialist economy--on analysis and cost accounting mechanisms of management and planning under V. L. Makarov; on the scientific and methodological basis for determining the efficiency of production at various levels of the national economy with the use of mathematical modeling and in coordination with the general system of economic management under D. S. L'vov; on the transition to new methods of economic management at all levels of the national economy--on economic norms in an economy of the intensive type under E. G. Iasin; on the improvement of planning and management of socialist natural resources under K. G. Gofman; on territorial city planning--on the use of mathematical methods for optimizing structure of capital investments under M. M. Albegov; on the elaboration of the methodology for the program "Social Development and Raising the Living Standard" under A. Iurii Sheviakov; on the development of the methodology of balance estimates and substantiations--the creation and use of economic-mathematical methods and models under A. Iu Sheviakov; on mathematical I, program-algorithmic and informational aspects of methods in applied statistics of informatics used in economic research, management and planning under S. A. Aivazian; and on modeling the influence of the parameters of the economic mechanism on the dynamics of economic growth under N. Ia. Petrakov.

Nikonov, Aleksandr A. Born in 1918. From 1979 to 1984, he was the Academician Secretary of the Economics and Management of Agricultural Production Department of the V. I. Lenin Academy of Agricultural sciences . He has been an academician of the Economics Department of the RAS since 1984. Since 1984, he has served as President of the V. I. Lenin Academy of Agricultural sciences that was founded in 1929 and is the highest scientific institution in Russia in the fields of agriculture, water resource management, and forestry.

Petrakov, Nikolai Ia. Corresponding member of the Economics Department of the Academy since 1984; academician in 1993. Since 1973, he has been a Deputy Director of the Central Economic and Mathematics Institute in Moscow. The institute engages in contemporary mathematical economic work and has a major responsibility for developing national economic and industrial plans. In late 1990, he was named Director of a new institute--the Market Problems Institute in Moscow. This institute was organized in late 1990 from a number of units transferred from the Central Economic-Mathematical Institute for the purpose of improving the national economic mechanism. Its staff consists of 170 researchers of whom 15 hold doctoral degrees and 25 hold candidate degrees. There are two academicians of the Russian Academy on its staff. In the 1990s researchers in the institute will work on the theory and methodology of organizing markets in a socialist economy; problems of the effective use of economic levers within the system of economic management; the patterns of functioning and the evolution of market structures and mechanisms--the forming of a system of control of market processes--and the modeling of the interaction and integration processes between the internal and world markets. The institute has established ties with scientific and research units in universities in the United States, Great Britain, France, Italy, Sweden, Japan, Finland, South Korea, Poland, Czechoslovakia, Hungary and other countries.

Shatalin, Stanislav S., C. Econ. S. Born in 1934 in Pushkin, Leningrad Oblast. Russian economist. Corresponding member of the Economics Department of the Academy since 1974, and academician, 1987. He graduated from the economics Department of Moscow State University in 1958. From 1959 to 1965, he was a research worker and Head of the intersector balance section of the SRI of Economics of the State Planning Committee of the USSR (GOSPLAN). From 1965 to 1976, he was a Deputy Director of the Central Economic Mathematical Institute of the AN SSSR and in 1976 he became Deputy Director of the Systems Research Scientific Research Institute in Moscow and in 1977, Department Head of the All-Union SRI of Systems Research for the State Committee for Science and Technology (GKNT) and for the AN SSSR. He also became the Head of the subdepartment of mathematical methods of economic analysis in the economics Department at Moscow State University. His primary work is in constructing mathematical economic models and in national economic planning. In 1985, he joined the staff of the newly organized Economics and Forecasting of Scientific-Technical Progress Institute in Moscow. Recipient of the State Prize, 1968. In 1987, he received the V. S. Nemchinov Prize for economics and statistics. (GSE 29, p. 546.)

Sitarian, Stefan A. D. Econ. S. Corresponding member of the Economics Department of the Academy since 1984; academician since 1987.

Yaremenko, Iurii V. Born in 1935. Corresponding member of the Economics Department of the Academy since 1987; academician in 1993. Since 1988, he has been the Director of the Economics and Forecasting of Scientific-Technical Progress Institute in Moscow which was established in 1985 and which has some 15 laboratories: Methods and Models of Medium and Short-Term Forecasting Laboratory; the Organization and Methodological Provision of Complex Socioeconomic Forecasting Laboratory; Information Provision of Complex Socioeconomic Forecasting Laboratory; Long-Term Problems of Development of the Sociocultural Sphere Laboratory; Regional Problems of Socioeconomic

Development Laboratory; Problems of the Function of Science in the National Economy Laboratory; Organizational and Economic Problems of Controlling Scientific-Technical Development Laboratory; Problems of Analysis and Socioeconomic Decision-Making Laboratory; Problems of the Mechanism of the Realization of Scientific-Technical Decisions Laboratory; Analysis of Current Economic Processes Laboratory; Software and Use of Personal Computers Laboratory; Computing Technique Laboratory; Analysis and Comparison of Trends in International Economic and Scientific-Technical Development Laboratory; Methods of Evaluation and Choice of Economic Objects for Development; and, the Forecasting Laboratory. The institute has a staff of 250 researchers of whom 12 hold doctoral degrees and 111 hold candidate degrees. There is one academician and one corresponding member of the Russian Academy on the staff.

Zaslavskaja (aya), Tatiana I. Born in 1927 in Kiev. Russian economist. Corresponding member of the Economics Department of the Academy since 1968, and academician since 1981. She graduated from the economics Department of Moscow State University in 1950. From 1950 to 1963, she researched at the Institute of Economics of the AN SSSR. Since 1963, she has worked in the Institute of Economics and Organization of Industrial Production in the Siberian Department of the RAS in Novosibirsk, where, since 1972, she has served as Head of the Economic and Sociological Investigations of Labor Resources Department. Her work is in kolkhoz workers' pay, social and economic problems of labor resources and migration of rural populations. In 1967, she was Deputy Director of the Social Problems Institute, and from 1968 she was the Director of the All Union Center for the scientific study of social-economic development. In 1986 she became President of the Soviet Sociology Association. (GSE 9, p. 593.)

Corresponding Members

Anfinogentova, A. A. Corresponding member of the Economics Department of the Academy in 1993. She is also a member of the Bureau of the Department.

Bunich, Pavel G. Born in 1929 in Moscow. Russian economist. Corresponding member of the Economics Department of the Academy since 1970. He has been a member of Far Eastern Department since 1970. He graduated from the economics department of Moscow State University in 1952. In 1955, he began research and teaching, becoming a professor in 1963. In 1972, he was made Chairman of the Scientific Council of the Academy on the Comprehensive Study of the Scientific Foundations of Profit and Loss Accounting. His works are in economic management, the fixed capital stock and production capacities of industry, the circulating capital of industry, and socialist finance. (GSE 30, p. 29.)

Chichkanov, Valerii P., D. Econ. S. Russian economist. Corresponding member of the Economics Department and of the Urals Department of the Academy since 1981. From 1980 to 1987, he was Director of the Economics Study Institute at Khabarovsk under the Far Eastern Department that studied the economic development of the Russian Far East. In 1987, he was made Director of the Economics Institute in Ekatarinburg which sprang from a research group organized in 1941, to become a Department of Economic Studies of the Urals Branch of the Academy in 1951, and in 1971 of the Urals Department. In 1971, the Institute of Economics of the Urals Department was reorganized. Its scientists in the past have worked closely with the State Planning Committee. The Institute studies methods of improving production efficiency in the Urals region. Special attention is given to energy production, capital investment policies and the introduction of new technologies into production. (LDA 89-11378.)

Gatovskii, Lev M. Born July 1903 in Minsk. Russian economist. He was elected a corresponding member of the Economics department of the academy in 1960. Since 1977, he has served on the board of the GKNT General Assembly. He graduated

from the G. V. Plekhanov Institute of the National Economy in 1924. Following graduation he taught in various higher educational institutions, worked in the People's Commissariat of Workers' and Peasants' Inspection, in the State Planning Commission (GOSPLAN), in the Economics Institute of the Communist Academy, and in the Center for the Administration of National Economic Accounting. Since 1939, he has been at the Institute of Economics of the national academy becoming its Director in 1965. His principal works have concentrated on the political economics of socialism. (GSE 27, p. 128.)

Gizatullin, Kh. N. Corresponding member of the Economics Department of the Academy in 1993. He is also a member of the Bureau of the Department. (Ufa)

Ivanter, V. V. Corresponding member of the Economics Department of the Academy in 1993. He is a lead scientist in the Economics and Forecasting of Scientific-Technical Progress Institute which was established in 1985 from several laboratories of the Central Economic-Mathematical Institute of the Russian Academy of Sciences. The institute has a staff of 250 researchers of whom 12 hold doctoral degrees and 111 hold candidate degrees.

Kapustin, E. I. Born in 1921 in the village of Okorokovo, Kalinin Oblast. Russian economist. Corresponding member of the Economics Department of the Academy since 1976. He was a veteran of WW II (the Great Patriotic War). He graduated from the economics department of Moscow State University in 1949. He became Director of the Labor SRI in 1965. In 1967, he was made Chairman of the subdepartment of labor economics at Moscow State University. From 1971 to 1986, he was Director of the Economics Institute in Moscow and during this period, received his professorship at Moscow University. His works have dealt with the political economy of socialism and problems of mode of life, standards of living, distribution, the organization of wages and material incentives and the scientific organization of labor. (GSE 30, p. 532.)

Kulakov, Anatolii V., D. PM. S. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1984.

Kuleshov, Valerii V., D. Econ. S. Born in 1942. Economist. Specialist in forecast planning for multibranch complexes, the methodology and methods of economic-mathematical modeling for industrial development in the national economy and of the problems of the utilization of natural resources in Siberia. Corresponding member of the Economics Department and of the Siberian Department since 1987. He graduated from the Moscow Institute of the National Economy in 1965. From 1965 to 1966, he worked in the Laboratory of Economic and Mathematical Research of the Novosibirsk State University. In 1966, he joined the staff of the Economics and Organization of Industrial Production Institute of the Siberian Department. He was an aspirant, a junior and senior researcher, and Head of a sector, and of a Department on planning multibranch complexes. In 1986, he was named Director of that Institute. The staff of the institute numbers 277 researchers of whom 21 hold the doctorate and 147 hold candidate degrees. There are two corresponding members of the Russian Academy of Sciences on the staff. In the 1970s the institute had over 600 persons in 35 sections and laboratories. He has been a professor at Novosibirsk State University since 1985, holding the chair in planning and forecasting of the national economy. He edited the journal "Izvestia of the Siberian Department of the Academy.--the series on economic and applied sociology." (LDA 11378.)

Medvedev Vadim A., D. Econ. S. Corresponding member of the Economics Department of the Academy since 1984. Since 1966, he has served as Chief of the Reaction Calorimetry department of the High Temperatures Institute in Moscow. In 1984, he was listed as Head of the Science and Educational Institutions Department of the Central Committee of the CPSU.

Mikul'skii, (Mikulskii) Konstantin I., D. Econ. S., Corresponding member of the Economics Department of the Academy since 1987. Since 1979, he has been one of

the Deputy Directors of the Economics of the World Socialist System Institute in Moscow that was established in 1961 to act as a model for other Socialist States to follow in their economic planning. He headed the Growth subdepartment of that institute from 1978. In 1985, he was the recipient of the N. G. Chernishev Prize for his work. (LDA 89-11378.)



Scientific Research Institutes Directly Subordinate to the Economics Department

Organization of Other Leading Research Institutes: The Economics Institute located in Moscow includes the following Departments: 1. The Agriculture Department; 2. The Economic Accounting and Economic Problems of Management Department; 3. The Economic Effectiveness and New Technology Department; 4. The Economic Information Department; 5. The Economics of Agriculture Department; 6. The General Problems of the Political Economy of Socialism Department; 7. The History of Soviet Economies and Soviet Economic Thought Department; 8. An "unidentified" Department, and, 9. A Reproduction Department. The Economics of the World Socialist System Institute in Moscow has 14 Departments, including an "unidentified" Department. They include: 1. The Information Department; 2. The Branch Problems of Cooperation Department; 3. The Economics of Agriculture Department; 4. The Economics of Industry and Transportation Department; 5. The Foreign Trade and Price Formation in the World Socialist Market Department; 6. The General Economics Department; 7. The Planning and the International Socialist Division of Labor Department; 8. The Political and Ideological Problems Department; 9. The Relations of Socialist Countries with Capitalist and Developing Countries Department; 10. The Scientific and Technical Progress and Cooperation Department; 11. The Scientific Information and Statistics Department, and, 12. The Socialist Countries Department.

Growth: As Figure 24 illustrates, the period of greatest growth of the Economics Department was from 1975 to 1980. The Department's institutes collect statistical data, do statistical research, analyze information, organize economic regional and national planning for GOSPLAN, and serve as information collectors and disseminators in Russia. The Department maintains a large computer center in Moscow. In 1980, as shown in Figure 43, there were 8 SRIs subordinate to the Economics Department of the Academy of Sciences of the USSR; in 1992, this number had grown to 13 SRIs, as the accompanying listing shows.

1. Economics (Economy) Institute in Moscow (1947) (IE).

**Located at 26/2, Krasikova st., Moscow, V-218, 117218. tel. 129-16-44.
Directed by Academician Leonid I. Abalkin. tel. 129-02-27.**

Abalkin, Leonid I., D. Econ. S. Born in 1930. Russian economist. Corresponding member of the Economics Department of the AN SSSR and the RAN in 1984; and, an academician in 1987. He was selected as director of the Economics Institute in Moscow in 1986. That institute was founded in 1955 and its scientists study general economic theory, agricultural and labor economics, and Russian economic development. He is leading research in population, manpower and labor protection. He has been a member of the Presidium of the AN SSSR and of the AN SSSR from October 1988. He is presently deputy to the Academician Secretary of the

Economics Department of the Academy of Sciences. He is director of the Economy Institute (IE) in Moscow.

Retrospect: The progenitor of this institute was established in 1930 by combining the Economic Section of the Communist Academy and the Institute of Economics of the Russian Association of Research Institutes in the Social sciences becoming the Institute of Economics of the Communist Academy. In 1936, with the dissolution of the Communist Academy and combined with its affiliated Agrarian Institute, the Institute of Economics was made part of the AN SSSR system with its main focus upon research on questions of the political economy of socialism, economic problems of socialist industrial and Agricultural development, and the history of the USSR national economy, and statistics. During WWII, the institute concentrated upon the war effort. In 1947, it was merged with the Institute of World Economy and World Politics of the AN SSSR, becoming thereby the leading scientific economic center. In 1956, the Institute of World Economy and International Relations was separated from the Institute of Economics, and in 1960, the Institute of Economics of the World Socialist System was also broken off. Directors of the institute have been: K. V. Ostrovitianov (1947-53), V. P. D'ianchenko (1953-56), I. D. Laptev (1956-60), K. N. Plotnikov (1960-65), L. M. Gatovskii (1965-71), E. P. Kapustin (1971-86), and since 1986 L. I. Abalkin has served as Director. The Institute of Economics works with the Central Economic-Mathematical Institute, the State Planning Committee (GOSPLAN), regional AN SSSR economic research facilities, union republic academies and various scientific councils to coordinate research and to develop forecasting and planning techniques and methods, economic models and cost accounting procedures. The institute has published *Voprosy ekonomiki* since 1948. The institute has a staff of 350 researchers of whom 63 hold the doctorate and 186 hold candidate degrees. One academician and three corresponding members of the Russian Academy of Sciences are on the staff.

(Older material)

Structure of the institute: The institute is organized into eight Departments:

- (1.) general problems of the political economy of socialism;
- (2.) reproduction and efficiency;
- (3.) problems of labor;
- (4.) complex problems of the economic mechanism;
- (5.) theoretical problems of the management of the national economy;
- (6.) the study of foreign experience and criticism of bourgeois theory;
- (7.) scientific information, and
- (8.) an editorial-publishing Department.

Research thrusts in the institute: Under the overall supervision of the institute Director L. I. Abalkin, the major theme of the scientific fundamentals for refining the economic mechanism in the management of the socialist economy from 1988 to the year 2000 was undertaken. Segments of this research effort included: under L. I. Abalkin, the improvement of production relations--scientific fundamentals for reconstructing the economic mechanism; productive forces and production relations under accelerated socioeconomic development--theoretical problems of the strengthening and augmentation of socialist property and economic forms of its realization under L. V. Nikiforov; problems of the theory and methodology of forming an integrated system of management of the national economy under B. Z. Mil'ner; critical analysis of bourgeois forecasting of socioeconomic development in Russia and other socialist countries under Iurii Ia. Ol'sevich; trends in the development of management in foreign socialist and capitalist countries under N. A. Klimov; labor potential and

ways of providing total and efficient employment under I. S. Maslova; the history of economic theory of the emergence and development of socialism under N. K. Figurovskaia (aya); population, manpower and labor protection under L. I. Abalkin, and, improving planning and management of the national economy under B. Sh. Akhmeduev. Close international ties were maintained with similar economics institutes in the countries of the old Soviet bloc until 1989. (See: Ruble, Vol. I, pp. 65-67 for full discussion of this institute.)



2. Planning and Norms Scientific Research Institute in Moscow.

Founded in 1960, and at that time, jointly subordinate to the State Planning Committee. Researches planning techniques, formulation of wages, and establishment of norms in industry. Scientific Personnel: Director Kiperman, Grigorii Ia., October '86; Deputy Director Gubin, B. V., since '81.



3. International Economic and Political Research Institute in Moscow

Located at 46 Novocheriemushinskaia (aya) st., V-418m Nisciw m 117418, tel. 128-80-70. Directed by Academician Oleg T. Bogomolov, tel. 120-82-00.

Bogomolov, Oleg T. Academician of the Economics Department of the Academy since 1981. Since 1969, he has been Director of the Economic World Socialist System Institute in Moscow that was founded in 1961 and studies theoretical and practical principles and problems of building a world socialist economic order. In 1977, he was a member of the editorial council for publications of the Institute of the History of Natural Science and Technology of the Russian Academy of Sciences. He is presently director of the International Economical and Political Research Institute in Moscow.

Retrospect: This institute was formerly the Economics of the World Socialist System Institute that had been established in 1960 as the first center to examine socialist economic integration and that served as a model for similar research centers in other COMECON countries. The institute was renamed in 1990 following the revolutionary changes in Eastern Europe. The staff consists of 291 researchers of whom 28 hold doctoral degrees and 131 hold candidate degrees. One academician and two corresponding members serve on the staff. The institute under this reorganization and renaming has also taken on new research priorities that are reflected in the organization of the institute. The institute is a major graduate training center in economics.

(Older materials)

Structure of the institute: There are eight Departments:

- (1.) political and ideological problems;
- (2.) international problems and foreign policy;
- (3.) socioeconomic problems;
- (4.) international economic relations;
- (5.) scientific-technical progress;

- (6.) the countries of Eastern Europe;
 - (7.) the countries of Asia and Cuba, and
 - (8.) analysis of foreign literature and scientific information. Academician Oleg T. Bogomolov is Director of the institute. Its library houses some 100,000 items.
- (See: **A Scholars' Guide. . .**)(See: **Ruble, Vol. I., pp. 382-383.**)



4. Central Economic-Mathematical Institute in Moscow.

**Located at 32 Krasikova st., V-418, Moscow. 117418. tel. 129-16-44.
Directed by Academician Valerii L. Makarov. tel. 129-10-11.**

Makarov, Valerii L., D. PM. S. Corresponding member since 1979; academician in 1993. head scientific secretary of the Siberian Department since 1981. Since 1974, he has been Deputy Director of the Mathematics Institute in Novosibirsk and head of the Economic Mathematics Department of that institute. From 1966, he served as director of the Central Economic-Mathematical Institute in Moscow (1963). Since 1984, he has been Director of the Organization and Management Problems Scientific Research Institute in Moscow. The institute does research under a program called "Creating a New Concept of Managing the Economy Using Modern Technologies in Economic-Mathematical Modeling" under the overall supervision of Dr. Makarov which include studies on improvements in managing the socialist economy under L. I. Abalkin; in biospheric and ecological research under G. I. Marchuk; on the prospects of socioeconomic development--substantiation and forecasting--under Iu. V. Iuremenko; on Man-Science-Society under V. A. Iadov; on mathematical methods of modeling and managing the national economy with the application of a new generation of computers under A. A. Samarskii; on the development of the automated system of planning estimates--on the increased cooperation with the automated control system of branch, Departmental and territorial managers during further computerization of the national economy under S. A. Aivazian; on the development of the theory of mathematical modeling of the socialist economy--on analysis and cost accounting mechanisms of management and planning under V. L. Makarov; on the scientific and methodological basis for determining the efficiency of production at various levels of the national economy with the use of mathematical modeling and in coordination with the general system of economic management under D. S. L'vov; on the transition to new methods of economic management at all levels of the national economy--on economic norms in an economy of the intensive type under E. G. Iasin; on the improvement of planning and management of socialist natural resources under K. G. Gofman; on territorial city planning--on the use of mathematical methods for optimizing structure of capital investments under M. M. Albegov; on the elaboration of the methodology for the program "Social Development and Raising the Living Standard" under A. Iu. Sheviakov; on the development of the methodology of balance estimates and substantiations--the creation and use of economic-mathematical methods and models under A. Iu. Sheviakov; on mathematical, program-algorithmic and informational aspects of methods in applied statistics of informatics used in economic research, management and planning under S. A. Aivazian; and on modeling the influence of the parameters of the economic mechanism on the dynamics of economic growth under N. Ia. Petrakov. He is presently director of the Central Economical Mathematical Institute (CEMI) in Moscow.

Retrospect: Created in 1963 by a merger of a number of bodies including the Laboratory of Economic Mathematical Methods of the AN SSSR, the Department of Mathematical Mathematics of the Computer Center of the AN SSSR, the Mathematical Group on the Economic Efficiency of Capital investments of the Economics Institute of the AN SSSR, and the Department of the Cybernetics of Transport of the Institute of Integrated Transport Problems of GOSPLAN--the USSR State Planning Committee, and the Laboratory of Mathematical Methods of the Council for the Study of Productive Forces affiliated with GOSPLAN. The Institute deals with developing a system for the Optimal Functioning of a Socialist Economy. The institute has a staff of 417 researchers that includes 55 who hold doctoral degrees and 184 who hold candidate degrees. Three corresponding members of the Russian Academy of Sciences are on the staff. Valerii L. Makarov, D. PM. S., academician of the academy has been the institute Director since 1966.

(Older materials)

Structure of the institute: The institute is divided into 11 Departments , a computer center and two special units as follows:

- (1.) planning models of public welfare with the analysis and construction of target functions of social planning laboratory, the balance and optimizing methods of socioeconomic planning laboratory, and the models of coordination of the social and production spheres in the development of the national economy laboratory;
- (2.) the economic and territorial planning models with the modeling of joint economic and territorial proportionalities laboratory, the man-machine means of communication for automated workplaces in the field of planning laboratory, and the optimizing the development of integrated and interrelated branches of industry laboratory;
- (3.) the development and use of economic-mathematical methods of planning in various branches of industry and productive units with the methodology of planning in various branches of industry and productive units laboratory, the imitational modeling of economic objects laboratory, models used in planning economic activity of production and research units laboratory, and modeling and optimizing of prospect planning of branch systems laboratory;
- (4.) improvement of planning and managing regional development with the modeling of regional systems laboratory, the mathematical models of production allocation laboratory, and the problems of development of the agro-industrial complex laboratory;
- (5.) the methodology of comprehensive socioeconomic planning with the methodology and technology of comprehensive planning laboratory, the modeling of behavior of the objects of planning laboratory, the computerization of comprehensive planning laboratory, and the methodology of comprehensive appraisal of the state of socioeconomic objects;
- (6.) scientifically-based economic-mathematical modeling of economic mechanisms for controlling the socialist economy with the political l-economic mechanisms for controlling the socialist economy laboratory, systems analysis of economic methods of control laboratory, methodology of economic-mathematical modeling of planned price formation processes laboratory, models of cost accounting laboratory, economic mechanism for controlling natural resource use laboratory, and the economic-mathematical models of coordination of production and environmental protection activities laboratory;
- (7.) modeling and enhancing efficiency of production in economic management with the scientific basis of production efficiency and control appraisals laboratory, the problems of optimizing the economic mechanism laboratory, the methods and models of economic efficiency appraisals laboratory, and modeling of mechanisms for efficient control of technological production re-equipment laboratory;

- (8.) analysis and economic-mathematical modeling of processes controlling economic systems with the problems of balancing the planning and implementation mechanisms laboratory, the experimental establishment of machine control over socioeconomic systems laboratory, and the analysis of economic innovations laboratory;
- (9.) the development of mathematical mechanisms for economic research with the systems of mathematical models of economy laboratory, the theory and numerical methods of optimizing laboratory, probability problems of controlling economic processes laboratory, discrete optimizing in an economy laboratory, and modeling and optimizing the comprehensive development of the economy laboratory;
- (10.) applied statistics and informatics with the applied methods of mathematical statistics and the theory of probability laboratory, the data base and algorithm language control systems in economic-mathematical research laboratory, and the problems of the computerization of economics laboratory;
- (11.) automation of workplaces in the field of planning and control with the workplaces and standard software modeling laboratory. Other units belonging to the institute include: a computer center with a computer technology Department and three laboratories, a sector on scientific information and an editorial-publishing group.

Research thrusts of the institute: The institute does research under the supervision of the Department of Economics of the Russian Academy of Sciences for the period from 1989 to the year 2000 in a program called "Creating a New Concept of Managing the Economy Using Modern Technologies in Economic-Mathematical Modeling" that is under the overall supervision of the institute's Director V. L. Makarov and is responsible for these research projects: improvements in managing the socialist economy under L. I. Abalkin; biospheric and ecological research under G. I. Marchuk; prospects of socioeconomic development--substantiation and forecasting--under Iurii V. Iuremenko; Man-Science-Society under V. A. Iadov; mathematical methods of modeling and managing the national economy with the application of a new generation of computers under A. A. Samarskii; development of the automated system of planning estimates--increased cooperation with the automated control system of branch, Departmental and territorial managers during further computerization of the national economy under S. A. Aivazian; development of the theory of mathematical modeling of the socialist economy--analysis and cost accounting mechanism of management and planning under V. L. Makarov; scientific and methodological basis for determining the efficiency of production at various levels of the national economy with the use of mathematical modeling and in coordination with the general system of economic management under D. S. L'vov; transition to new methods of economic management at all levels of the national economy--economic norms in an economy of the intensive type under E. G. Iasin; improvement of planning and management of socialist natural resources under K. G. Gofman; territorial city planning--use of mathematical methods for optimizing structure of capital investments under M. M. Albegov; elaboration of the methodology for the program "Social Development and Raising the Living Standard" under A. Iurii Sheviakov; development of the methodology of balance estimates and substantiations--the creation and use of economic-mathematical methods and models under A. Iu Sheviakov; mathematical I, program-algorithmic and informational aspects of methods in applied statistics of informatics used in economic research, management and planning under S. A. Aivazian, and the modeling the influence of the parameters of the economic mechanism on the dynamics of economic growth under N. Ia. Petrakov. International cooperation of this institute with many other institutes world-wide is exceptionally strong with bilateral agreements in effect with a large number of research centers in the West. Its relationships with the former countries of the Soviet bloc continue to be strong.

(See: **A Scholars' Guide. . .**)(See: **Ruble, Vol. II., p. 339.**)

(1997 update--downloaded from the internet)

HISTORY:

The Central Economics and Mathematics Institute (CEMI) was founded in 1963, superseding the Laboratory of Economics and Mathematical Methods of the Soviet Academy of Sciences which had been established by Academician V. S. Nemchinov five years earlier.

CEMI was established by a group of noted economists who laid the foundation for the future work of the Institute. This group consisted of the founder of CEMI, V. S. Nemchinov, the first Director of CEMI Academician N. P. Fedorenko and Nobel Laureate, Academician L. V. Kantorovich, Academician A. I. Anchishkin, A. L. Vainstein, A. L. Lurie, B. N. Michalevskii and V. V. Novogilov. Many brilliant economists and mathematicians received their training at CEMI. They in effect built the Institute. Their work for the Institute established both its history and its strong reputation. Among this group are S. A. Aivazian, V. I. Danilov-Danilyan, Y. R. Leibkind, Y. V. Ovsienko, V. L. Perlamutrov, V. M. Polterovich, V. F. Pugachev and many other.

The majority of Academicians of the Economics Department of the Russian Academy of Sciences is closely affiliated with CEMI. S. S. Shatalin, N. I. Petrakov and Y. V. Iaremenko worked at CEMI for several years; V. L. Makarov has been the Director of CEMI since 1985; Academician-Secretary D. S. Lvov is the Deputy Director; A. G. Aganbegian and A. G. Granberg have both collaborated with CEMI for many years.

Many well known political leaders, government officials, and deputies of the Federal Assembly are CEMI alumnus. The Institute of Economics and Forecasting of Technological Change (1986), the Institute of Socio-Economic Problems of the Population (1988), and the Institute of Market Problems (1990) were all formed within CEMI and later became independent entities. Two Chairs of Moscow State (Lomonosov) University were established as a result of the efforts of member of CEMI: the Chair of Mathematical Methods for Economic Analysis and the Chair of Applied Economic Modelling.

Approximately 300 candidate and doctoral these were defended at the Institute over the past ten years. In addition, CEMI was among the principle founders of the New Economic School which offers a Master of Arts Degree in Economics. Many outstanding scholars from Russia, the USA, Great Britain, Israel, and other countries have taught at the school over the past four years.

CEMI has assembled a unique scientific community comprised of over 400 highly qualified economists and mathematicians, working together on issues pertaining to the socio-economic development of Russia. CEMI has accumulated vast experience in research related to the Russian economy in all stages of its development. It is one of the few scientific organization which specializes in the development of methodological and instrumental modelling of economic processes and objectives.

GOALS

When the Institute was founded in 1963, its main goal was to elaborate the theory of the optimal management of the national economy, applying mathematical methods and use of computers to the task of practical planning. This approach was in opposition

to the scholastic, Soviet-Marxist tradition and asserted instead the positive methodology of economic research, insisting on the necessity of decentralization and on the development of market mechanisms.

Now, the focus of research at CEMI encompasses theoretical modelling and the development of mathematical, computer, and empirical methods for the study of the economic transition.

STRUCTURE

At present, CEMI is comprised of four departments:

The Department of Theoretical and Mathematical Economics headed by the Director of CEMI, Academician V. L. Makarov.

The Department of Economic Modelling and Information Sciences headed by the Deputy Director of CEMI, Prof. S. A. Aivasian.

The Department of the Theoretical and Applied Problems of the Efficient Functioning of the Economy headed by the Deputy Director of CEMI, Academician D. S. Lvov.

The Department of the Computer Systems and Information Technologies headed by the Deputy Director Dr. M. D. Ilmenskii.

MAIN AREAS OF RESEARCH

The research activity of the Institute is largely focused on continuing development of fundamental research. Specific areas of research undertaken in the past and currently being further development to reflect both the changing global economy and the Russian transition include the theory of the optimal functioning planned economies, the study of scientific-technical progress, methods of evaluating the economic efficiency of capital investment and of the location of manufacturing, the economic of natural resource use, general equilibrium and disequilibrium theory (including the incorporation of issues related to intellectual property), and decision making under uncertainty.

Research at CEMI encompasses virtually all fields of economics.

In the field of macroeconomics the main focus of research is the development of theoretical frameworks to study: the Russian socio-economic transformation, taking into account the industrial, human capital, and resource potential of the Russian economy, as well as political constraints; property rights and privatization; industrial policy; financial mechanisms; governmental regulation in transition economies; economic dynamics; mixed-structure economies; the institutional development of the real and monetary, and the legal and illegal sectors under transition.

In the field of microeconomics the main focus of research is: the economics of the household, firm, and industry; the dynamics of social demographics; the theory of production functions; strategic planning at the enterprise level; the functioning of complex hierarchical production systems.

Recent research topics have included: the development of optimal planning procedures for processes with a long production cycle; the computerization of business plan development for investment projects; the development of models of medium-term

efficiency evaluation for financial-industrial groups; long-term strategic planning of product development; industrial investment decision making; serial and batch production planning in the engineering industries. These models have been applied in various engineering enterprises in Russia including aviation and machine tool enterprises.

CEMI specialists also work at consultants for enterprise strategic development. This consulting activity includes the analyses of strategic potential, the development of fundamental economic strategies (quality control, competition, pricing, social development, vertical and horizontal integration, marketing, etc.), risk analysis and management of strategic performance.

In the development of the methodology of analyzing economic systems and processes the main focus of research is: multi-dimensional statistical analysis of economic data; the methodology of developing systems to support decision making; decision-making software development; simulation and game-simulation models; information technologies.

COOPERATION AND CONTACTS

CEMI maintains a close working relationship with many governmental organizations including the Presidential Administration, the Ministry of the Economy, the Ministry of Science and Technology, and the State Statistical Committee.

CEMI also works together with many leading scientific institution throughout the world including Northwestern University (USA), National Institute for research in informatique and automation (France), Hitotsubashi University (Japan), and the Russian-Finnish Commission on Economic and Socio-Psychological Aspects of Development.

CEMI researchers actively participate in various international projects (such as UN LINK). They are involved in joint research projects, have been invited for both short- and long-term visits to research centers throughout the world, and serve on the editorial boards of international scientific publications. They have been invited to lecture and present seminars by universities and research centers in the USA, France, Germany, Israel, Great Britain, and other countries.

CEMI is one of several Internet and Bitnet nodes in Moscow.

PUBLICATIONS

Papers written by researchers at CEMI regularly appear in leading Russian economic journals and periodicals. Over the course of CEMI's existence, tens of thousands of publications have resulted from research conducted at the Institute. From 1982-1985, Nauka Publishers published a ten volume collection of monographs authored by researchers at CEMI. The works of Institute scholars have been translated into many languages and have been published by foreign publishing houses such as Springer, North-Holland, John Wiley, and McGraw-Hill.

Since 1965 the Institute has published the journal, Economics and Mathematical Methods. The journal print articles by both Russian and non-Russian scholars in the fields of mathematical economics. CEMI also issues a working paper series.

PERSPECTIVES

CEMI remains the premier Russian institute for economics theory and the leading coordinator of research in economics and mathematical methodology. The Institute continues to conduct research on the theory of transition economics, experimental economics, the mathematics of finance, evolutionary economics, and the market for intellectual property. CEMI will continue to develop its contacts with leading economics institutions throughout the world, to conduct joint scientific and educational projects, and to maintain the conductions necessary to attract the most talented students and graduated of other institutions of higher learning.

The future of CEMI is closely linked with the coordinated and united efforts of the Russian scientific community to further advance research in mathematical economics, to further the development of methodological and technological capabilities for the storage and transmission of economic information, and to strengthen ties with federal and local authorities to facilitate the testing and implementation of the research products of the Institute.



(1996 update)

5. Economics and Forecasting of Scientific-Technical Progress Institute

Mailing address: 117418, Russia, Moscow, Ul. Krasikova, 32

FAX: (095)310-70-71

Phones:

(095) 129-3422-- Executive Secretary

(095) 129 1800-- Office

(095) 129-1800-- Training Dpt

(095) 332-4445-- Council for dissertations

(095) 332-4462-- branch of Moscow State University department

(095) 129-1822-- Editorial board "Problemy prognozirovaniya"

E-mail: office@ecfor.msk.su

Ivanter, Victor V.

correspondent member of RAS

Doctor of economics, professor

Acting Director

tel.: (095) 129-36-33

Ivanter, V. V. Corresponding member of the Economics Department of the Academy in 1993. He is a lead scientist in the Economics and Forecasting of Scientific-Technical Progress Institute which was established in 1985 from several laboratories of the Central Economic-Mathematical Institute of the Russian Academy of Sciences. The institute has a staff of 250 researchers of whom 12 hold doctoral degrees and 111 hold candidate degrees.

(1997 update)

Retrospect:

The Institute of Economic Forecasting of the Russian Academy of Sciences (RAS) is one of the leading research institutes in the country in the field of macroeconomic analysis and forecasting. Since it was founded in 1986, the Institute has been carrying out both fundamental and applied research. Among, its

200 researchers, there are 20 state doctorates and more than 110 Ph.Ds. These include academician Stanislav S. Shatalin,

(Shatalin, Stanislav S., C. Econ. S. Born in 1934 in Pushkin, Leningrad Oblast. Russian economist. Corresponding member of the Economics Department of the Academy since 1974, and academician, 1987. He graduated from the economics Department of Moscow State University in 1958. From 1959 to 1965, he was a research worker and head of the intersector balance section of the SRI of Economics of the State Planning Committee of the U.S.S.R. (GOSPLAN). From 1965 to 1976, he was a Deputy Director of the Central Economic Mathematical Institute of the AN SSSR and in 1976 he became Deputy Director of the Systems Research Scientific Research Institute in Moscow and in 1977, Department head of the All-Union SRI of Systems Research for the State Committee for Science and Technology (GKNT) and for the AN SSSR. He also became the head of the subdepartment of mathematical methods of economic analysis in the economics Department at Moscow State University. His primary work is in constructing mathematical economic models and in national economic planning. In 1985, he joined the staff of the newly organized Economics and Forecasting of Scientific-Technical Progress Institute in Moscow. Recipient of the State Prize, 1968. In 1987, he received the V. S. Nemchinov Prize for economics and statistics. He is presently the Academician Secretary of the Economics Department of the Russian Academy of Sciences and is head of the Institute of Economic Forecasting in Moscow.(GSE 29, p. 546.)

RAS correspondent member Victor V. Ivanter, and professors Anatoly (Anatolii) G. Vishnevskii, Victor A. Volkonskii, Felix N. Klotsvog, Nikolai I. Komkov, Efrem Z. Maiminas, Alexander S. Nekrasov, Oleg S. Pchelintsev and others.

The main goal of the Institute is short, medium, and long term forecasting of economic and social development of Russia. The main areas of research at the Institute are:

the dynamics and structure of the national economy;

factors and resources effecting potential for economic development;

structural and technological processes in economic systems;

development of various branches of the Russian economy as a whole as well as its industrial complexes;

conversion of the military sector;

economic and social development of the regions of Russian Federations, federal and regional policy, economic ties with other CIS countries;

management of state property, privatization and other institutional problems;

national monetary, credit and taxation policies, development of banking system;

demographic processes in the country.

Many national institutions and organizations cooperate with the Institute. Among them are the Ministries of Science, Economics, Finance, the Central Bank, the State Industrial Committee, and the Ministries of Fuel and Energy, Defense, and Institute of Economic Forecasting Transport, etc.

The Institute regularly advises the members of the Government, the Federation Council, and the State Duma.

The Institute carries out joint research work with a number of public associations, including the Federation of Russian Manufacturers, the Russian Association of Industrialists and Entrepreneurs etc.

The Institute develops complex programs of social and economic development for various regions of Russia.

The Institute is interested in further developing of scientific and business contacts, and is ready to consider proposals on various projects from governmental and private local and foreign organizations.

Administration

Nekrasov, Aleksandr S.
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Ksenofontov, Mikhail Y.
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Kuvalin, Dmitrii B.
Executive Secretary
tel.: (095) 129-34-22

Departments of the Institute of Economic Forecasting

Forecasting of the Dynamics and Structure of the National Economy

Analysis and Forecasting of Production Potential

Macroeconomic Analysis and Short Term Forecasting

Forecasting Financial Resources
Forecasting the Performance of the Military Industrial Sector
Forecasting the Performance of the Energy Sector
Forecasting the Performance of the Machine-building Sector
Regional Problems of Social and Economic Development
Forecasting of Regional Macroeconomic Proportions
Organizational and Economic Management of Science and Technology
Problems of the Transition Period
Analysis and Forecasting of Institutional Changes
Forecasting Incomes and Consumption
Sociological Methods for Economic Studies
Forecasting Labor Resources
Forecasting the Social Factors of Economic Growth
long-term Development of the Social and Cultural Sphere

Center for Demography and Human Ecology

Analysis and Forecasting of Population Reproduction
Analysis and Forecasting of Mortality
Regional Forecasting of the Population's Health
Analysis and Forecasting of the Migration

**Forecasting of the Dynamics and Structure of the National Economy
Head- Suvorov, Nickolai V., candidate of economics**

Research is focused on the following subjects:

- analysis of the structural shifts in the national economy and forecasting the effects of economic changes;
- quantitative evaluation of indicators for current macroeconomic development, structure of the national economy, and the intersectoral effects as well as their medium term forecasting;
- analysis of the specific situation in the various sectors of the national economy;
- development of the models for forecasting of macroeconomic

development and structural changes.

Analysis and Forecasting of Production Potential
Head: Uziakov, Marat N., candidate of economics

Main subjects of research:

main factors determining the size and structure of investments in the Russian economy;

material and financial resources for capital investment;

options for investment activity in the forecast period;

the establishment of a sustainable investment process under the new market conditions;

upgrading the technical potential under transition to market economy.

Macroeconomic Analysis and Short Term Forecasting
Head: Belousov, Andrei R., candidate of economics

Main subjects of research are:

current trends in economic development;

situation in industry;

possible consequences of various economic decisions in the sphere of structural, financial, and budget policies.

A methodology has been developed, and input-output and econometric models have been designed for short and medium term scenarios for economic development, inflation and incomes, which are used for short term-annual and quarterly-macroeconomic forecasting of the national economy's development.

Forecasting Financial Resources
Head: Panfilov, Viacheslav S., candidate of economics

Functioning of the financial and credit environment is investigated. Analysis and forecasting of the situation in financial and monetary markets.

Special attention is paid to the possibilities of state regulation (including institutional changes) of the financial and monetary markets. Short and medium term forecasts of inflation, interest rates, investment financing are developed.

Reform of banking, budget, and taxation systems are under consideration.

Forecasting the Performance of the Military Industrial Sector
Head: Rassadin, Victor N., candidate of economics

Main subjects of research:

economic problems of defense contracts at present and in future;

using the resource and technical potential of the military complex for implementing structural changes in the Russian economy;

conversion of the military potential of Russia, implementing regional and sectoral conversion programs;

defense contracts at the military enterprises, role of the state in managing defense enterprises.

Forecasting the Performance of the Energy Sector

Head: Professor Nekrasov, Aleksandr S., doctor of economics

Main subjects of research are:

conditions and function of the energy sector in the national economy, problems of the interrelation between the energy sector and the economy as a whole;

methodological problems of energy supply forecasting under various scenarios of the economic development;

economic, social, technical, and environmental characteristics of fuel consumption in various sectors of the national economy;

analysis and forecasting of the subindustries of the energy sector.

Forecasting the Performance of the Machine-building Sector

Head: Borisov, Vladimir N., candidate of economics

Following subjects are developed:

analysis, modeling, and forecasting of the machine-building sector;

technical resources for the structural changes in the production potential of the national economy;

establishing deflators for the machine-building goods with regards to their quality.

Regional Problems of Social and Economic Development

Head: Pchelintsev, Oleg S., candidate of economics

Main subjects of research:

different scenarios of regional development in transition to a market economy;

regional investment and structural policy;

specific features of regional infrastructure economics;

social problems of regional development (changes in family structure, employment, urbanization, population structure)

sociological and statistical analysis of the residential sector.

Forecasting of Regional Macroeconomic Proportions

Head: Professor Klotsvog, Feliks N., doctor of economics

Analysis and forecasting of macroeconomic processes and structural changes in Russia and its large economic regions; economic relations with the former USSR republics.

Organizational and Economic Management of Science and Technology

Head: Professor Komkov, Nickolai I., doctor of economics

Research is focused on the following subjects:

analysis and forecasting of technological structure and innovations;

evaluation and estimation of the economic, technical and social characteristics of complex technologies;

mechanism of the organizational and economic management of the scientific and technical potential;

methods of designing R&D programs and investment projects;

methods of expert evaluation, developing of the methods of evaluation, analysis, and selection of innovation projects.

Problems of the Transition Period

Head: Professor Volkonsky (skii) , Victor A., Doctor of economics

Main topics of research:

evaluation of the general concepts of economic reform;

role of the state in regulating the market economy, including transition period;

interrelation of structural changes, developing of institutional and economic structures, and general economic processes;

inflation mechanism, price and financial proportions under transition to the market economy.

Analysis and Forecasting of Institutional Changes

Head: Blokhin, Andrei A., candidate of economics

Long-term economic processes both on macro and micro levels are researched.

Main subjects of analysis and forecasting are:

changes in the institutional structure of the national economy;

privatization and securities market development;

restructuring of insolvent enterprises without putting them into receivership;

development of the banking system and economic potential of enterprises;

interdependence of environmental and economic issues.

Forecasting Incomes and Consumption

Head: Suvorov, Anatoli V., candidate of economics

Research is focused on the following topics:

macroeconomic factors of incomes volume and structure;

social programs and role of the state in implementing them;

analysis and forecasting of personal incomes and expenses, income differentiation, dynamics and structure of consumption, consumer prices by type of goods and branches based on intersectoral balance.

Sociological Methods for Economic Studies

Head: Belanovsky (skii) , Sergei A., doctor of economics

Research is carried out mainly at the level of enterprises and subindustries with the goal of getting a realistic picture of the situation in the branches of the economy and in the regions. "Restricted spheres", shadow economics and other latent phenomena are under investigation.

Forecasting Labor Resources

Head: Korovkin, Andrei G., candidate of economics

Main topics of research are:

analysis and forecasting of employment, factors of its dynamics and structure;

regulation of the labor market and social guarantees for the work force;

forecasting the work force and employment.

Forecasting the Social Factors of Economic Growth

Head: Kuznetsov, Oleg E., candidate of economics

A concept of the long-term strategy for social development is being developed, where the social resources are considered as factors of economic growth. Work motivations and their formation are examined. Also the issues of personal incomes, pricing for consumer goods and services, their production and distribution are under consideration.

Long-term Development of the Social and Cultural Sphere

Head: Rozenfeld, Boris A., candidate of economics

Long-term tendencies and possible strategies for the development of health care, education and culture are studied. Principles and alternatives of the governmental policy in the social and cultural spheres under transition to the market economy are considered.

Center for Demography and Human Ecology

Head: Vishnevsky (skii) , Anatoli G., doctor of economics

Analysis and Forecasting of Population Reproduction

Head-- Zakharov, Sergei V., candidate of economics

Studies of birth rates, changes in the population and its age structure in Russia and the former USSR republics. Demographic methods, family planning.

Analysis and Forecasting of Mortality

Head: Shkolnikov, Vladimir M., candidate of geography

Main topic of studies-- mortality in Russia and the former USSR republics. Main attention is paid to the structure of mortality by cause of death. Mortality curves are plotted. Methodology of demographic forecasting is being developed.

Regional Forecasting of the Population's Health

Head: Prokhorov, Boris B., doctor of geography

Main subjects of study are:

condition of the population's health in Russia and its regions;

impacts of different factors on health (natural factors, pollution and degradation of the environment, social and economic situation);

environmental and sanitary studies of industrial systems;

methodology of human ecology;

social and demographic problems of the minorities of the Far North .

Analysis and Forecasting of the Migration

Head: Zaionchkovskaia (aya), Ianna A., candidate of geography

Main topics of the studies are internal migration in Russia, and between Russia and the former USSR republics. The key problems are:

migration potential of the Russian speaking population in the former USSR republics;

adaptation of the refugees in Russia;

"brain drain";

migration and immigration;

various migration flows by age and sex.

Training

The Institute has a post-graduate program for 20-25 people each year, including foreign students. Students are admitted on a competitive basis, and by special appointment. These can be admitted as visiting fellows or as paid researches. Dissertation studies are carried out under supervision of the leading researchers of the Institute. Visiting

fellows receive a stipend. Students from other cities are provided with a room in one of the Moscow hostels.

There is a dissertation council for defending doctorate and candidate degrees on the specialty " Economics, Planning, and Management of the National Economy" (08.00.05) . A branch of the macroeconomic regulation and planning department of the Economics faculty of the Moscow State University is established in the Institute. The Institute provides special courses to students based on the research subjects of the Institute. Leading researchers of the Institute are teaching there.

Publishing

Since 1990 a scientific journal "Problemy Prognozirovaniya" has been published in the Institute. It is published also in English translation as "Studies on Russian Economic Development" by "MAIK Nauka/ Interperiodica". The publications of the journal give information on the key economic and social problems in Russia, present the most significant results of the research at the Institute, and publish a good amount of statistics and methodological materials.

International Ties

The Institute of Economic Forecasting takes part in international conferences and symposiums, carries out joint research work, and publishes results in the foreign press. Among the foreign partners of the Institutes are colleagues from China, France, Japan, USA, Republic of Korea, Finland and other countries.



6. Problems of the Workers' Movement and Comparative Politology Institute in Moscow.

Timofeev, Timur T., D. Hist S. Born in 1928 in Ivanovo. Russian historian and economist. Corresponding member of the Economics department since 1966; corresponding member of the Problems of World Economics and International Relations Department of the Academy since August 1988. From 1961 to 1966, he was Deputy Director of the Institute of World Economics and International Relations. Since 1966, he has been Director of the International Workers' Movement Institute in Moscow which is subordinate to the academy's Philosophy and Law department and which examines problems of the international workers' movement and of the social composition of the working class both in the USSR and abroad. His works deal with labor issues, the democratic movement and the theory of scientific communism. The institute's name was changed in 1991 to the Problems of the Workers' Movement and Comparative Politology Institute. He continues to be its director. (LDA 89-11378.) (GSE 25, p. 658.)

Retrospect: Established in 1966 as the Institute of the International Workers' Movement; in April 1991, the institute was reorganized under its present name. Its Director is Timur T. Timofeev, a corresponding member of the Russian Academy of Sciences. The staff of the institute numbers 294 researchers of whom 36 hold the doctorate and 137 hold the candidate degree. There is one academician and one corresponding member of the Russian Academy on the staff of the institute. The structure of the institute is complex and the best picture of its work may best be shown by the kinds of research being undertaken by its scientists: under T. T. Timofeev, E. V. Klopov, B. I. Koval', A. M. Salmin, and S. V. Patrushev, work is progressing on "comprehensive study of problems facing various social movements in the changing world"--that includes topics such as the following: socioeconomic policy and the dynamics of manpower under S. V. Pronin, R. I. Tsvylev, and G. G. Pirogov; social and labor conflicts, forms and methods of production democracy in various

areas of economics; role of trade unions under S. A. Ershov, P. Ia. Evzerov; the role of working masses in the processes of renewal and democratization in Russia; analysis of changes in material and social spheres under E. V. Klopov, and L. A. Gordon; trends in the development of the workers' movement in Russia, role of trade-unions and other public organizations under the transition to the market economy under L. A. Gordon; social and political problems of socialization of youth under V. N. Shubkin; the comparative study of the political and economic transformations in China and the USSR under V. G. Gelbras; socio-ecological problems and civil initiatives under O. N. Ianitskii, and B. M. Makliarskii; experience and traditions of workers' movements: the present-day problems of left-wing power under T. T. Timofeev; political cultures, civil society and political organization under A. M. Salmin, B. I. Slavnyi; ways and forms of social progress under S. L. Agaev; problems of mass consciousness; a concept of social movements under S. V. Patrushev; ideology and policy of national liberation movements under O. V. Martyshin; the theory of political process and analysis of political practice under B. I. Koval'; social conflicts in the context of various political cultures under A. M. Salmin; evolution of socio-political thought--the development of socialist ideas under T. T. Timofeev, O. V. Martyshin, and S. V. Patrushev; professional unions and the working masses of the world under L. B. Moskvina. A number of institute scientists are working on two other major Academy-level programs--forecasts of socioeconomic development and biospherical and ecological studies to 2015. The institute has international relationships with a number of scholars and research institutes throughout the world. (See: A Scholars' Guide. . .)



7. Far East Institute in Moscow.

Located at 27 Krasikova st. V-218, Moscow. GSP-7, 117218. tel. 124-02-17. Fax: (095)310-70-56) Directed by Professor Mikhail L. Titarenko.

Retrospect: Founded in 1966 with M. I. Sladkovskii, a corresponding member of the Russian Academy of Sciences as Director. He served until 1985 when M. L. Titarenko was made Director. The institute has 220 researchers of whom 24 hold doctoral and 97 hold candidate degrees. There is one corresponding member of the Russian Academy on the staff.

(Older materials)

Structure of the institute: The institute is organized into five Departments--each with sectors of research areas--and one independent sector and one center:

- (1.) the socioeconomic studies Department with sectors on structural problems and scientific-technical progress; problems of international and economic cooperation, and one laboratory dealing with the study of Chinese economic reforms--the laboratory has the official status of a sector;
- (2.) the domestic policy and ideology of China Department with sectors on ideology, political system and law in of China; culture of the China, and national problems and ethno-sociolinguistics of China;
- (3.) the historical studies Department with sectors on Chinese historical traditions, and the recent history of the People's Republic of China;

- (4.) the international and political issues of the Far East and Soviet-Chinese relations Department with sectors on Soviet-Chinese relations; general problems of Chinese foreign policy, and international and political issues of the Far East and Japan;
- (5.) the systems analysis and scientific information Department with sectors and groups on scientific information; compilation and preparation of scientific and urgent materials, and scientific information and translations;
- (6.) an independent sector on international scholarly ties and foreign Chinese studies;
- (7.) and a Center on theoretical problems of Chinese studies and scientific research implementation.

Among the scientists working on these problems are: A. P. Morozov, L. M. Gudoshnikov, A. M. Grigor'ev, V. F. Feoktistov, V. F. Sorokin, M. L. Titarenko, A. G. Iakovlev, D. V. Petrov, and N. V. Biriulin. International ties: The institute has ties with institutes in the United States (George Washington and Stanford Universities), Japan, Italy, India, South Korea, and a number of institutes of the Chinese Academy of Sciences and the Chinese Social sciences Academy and Chinese universities. Since 1971, the institute has published a bimonthly Problems of the Far East, and since 1973, a general journal on Chinese policy, economy and culture. The institute library houses more than 110,000 items. In 1989, personnel included: Director Titarenko, Mikhail L., since '85; Deputy Directors: Akimov, Vsevolod I., D. Econ. S., since '75; Galenovich, Iurii M., D. Phil. S., since '84; Krivtsov, Vladimir A., C. Phil. S., D. Hist. S., since '69; Miasnikov, Vladimir S., D. Hist. S., since '85; and, Potapov, Vladimir I., C. Econ. S.'75. **(See: A Scholars' Guide. . .)(See: Ruble, Vol. I., p. 384.)**

1997 update:

Institute of Far Eastern Studies, Division of Economics, Russian Academy of Sciences

27, Krasikova St.

117218 Moscow, Russian Federation

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124-08-35

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E-mail: titarenk@ifes.msk.su

The Institute of Far Eastern Studies (IFES) is a leading research institution in the Russian Academy of Sciences (RAS). IFES coordinates studies on modern China, North-East Asia, and Russia's relations with China, Japan, and Korea. The Institute is the successor of democratic traditions inherent in Russian Sinology and Oriental Studies laid by the outstanding scholars such as Bichurin N.Y., Vassilyev V.P., Alexeyev V.M., Conrad N.I. et al. The IFES was established by decision of Presidium of the USSR Academy of Sciences in September, 1966 and Prof. Dr. M.I. Sladkovskii, a Corresponding Member of the USSR Academy of Sciences was appointed to be its Director. From 1985 and on, the Director's position has been held by Prof. Dr. Mikhail Titarenko, Member of the Russian Academy of Natural Sciences (RANS). The Deputy Directors for studies are: Dr. Rustam Aslanov; Corresponding Member of RAS Prof. Dr. Vladimir Miasnikov, and Dr. Vladimir Portyakov; Dr. Anatoly (Anatolii) Kozlov is Executive Secretary of the FES Academic Council, and Mr. Vladimir Zhukov is Deputy Director for Administration.

At present, the IFES research staff includes more than 200 orientalists-- economists, historians, philosophers, politologists, linguists, ecologists, culturologists,

ethnologists including 32 Professors and Doctors and 90 Candidates of Sciences. Experts in the fields of history, economy, international relations, philosophy, East Asian culture such as the RAS Academician S.L. Tihvinskii, the RAS Corresponding Member V.S. Miasnikov, Members of RANS- B.T. Kulik, A.A. Moskalev, L.S. Perelomov, E. P. Piv varova, M.L. Titarenko, A.G. Yakovlev, Member of Academy of Military Sciences and International Academy of information A.V. Bolyatko work in IFES.

IFES has seven research Centers: Center for socio-economic studies of China; Center for studies and forecast of the Russian-Chinese relations; Center for historical and political studies of modern China; Center for comparative studies of East Asian spiritual civilizations; Center for Japanese Studies; Center for Korean studies; and Center of Information and Datapool. Expert training is provided not only for the IFES but also for other Russian and foreign centers of oriental. The IFES Postgraduate School offers specialized Candidate programs in several disciplines, such as economy, international relations, history, philosophy, political science, and philology. Since 1989 IFES also offers Doctoral Programs in two disciplines, i.e. economics and international relations. Research work is carried out in accordance with two main programs of "Russia's Revival" and "Analysis of socio-economic and political developments in China and other East Asian countries. Interests of Russia in East Asia and Asia-Pacific Region." Determination of the main trends of research and formulation of specific themes are the prerogative of the IFES' Academic Council. In the nearest future the priority will be given to following principal research trends:

1. Constant analytical monitoring of most important developments in economy, policy, and international activities of China, Japan, and Republic of Korea.
2. Key problems of Russian-Chinese constructive partnership on international arena towards the 21st century; Bilateral Russia-China relations; China's foreign policy in Asia and Asia-Pacific Region (APR); Prospects of economic cooperation with China and other countries in speeding up development of Siberia and Russian Far East.
3. Role and Place of China in world economy; Economic reforms, dynamics, structural specifics and prospects of China's economic growth.
4. General problems of security and forming of new international relations in North-East Asia and APR; Russia-Japan relations; Internal developments in modern Japanese society; New role of Japan on international arena; Russia-ROK, Russia-DPRK relations and their optimization; Situation on the Korean peninsula and the problem of unification.
5. Political system and modern law in China and Taiwan, including legal regulation of transition to market economy.
6. China's political and social history in the 20th century (this includes two projects: "China's political history in the years of reforms" and "CCP, Comintern, C.P.S.U. (B) and national liberation revolution in China" (publication of the archival documents).
7. Publication of the encyclopedidictionary of "Chinese spiritual civilization"; Specifics of Confucian, Christian, Buddhist, and Muslim cultures and their respective interrelation with Eurasian components of the Russian culture.

The Centers' Programs

Center for socio-economic studies of China

Chairman: Dr. Portyakov V.Y.

1. Theory and practice of China's socio-economic development.
2. China's role in world economy.
3. Theory and practice of economic reforms in People's Republic of China.
4. Global environmental problems in Asia-Pacific Region.

Center for studies of the Russian-Chinese relations and prognosis of their development

Chairman: Corresponding Member of RAS Miasnikov V. S.

1. Interests of Russia and China in APR.
2. Russia and China: the history, present and future of the Russian-Chinese relations.

Center for historical and political studies of China

Chairman: Dr. áslanov R. í.

1. General problems of Chinese history.
2. China's political history in the '80s period of reforms
3. Political and ideological developments in China.

Center of comparative study of East Asian spiritual civilizations

Chairman: the RANS Academician Titarenko í. L. 1

1. Chinese civilization at the threshold of the 21st century: traditions and modernization (human individual-- society-culture).
2. East Asia as a cultural area.
3. Comparative analysis of Oriental and Western systems of socialization and education.

Center for Japanese studies

Chairman: Dr. Pavlyatenko V.N.1

1. Japan's foriegn & domestic policy and ideology.
2. Problems of peace, security and development in North-East Asia.

Center for Korean studies

Chairman: Dr. Tkachenko V.P.1

1. Foreign and domestic policy of the DPRK and ROK.
2. ROK's economic development.

Center of information and datapool

Chairman: Dr. Smirnov D.á.1

1. Information support of all IFES programs and projects.
2. Perfection of information service system on the basis of an Electronic databank.

IFES also has Management Department to establish and run business and economic relations with various organizations in Russia and abroad, as well as the "Academia" Fund taking care of the staff's social insurance.

Every year the Institute receives dozens of positive comments and appreciations of fundamental studies and practical advises provided for various public and academic organizations as well as bodies of Russian Federation legislative and executive authorities.

The IFES's staff has the privilege of convenient access to the collection of the RAS Sinological Library that is located in the same building as the Institute. Now the Sinological Library collection houses approximately 300,000 volumes in Chinese, Japanese, Mongolian, Korean, Uigur and other Oriental and Western languages. Collection of Sinological Library is one of the biggest specialized collections of the academic literature and documents on China (social sciences) in the world (outside China and Japan) and the biggest in Russia. IFES receives ITAR-TASS agency's news reports, and continuously enriches its Electronic databank on China and Asian-Pacific countries.

In 1984 the All-Russian Sinological Association (RAKIT) was founded on the base of IFES and other home centers of Chinese studies. RAKIT unites most of Russian specialists on China working in the academic and practical fields. The RAKIT itself works actively to disseminate knowledge and methodology of Chinese studies.

IFES maintains broad bilateral and multilateral academic ties at the national and international levels. IFES has active contacts with more than 20 research centers and universities of Asia, America, Australia and Europe. Exchange of information and scholars, as well as coordination of joint the research projects take place under agreements on cooperation. IFES participates in numerous Russian and international academic conferences and symposia on China, East Asia and Asia-Pacific region. The IFES' regular conferences on "China and world" have won the international status since 1994. IFES has been recognized as a highly-reputed center of Oriental studies in China, Korea, Japan, USA, Taiwan, Hongkong and many European countries. In 1995, the IFES' dedication to East Asian studies was awarded by Niigata Prize "For the great contribution to development and mutual understanding and cooperation in Sea of Japan Rim", while the Korea Foundation provided its special grant for the further progress of Korean studies. IFES is the collective member of the IACCS, the Russian Association for friendship with China, the Center for modern Japanese studies, and the Russian National Committee for economic cooperation in Pacific.



8. Cybernetics Scientific Research Institute in Moscow.

Retrospect: Established in 1969. Develops information and computing system for planning, accounting, reporting, and operational management of Agricultural and other production. In 1986, the Institute for Systems Programs was established with people from this institute. At the same time a new institute for Automated Projections was established in Moscow. Scientific Personnel: Director Belchanskii, Gennadi I., since '80; Deputy Director Semenov, Mikhail I., since '76.



9. Foreign Economy Research Institute in Moscow

Located at 44 Build 2. Vavilova st., V-333, Moscow. 117333. tel. 930-11-95. Directed by Academician Stepan A. Sitarian.

Sitarian, Stefan A. D. Econ. S. Corresponding member of the Economics Department of the Academy since 1984; academician since December 1987. He is presently director of the Foreign Economy Research Institute (FERI) located in Moscow.



10. Social Economic Problems Institute in St. Petersburg.

Located at 50a, Shpalernaia (aya) st., St. Petersburg, 193015, tel. 272-06-46. Directed by Professor Anatolii Ye. Kogut, tel. 292-48-65,

Retrospect: Established in 1975 by merging some St. Petersburg branches of Academy institutes such as the Institute of Economics, the Central Economic-Mathematical Institute, the Institute of the History of the Natural Sciences and Technology, the Institute of Sociological Research, the Institute of Philosophy, and the All-Union Scientific Research Institute on the Problems of Organization and Management under the State Committee on Science and Technology into this independent Institute under the direction of Anatolii E. Kogut, D. Econ. S. In 1987, the institute was subordinated to AN SSSR and the State Committee on Labor and Social Issues. The staff of the institute consists of 135 researchers of whom 15 hold doctoral degrees and 60 hold candidate degrees.

(Older materials)

Structure of the institute: There is an office of Head researchers and consultants, a center for public opinion studies, and a center for regional policy and political sociology. The Departments of the institute include:

- (1.) a Department on the regional problems of management of scientific-technical progress with sectors on control over research and development, control over the quality and technological level of production, the efficiency of scientific and technical programs, and groups on problems of the interaction between science and production under a system of cost accounting and problems of the Academy-level management of science;
- (2.) a Department on socioeconomic problems of regional development with a sector on regional problems of organization of production and groups for regional management and one on regional problems of human ecology;
- (3.) a Department on social and economic problems of regional ecology with a sector on socioecological problems of settlement and groups for studying international experience of cities, their development and self government, and the problems of habitat creation;
- (4.) a Department on socioeconomic problems of labor with sectors on the socioeconomic problems of labor, methodology of forming social and economic standards and groups on socioeconomic problems of the rational exploitation of material resources and social problems of the development of the scientific-technical activity of people;
- (5.) a Department on the socio psychological problems of management with a sector on the socio psychological problems of regional management and a group for the social and psychological problems influencing the humanization of production;
- (6.) a Department on the employment of people;
- (7.) a Department on providing information on the socioeconomic processes, and an independent sector on the theory of economic reforms and a special group studying the problems related to youth.

There is sizable archives attached to the institute. (See: Ruble, Vol. I, p. 107; Vol. II., pp. 363-364.)



11. Socioeconomic Problems of the Development of the Agrarian Industrial Complex Institute in Saratov.

Located at 94 Lenina ave. Saratov, 410600. tel. 24-24-26. For telegrams 410600 Saratov Agrarnik. Directed by Corresponding Member Anna A. Anfinogentova. tel. 24-24-26.

Anfinogentova, Anna A. Economist in Saratov. Corresponding member of the Economics Department of the RAS and member of the Bureau of the Economics Department of the Academy in 1993. She is presently the director of the Institute of Social-Economical Development Problems of Agricultural-Industrial Complex (ISEDPAIC) in Saratov.

Retrospect: Established in 1980 with Vladimir B. Ostrovskii, D. Hist. S., as its first Director. The institute staff numbers some 113 researchers of whom four have doctoral and 32 have candidate degrees.

(Older materials)

Structure of the institute: There are two Departments--social and economic--and eight sectors:

- (1.) methodology of planning;
- (2.) economic mechanisms and management;
- (3.) economics and forecasting scientific-technical progress;
- (4.) analysis of mathematical data;
- (5.) demography and labor resources;
- (6.) forming the living environment;
- (7.) coordination and scientific information, and
- (8.) an Ul'ianovsk affiliate with the full rights of a sector.

The institute also maintains 20 task groups. Researchers working on the problems dealt with in these sectors include: V. D. Khlopov, O. V. Ermolova, P. P. Velikii, V. N. Kriuchkov, and A. G. Blinov. (See: **A Scholars' Guide. . .**)



12. National Economy Prediction Institute in Moscow.

Located at 32 Krasikova st., V-418, Moscow. 117418. te129-18-00. Directed by Academician Iurii V. Yaremenko. tel. 129-39-44.

Yaremenko, Iurii V. Born in 1935. Corresponding member of the Economics Department of the Academy since December 1987; academician in 1993. He has been the Director of the Economics and Forecasting of Scientific-Technical Progress Institute in Moscow which was established in 1985 and has some 15 laboratories: methods and models of medium and short-term forecasting laboratory; the organization and methodological provision of complex socioeconomic forecasting laboratory; information provision of complex socioeconomic forecasting laboratory; long-term problems of development of the sociocultural sphere

laboratory; regional problems of socioeconomic development laboratory; problems of the function of science in the national economy laboratory; organizational and economic problems of controlling scientific-technical development laboratory; problems of analysis and socioeconomic decision-making laboratory; problems of the mechanism of the realization of scientific-technical decisions laboratory; analysis of current economic processes laboratory; software and use of personal computers laboratory; computing technique laboratory; analysis and comparison of trends in international economic and scientific-technical development laboratory; methods of evaluation and choice of economic objects for development; and, the forecasting laboratory. He is presently the director of the National Economy Prediction Institute in Moscow. (INEP)

Retrospect: Established in 1985 from several laboratories of the Central Economic-Mathematical Institute of the Russian Academy of Sciences. Its first Director was A. I. Anchishin (1986-88); since 1988 its Director has been Iurii V. Yaremenko, corresponding member of the Russian Academy. The institute has a staff of 250 researchers of whom 12 hold doctoral degrees and 111 hold candidate degrees. There is one academician and one corresponding member of the Russian Academy on the staff.

(Older materials)

Structure of the institute: The institute has 15 laboratories and one independent sector on the organization of scientific research: Scientists at work on these many problems include: Iurii V. Yaremenko, V. V. Ivanter, S. S. Shatalin, V. G. Grebennikov, A. S. Nekrasov, B. G. Saltykov, N. I. Komkov, A. E. Varshavskii; O. S. Pchelintsev, and E. B. Ershov.



13. Institute of Automated Projections in Moscow was established in 1986.



14. Institute of Systems Programs in Moscow was established in 1986 from a part of the Cybernetics Institute.



15. Socioeconomic Problems of Population Institute in Moscow.

**Located at 27 Krasikova st., V-218, Moscow, 117218. tel. 129-04-00.
Directed by Professor Natalia Rimashevskaja (aya).**

Retrospect: The institute was founded in 1988 and is subordinate to the Russian Academy of Sciences and the State Committee on Labor and Social Problems. It is under the Directorship of Natalia M. Rimashevskaja (aya), D. Econ. S. The staff numbers 77 researchers among whom there are 6 doctors and 47 candidates. The institute places emphasis in its research on the methodological approaches to and finding solutions for the socioeconomic problems of population--the study of demographic processes and demographic forecasting--and on the study and forecasting of public welfare requirements.

(Older materials)

Institute structure: The institute has a Department for international demographic research and the following 10 laboratories:

- (1.) distributional relations laboratory;
- (2.) qualitative characteristics of the population laboratory;
- (3.) social infrastructure laboratory;
- (4.) socioeconomic problems of culture laboratory;
- (5.) computerization laboratory;
- (6.) socioeconomic problems of keeping society informed laboratory;
- (7.) the demographic problems of family laboratory;
- (8.) economic demography laboratory;
- (9.) regional problems of health and the duration of life, and
- (10.) the problems of the educational and professional qualification potential of the population.

The institute is tied to the EEC, UNESCO, UNISEF, and with institutions in Germany, Hungary, Poland, and Czechoslovakia, and with the European Association on Demographic Studies.



16. Market Problems Institute in Moscow.

**Located at 32 Krasikova st. V-418, Moscow, 117418. tel. 129-10-00.
Directed by Academician Nikolai I. Petrakov.**

Petrakov, Nikolai Ia. Corresponding member of the Economics Department of the Academy since 1984; academician in 1993. Since 1973, he has been a deputy director of the Central Economic and Mathematics Institute in Moscow. The institute engages in contemporary mathematical economic work and has a major responsibility for developing national economic and industrial plans. In late 1990, he was named Director of a new institute--the Market Problems Institute in Moscow.

Retrospect: This institute was organized in late 1990 from a number of units transferred from the Central Economic-Mathematical Institute for the purpose of improving the national economic mechanism. Academician Nikolai I. Petrakov is the Director of the institute. Its staff consists of 170 researchers of whom 15 hold doctoral degrees and 25 hold candidate degrees. There are two academicians of the Russian Academy on its staff. In the 1990s researchers in the institute will work on the theory and methodology of organizing markets in a socialist economy; problems of the effective use of economic levers within the system of economic management; the patterns of functioning and the evolution of market structures and mechanisms--the forming of a system of control of market processes--, and the modeling of the interaction and integration processes between the internal and world markets. The institute has established ties with scientific and research units in universities in the United States, Great Britain, France, Italy, Sweden, Japan, Finland, South Korea, Poland, Czechoslovakia, Hungary and other countries.

(See: A Scholars' Guide. . .)



17. Economic-Mathematical Institute in St. Petersburg.

Retrospect: This institute was established in late 1990 from the mathematical subdivision of the Institute of Socioeconomic Problems of the Russian Academy of Sciences. Its Director is Boris L. Ovsievich, D. Econ. S. It has a staff of 77 researchers that includes 6 holding doctoral degrees and 27 holding candidate degrees.

(Older materials)

Institute structure: The institute is organized in six laboratories:

- (1.) study of operations laboratory;
- (2.) mathematical methods of data analysis laboratory;
- (3.) mathematical models of management laboratory;
- (4.) systems programming laboratory;
- (5.) interactive systems, and
- (6.) the technical development of computer systems.

The institute has groups on methods of forecasting and decision-making, mathematical modeling of environmental changes, and mathematical modeling of city planning. The institute has a computer center. The institute has established ties with Humboldt University in Berlin, a technological high school in German, the Royal Technological Institute in Stockholm, The University of Illinois, Northeastern University, Michigan State University in East Lansing, the Scientific Research Laboratories of the Chicago Federal Reserve Bank, the University of Rome, the Chinese Academy of Sciences, and institutions in Austria and France. (See: A Scholars' Guide. . .)



18. Social Economic Problems Institute (under the Russian Academy of Sciences and the Ministry of Employment) in St. Petersburg.

Located at 50a Shpalernaia (aya) st. St. Petersburg, 193015, tel. 272-06-46. Directed by Professor Anatolii Y. Kogut. Tel. 292-48-65



19. Employment Problems Institute (under the Russian Academy of Sciences and the Ministry of Employment) in Moscow

Located at 15. Pervoy Mayevski alley, Moscow. 111395. te374-67-31. Directed by Corresponding Member Konstantin I. Mikulskii.

Mikul'skii (Mikulskii), Konstantin I., D. Econ. S., Corresponding member of the Economics Department of the Academy since December 1987. Since 1979, he has been one of the Deputy Directors of the Economics of the World Socialist System Institute in Moscow that was established in 1961 to act as a model for other Socialist States to follow in their economic planning. He headed the Growth subdepartment of that institute from 1978. In 1985, he was the recipient of the N. G. Chernishev Prize for his work. He is presently director of the Institute of Employment Problems in Moscow which is under the Russian Academy of Sciences as well as under the Russian Ministry of Employment. (LDA 89-11378.)



20. Commission on Productive Forces and Natural Resources Investigations in Moscow

Located at 26 Maronovskaia (aya) st., Moscow, GSP-1, 117994. Directed by Academician Vladimir P. Mozin.



21. Sochi Scientific Research Center

Located at 8a, Teatrainaiia (aya) st., Sochi, 154000. Directed by Dr. Marat M. Amirhanov. tel. 92-37-71.



22. Vologda Scientific-Coordination Center

Located at 25 Pushkinskaia (aya) st., Vologda. 160600. Directed by Dr. Vladimir A. Il'in. tel. 2-46-52..



23. Economic Theory and Enterprise Department in Moscow

Located at 27 Krasikova st., V-218, Moscow, 117218. tel. 129-04-45. Directed by Professor Soltan S. Dzarasov.



24. Transient Period Economic Problems Institute (Under the National Economics Academy and the Russian Academy of Sciences) in Moscow.

Located at 5, Ogareva st., K-9, Moscow. 103918. Directed by Professor Egor T. Gaidar. Tel. 202-47-82. Fax: 202-39-93.



25. Scientific Research Institute of Management under the Russian Economy Ministry in Moscow

Located at 14, build. 1, Kraizanovskogo st., Moscow, 117218. tel. 124-76-02. Fax (095) 125-08-13. Directed by Professor Vadim P. Elizarov.

1997 update:

Institutions and Organizations of the Department: this is the latest list of scientific research institutes and other units under the direct control or the research supervision of the department:

1. Central Economical Mathematical Institute (CEMI)

32, Krasikova st., V-418, Moscow, 117418, tel. 129-16-44

Directed by academician Valerii (Valerii) L. Makarov, tel. 129-10-11

- 2. National Economy Prediction Institute (INEP)**
32, Krasikova st., V-418, Moscow, 117418, tel. 129-18-00
Directed by academician Iurii V. Iaremenko, tel. 129-39-44
- 3. Market Problems Institute (MPI)**
2, Krasikova st., V-418, Moscow, 117418, tel. 129-10-00
Directed by academician Nikolai Iak. Petrakov, tel. 129-10-00
- 4. Social Economical Problems Institute (SEPI) under RAS and Russian Ministry of Employment**
50a, Shpalernaia st., Saint-Petersburg, 193015, tel. 272-06-46
Directed by Prof. Anatolii Iem. Kogut, tel. 292-48-65
- 5. Institute of Social-Economical Development Problems of Agricultural Industrial Complex (ISEDPAIC)**
94, Lenina ave., Saratov, 410600
tel. 24-24-26, for telegrams: 410600 Saratov Agrarnik
Directed by corresponding member Anna An. Anfinogentova, tel. 24-24-26
- 6. Institute of Social-Economical Population Problems (ISEPP)**
27, Krasikova st., V-218, Moscow, 117218, tel. 129-04-00
Directed by Prof. Natalia . Rimashevskaja, tel. 129-04-00
- 7. Institute of Employment Problems (IEP) under RAS and Russian Ministry of Employment**
15, Pervoi Maievki Alley, Moscow, 111395, tel. 374-67-31
Directed by corresponding member Konstantin Iv. Mikulskii, tel. 374-67-31
- 8. Commission on Productive Force and Nature Resources Investigation (CPFI)**
26, Maronovskaia st., Moscow, GSP-1, 117994
Directed by academician Vladimir P. Mozin, tel. 238-00-58
- 9. Sochi Scientific-Research Center (SSRC)**
8a, Teatralnaia st., Sochi, 154000, tel. 92-37-71
Directed by Dr. Marat M. Amirhanov, tel. 92-37-71
- 10. Vologda Scientific-Coordination Center**
25, Pushkinskaia st., Vologda, 160600
Directed by Dr. Vladimir Al. Iliin, tel. 2-46-52
- 11. International Economical and Political Research Institute**
46, Novocheriemushinskaia st., V-418, Moscow, 117418, tel. 128-80-70
Directed by academician Oleg T. Bogomolov, tel. 120-82-00
- 12. Far East Institute (FEI)**
27, Krasikova st., V-218, Moscow, GSP-7, 117218, tel. 124-02-17, fax: (095) 310-70-56
Directed by Prof. Mikhail L. Titarenko, tel. 124-01-17
- 13. Foreign Economy Research Institute (FERI)**
44, build.2, Vavilova st., V-333, Moscow, 117333, tel. 930-11-95

Directed by academician Stepan Ar. Sitarian, tel. 930-64-00

14. Economical Theory and Enterprise Department
27, Krasikova st., V-218, Moscow, 117218, tel. 129-04-45
Directed by Prof. Soltan S. Dzarasov, tel. 129-04-45

**15. Transient Period Economical Problems Institute (TPEPI) under NEA
(National Economy Academy) and RAS**
5, Ogareva st., K-9, Moscow, 103918
Directed by Prof. Egor T. Gaidar, tel. 202-47-82, fax: 202-39-93

**16. Scientific-Research Institute of Management under the Russian
Economy Ministry**
(Russian Academy of Sciences carries out scientific-systematic direction
over the Institute)
14, build.1, Krzizanovskogo st., Moscow, 117218
tel. 124-76-02, fax: (095) 125-08-13
Directed by Prof. Vadim P. Elizarov, tel. 124-76-02

National Economics Research:

In the former Soviet Union as a whole there were 34 economics research institutes distributed throughout the nation in 25 different cities. These economic institutes provided a means for consolidating the economic and industrial planning of the Soviet Union, and in the economic changes beginning to occur may prove to be extremely useful institutions.



The institutes not directly under the subordination of the Economics Department of the Russian Academy of Sciences in Moscow (23 in number) are listed below with their

earliest known founding dates. It is important to note that one may almost date the development of the national economy of the Soviet Union as it developed after World War II by observing the dates of the establishment of the Economics Scientific Research Centers in the various regions of the RSFSR and the 14 other republics.

1930s

1. Economics Institute in Minsk. Founded in 1932.

1940s

2. Economics and Law Institute in Tbilisi. Although the academy was founded in 1941, it did not begin operation until after WWII at which time the Economics and Law Institute was among the first of the academy's institutes to begin to function.
3. Economics Institute in Tashkent.
4. Economics Institute in Vilnius.
5. Economics Institute in Riga.
6. Economics Institute in Tallinn.
7. Economic Research Department in Petrozavodsk.
8. Economic Research Department in Syktyvkar.
9. Economics Institute in Kiev.
10. Industrial Economics Institute in Donetsk.
11. Economics Institute in Ekaterinburg (Sverdlovsk).
12. Economic Research Department in Ufa.
13. Economics Institute in Dushanbe. In the 1940s an economics section was established in the Tadzhik branch of the USSR Academy of Sciences which became the Economics Institute in 1951 when the Tadzhik SSR Academy opened its doors.

1950s

14. Economics Institute in Ashkhabad. Opened with the founding of the Turkmen SSR Academy in 1951, though a smaller unit had operated in the Turkmen branch of the USSR Academy of Sciences.
15. Economics Institute in Alma Ata. Founded in 1952 by a merger between the economic sector of the Kazakh Academy and the Institute of Agricultural Economics of the Kazakh Branch of the All-Union Academy of Agricultural sciences .
16. Economics Institute in Frunze.
17. Economics Institute in Erevan. Elevated to Institute status in 1955.
18. Economics and Organization of Industrial Production Institute in Novosibirsk.
19. Economic Research Department in Makhachkala.

1960s

20. Economics Institute in Kishinev. The institute was one of the original clusters of research institutes that comprised the Moldavian Academy of Sciences at its opening in 1961.
21. Economics Institute in Baku.

1970s

22. Economic Studies Institute in Khabarovsk. Opened in 1971. It joins scholars from Vladivostok, Blagoveshchensk, Petropavlovsk-Komchatka, and Khabarovsk in research on foreign trade, regional economic development and economic management. Its scientists study the economic development of the Far East.

1980s

23. Management Systems Institute in Tbilisi.



**Department of World Economy Problems and of International Relations
(DWEPIR) in Moscow**
23, Profsouznaia st., GSP-7, Moscow, 117859, tel.128-33-33

Academician Secretary: Vitalii V. Zhurkin

Retrospect: This Department of the academy is the newest, having been formed in August of 1988. Its establishment reflects the importance placed upon its subject-matter by the Presidium of the academy. In May 1989, the Department had four academicians and eleven corresponding members. However the experience and positions of influence of the persons involved makes up for the small numbers of individuals in the Department. Initially, membership in the new Department totaled four academicians and 11 corresponding members. Members of the Department counted some five Directors and four Deputy Directors of major Scientific Research Institutes under the jurisdiction of the Social sciences section of the academy.

Academicians--ages and schools: Two of the four academicians of this new Department are in their 80s and two are in their early 60s. They graduated from four different institutions that include: the Moscow Institute of Oriental Studies; the Moscow Institute of International Relations; the Leningrad State University, and the Kharkov University.

Corresponding Members--ages and schools: Because of the newness of this Department in part, little is known about the background of the corresponding members. Eight of the 11 corresponding members birth dates are known, and unlike many of the other Departments, the oldest corresponding member is 73 and the youngest is 46. The average age of the remaining six is 64 years. While ten of the 11 corresponding members hold advanced degrees, the institutions from which they

received those degrees is known in only two cases and those institutes were: the Omsk Pedagogical Institute and the V. V Kuibyshev Industrial Institute.

(1997 update)

Bureau of the Department

Academician-Secretary

Academician Vitalii V. Zurkin , tel.203-73-43

Zhurkin, Vitalii V., D. Hist. S. Corresponding member of the Economics Department of the Academy since August 1984; and academician of the Problems of World Economics and International Relations Departments since 1993. From 1971 to 1988, he was a Deputy Director of the United States of America and Canada Institute. He is presently Academician Secretary of the Department of World Economy Problems and International Relations of the Russian Academy of Sciences.

Deputies of the Academician-Secretary responsible for the scientific work:

Academician Georgii Ar. Arbatov, tel.290-58-75

Arbatov, Georgii A., D. Hist. S. Born in 1923 in Kherson. Russian historian and economist. Corresponding member, 1970; academician, 1974--of the Economics Department of the Academy. Academician of the new Department, Problems of World Economics and International Relations, since August 1988. He graduated from the Moscow Institute of International Relations in 1949. From 1949 to 1962, he worked for the Foreign Literary Publishing House and for the journals Voprosy filosofii, Kommunist, and Problemy mira i sotsializma. From 1962 to 1964, he was head of a section of the Institute of World Economics and International Relations of the AN SSSR and the RAN. From 1964 to 1967 he was a member of the staff of the CC CPSU. Since 1967, he has been director of the USA and Canada Institute in Moscow that was founded in 1967 to support research on the history, international relations, economic policies, and the sociological and social composition of the USA and Canada. He was a member of the Central Auditing Committee of the CPSU from 1971 to 1976. He became a candidate member of the CC CPSU in 1976 and a member of the CC CPSU in 1981. He was a deputy to the 9th and 10th Convocations of the Supreme Soviet of the U.S.S.R. His works are on foreign policy and international relations. He has been a member of the Presidium since October 1988. (GSE 30, p. 16.)

Academician Vladlen Ar. Martynov, tel.120-43-32

Martynov, Vladlen A., D. Econ S. Born in 1929. Corresponding member of the Problems of World Economics and International Relations Department of the Academy since August 1988; academician in 1993. Since 1972, he has been a Deputy Director of the World Economics and International Relations Institute in Moscow, and in 1989 he was elevated to the directorship of the World Economics and International Relations Institute in Moscow which was established in 1956 taking the place of the Institute of World Economy and World Politics (1927-1947) and that from 1947 to 1956 was part of the Economics Institute of the AN SSSR.

Corresponding member Nodari Al. Simoniia, tel.128-84-50

Simoniya, Nodari A. Corresponding member of the Department of World Economy Problems and International Relations of the Russian Academy in 1993.

Responsible for scientific-organizing questions: Prof. Aleksei Iv. Semienov, tel.128-33-33

Members of the Bureau:

Academician Evgenii M. Primakov, tel.429-30-09

Primakov, Evgenii M., D. Econ. S. Born in 1929 in Kiev. Russian economist specializing in international affairs and historian. Corresponding member of the Economics Department of the Academy since 1974, and academician since 1988, when he was made Academician Secretary of the Problems of World Economics and International Relations Department of the Academy. He graduated from the Moscow Institute of Oriental Studies in 1953. Between 1953 and 1962, he served on the State Committee for Television and Radio Broadcasting. From 1962 to 1970, he worked at the Asia and Africa desk of Pravda as an analyst, and later as associate editor. In 1970, he became assistant Director of the Institute of World Economy and International Relations of the AN SSSR. From 1978 to 1985, he was director of the Oriental Studies Institute in Moscow. Since 1985, he has been Director of the World Economics and International Relations Institute in Moscow, that was established in the mid-1950s. He became Academician Secretary to the Department in October 1988. He has written much on the economic, political, and social processes in Egypt and other Arab countries, on new manifestations and trends in the relations between developing nations and imperialist countries, and on certain theoretical problems of continuing international development. Nasser Prize, 1975. (GSE 20, p. 537.)

Academician Aleksandr N. Iakovlev, tel.157-77-96

Yakoviev, Aleksandr N., D. Hist. S. Corresponding member of the Economics Department since 1984. Corresponding member of the World Economics and International Relations Department of the Academy since August 1988; academician in 1993.

Corresponding member Viktor V. Volskii, tel.231-53-23

Vol'skii (Volskii), Viktor V., D. Econ. S. Corresponding member of the Economics Department of the Academy since 1984. Corresponding member of the Problems of World Economics and International Relations Department of the Academy since August 1988. Since 1966, he has been director of the Latin American Institute in Moscow which was founded in 1961 to research the economic, agrarian and political problems of Latin American states, including Cuba. (LDA 89-11378.)

Corresponding member Anatolii An. Gromyko, tel.290-63-85

Gromyko, Anatolii A., D. Hist. S. Born in 1932. Corresponding member of the Problems of World Economics and International Relations Department of the Academy since August 1988. Since 1976, he has been Director of the Africa Institute in Moscow. Established in 1959, this institute researches economic, socio-political, international, historical, and cultural-ethnological problems of African states. Corresponding member of the History department since 1981. (LDA 89-11378.)

Corresponding member Timur T. Timofeiev, tel.916-37-03

Timofeev, Timur T., D. Hist. S. Born in 1928 in Ivanovo. Russian historian and economist. Corresponding member of the Economics department since 1966; corresponding member of the Problems of World Economics and International Relations Department of the Academy since August 1988. From 1961 to 1966, he was Deputy Director of the Institute of World Economics and International Relations. Since 1966, he has been Director of the International Workers' Movement Institute in Moscow which is subordinate to the academy's Philosophy and Law department and which examines problems of the international workers' movement and of the social composition of the working class both in the USSR and abroad. His works deal with labor issues, the democratic movement and the theory of scientific communism. The institute's name was changed in 1991 to the Problems of the Workers' Movement and Comparative Politology Institute. He continues to be its director. (LDA 89-11378.) (GSE 25, p. 658.)

Prof. Aleksandr L. Vasiliev, tel.128-93-89

Prof. Boris Ios. Koval, tel.231-53-23

Prof. Iurii Ash. Petrosian, tel.315-87-28(SPb)

Scientist-Secretary: Mihail An. Pimsha, tel.120-81-25

Staff of the Department

Tatiana N. Baranova, tel.120-81-28

Leila Iur. Merdenova, tel.120-81-28

Dr. Tatiana Al. Novikova, tel.120-81-28

Academicians

Arbatov, Georgii A., D. Hist. S. Born in 1923 in Kherson. Russian historian and economist. Elected member of the Academy Presidium in 1988. Corresponding member, 1970; academician, 1974--of the Economics Department of the Academy. Academician of the new department, Problems of World Economics and International Relations, since August 1988. He graduated from the Moscow Institute of International Relations in 1949. From 1949 to 1962, he worked for the Foreign Literary Publishing House and for several important journals. From 1962 to 1964, he was Head of a section of the Institute of World Economics and International Relations of the Academy. Since 1967, he has been Director of the USA and Canada Institute in Moscow. The Institute of the United States was created in 1968, and included research sectors in the academy dealing with North American concerns. In 1974, the USA Institute was renamed the Institute of the USA and Canada, with a Canadian section being created at that time. Its scholars research the history, international relations, economic policy, and sociological and social composition of the USA and Canada. In 1992, the institute had a staff of 254 researchers that included 34 holders of the doctoral and 150 holders of candidate degrees. Its staff includes one academician and one corresponding member of the RAS. His works are on foreign policy and international relations. (GSE 30, p. 16.)

Martynov, Vladlen A., D. Econ S. Born in 1929. Corresponding member of the Problems of World Economics and International Relations Department of the Academy since August 1988; academician in 1993. From 1972, he was a Deputy Director of the World Economics and International Relations Institute in Moscow, and in 1989 he was elevated to the Directorship of the World Economics and International Relations Institute in Moscow which was established in 1956 taking the place of the Institute of World Economy and World Politics (1927-1947) and that

from 1947 to 1956 was part of the Economics Institute of the Academy. This is a large institute whose staff numbers more than 727 researchers of whom 93 hold doctorates and 361 hold candidate degrees. The staff includes one academician and three corresponding members of the Russian Academy of Sciences. In 1992, there were 18 Departments with various subsectors in the institute. The institute sets up sections and task forces to study new problems as they develop.

Mileyskii, Abram G., D. Econ. S. Born in 1911 in Minsk. Russian economist. Corresponding member, 1966, and academician, 1981. He has also been an academician of the Economics Department of the Academy since 1981. Academician of the new Department since August 1988. He graduated from Leningrad State University in 1932 and was a docent there from 1935 to 1940. From 1940 to 1956, he served in the Red Army. He became Head of a sector of the Institute of World Economics and International Relations of the Academy in 1956. His works are on the economics of continuing improvement, the analysis and critique of bourgeois economic theories, and international relations. (GSE 16, p. 305.)

Primakov, Evgenii M., D. Econ. S. Born in 1929 in Kiev. Russian economist specializing in international affairs and historian. Corresponding member of the Economics Department of the Academy since 1974, and academician since 1988, when he was made Academician Secretary of the Problems of World Economics and International Relations Department of the Academy. He graduated from the Moscow Institute of Oriental Studies in 1953. Between 1953 and 1962, he served on the State Committee for Television and Radio Broadcasting. From 1962 to 1970, he worked at the Asia and Africa desk of Pravda as an analyst, and later as associate editor. In 1970, he became assistant Director of the Institute of World Economy and International Relations of the Academy. From 1978 to 1985, he was Director of the Oriental Studies Institute in Moscow. Since 1985, he has been Director of the World Economics and International Relations Institute in Moscow, that was established in the mid-1950s. He became Academician Secretary to the Department in October 1988. He has written much on the economic, political, and social processes in Egypt and other Arab countries, on new manifestations and trends in the relations between developing nations and imperialist countries, and on certain theoretical problems of continuing international development. He received the Nasser Prize in 1975. (GSE 20, p. 537.) (See above.)

Smirnov, G. V., D. Econ. S. Academician of the Economics Department since 1993. He is a leading researcher in the Africa Institute and is heading a study on economic cooperation between the Soviet Union and the developing African States together with L. N. Aksiuk, Iurii M. Osipov, and one on control over exports in the African countries with S. A. Bessonov, G. I. Ruinstein.

Iakovlev, Aleksandr N., D. Hist. S. Corresponding member of the Economics Department since 1984. Corresponding member of the World Economics and International Relations Department of the Academy since August 1988; academician in 1993. He also serves on the Bureau of the Department.

Zhurkin, Vitalii V., D. Hist. S. Corresponding member of the Economics Department of the Academy since August 1984; and academician of the Problems of World Economics and International Relations Department since 1993. From 1971 to 1988, he was a Deputy Director of the United States of America and Canada Institute. In 1988 he became Director of the European Studies Institute of the Academy. Founded in 1988, the institute emphasizes study of European affairs and foreign policy formation in Europe. It has a staff of 43 researchers of whom five hold the doctorate and 21 hold the candidate degree. One corresponding member of the Russian Academy of Sciences is on the staff. The institute has established relations with the Atlantic Council of the United States, the Institute of East-West Security Problems at Stanford University; the School of Advanced International Studies of the Johns Hopkins University, the British Academy; the Royal Institute of International

Affairs, the International Institute for Strategic Studies; the Royal College of Great Britain, the Aspen Institute; the Economic Research Institute and European Academy; the Research Institute of Peace Problems and Security Policy; the Kiel Institute for Economic Research; the Institute of Federal Industry in Germany; the Institute of Politology and the Institute of Europe of the University of Amsterdam; the Center for European Political Studies in Belgium; the Council of Europe in France; the Stockholm International Peace Research Institute, and the Institute of Europe in Finland.

Corresponding Members

Bykov, Oleg N., D. Hist. S. Born in 1926. Corresponding member of the World Economics and International Relations Department of the Academy since August 1988. Since 1978, he has been Deputy Director of the World Economics and International Relations Institute in Moscow. (LDA 89-11378.)

Gromyko, Anatolii A., D. Hist. S. Born in 1932. Corresponding member of the History department of the Academy since 1981. Corresponding member of the Problems of World Economics and International Relations Department of the Academy since August 1988. Since 1976, he has been Director of the Africa Institute in Moscow. Established in 1959, this institute researches economic, socio-political, international, historical, and cultural-ethnological problems of African states. The institute employs 209 scholars of whom 19 hold doctoral degrees and 125 hold candidate degrees. The institute maintains a small branch in St. Petersburg. Institute scholars work in sections of modern problems, international relations of African states, social and economic problems of African countries, history, and language study. It coordinates its work with the Institute of Oriental Studies. The institute is structured in five major Departments, a scientific archives and an editorial and publications Department. It maintains groups on mathematical modeling, the study of capitalism in Africa, statistics, analysis of the economic mechanism, African religions, law, and human rights.

Kokoshin, Andrei A., C. Hist. S. and D. Phil. S. Born in 1945. Since 1984, he has been Deputy Director of the United States and Canada Institute in Moscow, which was established in 1967. Corresponding member of the Problems of World Economics and International Relations Department of the Academy department since August 1988. (LDA 89-11378.)

Shakhnazarov, Georgii Kh. Born in 1924. Corresponding member of the Problems of World Economics and International Relations Department of the Academy since August 1988. (LDA 89-11378.)

Simoniya, Nodari A. Corresponding member of the Department of World Economy Problems and of International Relations of the Academy in 1993. She also serves on the Bureau of the Department.

Solodovnikov, Vasilii G., D. Econ. S. Born in 1918. Russian economist. Corresponding member of the Economics Department since 1966. Corresponding member of the new Department since August 1988. He graduated from the V. V. Kuibyshev Industrial Institute in Kuibyshev in 1942 and from the All-Union Academy of Foreign Trade in 1946. From 1949 to 1961, he did scholarly research at various AN SSSR institutes. From 1961 to 1964, he served as a diplomat with rank of envoy extraordinary and plenipotentiary of the first class. In 1964, he became Director of the Africa Institute of the Russian Academy of Sciences and from 1965 to 1973, he was Vice President of the International Congress of Africanists. His works are primarily devoted to socioeconomic and political problems of developing countries. (GSE 24, p. 300.)

Timofeev, Timur T., D. Hist. S. Born in 1928 in Ivanovo. Russian historian and economist. Corresponding member of the Economics department since 1966;

corresponding member of the Problems of World Economics and International Relations Department of the Academy since August 1988. From 1961 to 1966, he was Deputy Director of the Institute of World Economics and International Relations. Since 1966, he has been Director of the International Workers' Movement Institute in Moscow which is subordinate to the Academy's Philosophy and Law department. Established in 1966 as the Institute of the International Workers' Movement; in April 1991, the institute was reorganized under its present name. Its Director is Timur T. Timofeev, a corresponding member of the Russian Academy of Sciences. The staff of the institute numbers 294 researchers of whom 36 hold the doctorate and 137 hold the candidate degree. There is one academician and one corresponding member of the Russian Academy on the staff of the institute. His works deal with labor issues, the democratic movement and the theory of scientific communism. The institute's name was changed in 1991 to the Problems of the Workers' Movement and Comparative Politology Institute. He continues to be its Director. A number of institute scientists are working on two other major Academy-level programs--forecasts of socioeconomic development and biospherical and ecological studies to 2015. The institute has international relationships with a number of scholars and research institutes throughout the world. (LDA 89-11378.) (GSE 25, p. 658.)

Vol'skii, (Volskii) Viktor V., D. Econ. S. Corresponding member of the Economics Department of the Academy since 1984. Corresponding member of the Problems of World Economics and International Relations Department of the Academy since August 1988. Since 1966, he has been Director of the Latin American Institute in Moscow which was founded in 1961 to research the economic, agrarian and political problems of Latin American states, including Cuba. (LDA 89-11378.)



Research Institutes Directly Subordinate to the Problems of World Economics and International Relations Department:

A regrouping of Scientific Research Institutes from other Departments within the Social sciences section of the academy made six institutes subordinate to the new Department and its members. They include: the Oriental Studies Institute (1930), World Economics and International Relations Institute (1956), the Africa Institute (1959), the Latin America Institute (1961), the United States of America and Canada Institute (1967), and the European Studies Institute (1987). Altogether there are at least eight research institutes in the former Soviet Union that deal with research similar to that in these institutes. Six of the institutes--those listed below--are in Moscow; the other two are in Tashkent and Frunze and specialize in oriental studies. The research institutes directly subordinate to this Department are given in the order of their establishment below:

1. Oriental Studies Institute in Moscow.

Kapitsa, Mikhail S. Born in 1921. Corresponding member of the History Department of the Academy since December 1987. Since 1987, he has been Director of the Oriental Studies Institute in Moscow which traces its origin back to the founding of the Imperial Academy of Sciences itself in 1725. (LDA 89-11378.)

Retrospect: Oriental studies in the Russia date back to the early 18th century with the founding of oriental language schools in the reign of Peter I. In 1724, the Tsar's

oriental museum (Kunstkamera) was taken over as part of the new Imperial Academy of Sciences. For a long period oriental studies along with other arts and humanities were shifted to universities. In 1921, the All-Union Scientific Association of Oriental Studies opened in Moscow with branches in the Ukraine, Siberia, the Caucasus and Central Asia. In 1930, a new Institute of Oriental Studies of the USSR Academy of Sciences was created. Following a period of uncertain development in the 1930s and 1940s, the institute was reorganized in 1957 becoming for a short period the Institute of Chinese Studies. Since 1969, the Institute has maintained its present structure and is the major Soviet research center for Oriental affairs. The institute is involved with a wide range of disciplines focusing on Oriental studies, including: history, economics, philosophy, philology, and sociology. In 1968, the institute numbered some 27 Departments and maintained a division in St. Petersburg. By 1977, the Institute of Oriental Studies had been reorganized into 15 Departments in Moscow and three in St. Petersburg. Research scientists numbered 653 in 1992, of whom 100 held doctoral and 445 held candidate degrees.

(Older materials)

Present structure of the institute:

- (1.) the socialist countries of Asia Department with sectors on Korea, Mongolia, Vietnam, Laos, and Cambodia;
- (2.) the countries of the Near and Middle East Department with sectors on :Turkey, Iran, Afghanistan, Pakistan, and contemporary Kurdish studies;
- (3.) the Arab countries Department with sectors on their histories and economies;
- (4.) the Southeast Asia countries Department with sectors on the histories and political and economic problems;
- (5.) the China Department with sectors on its modern and contemporary history, ancient and medieval history, and its ideology and culture;
- (6.) the Japan Department with sectors on its history and political and economic problems;
- (7.) the South Pacific studies Department with sectors on the common problems of the region;
- (8.) the overall theoretical problems of the social and political development of the Asian and North African countries Department with sectors on social problems, political problems, theoretical problems of the national-liberation movement, ideological problems, labor and communist movements, ethno-social problems and agrarian and peasant problems;
- (9.) the economic studies Department with sectors on the problems of production, forecasting and modeling of economic processes and groups on the political and economic problems of development and demographic and ecological problems;
- (10.) the comprehensive problems in international relations of the Asian and North African countries Department;
- (11.) the languages of the people of Asia Department with sectors on the languages of East and Southeast Asia, languages of the Far East, languages of the Near and Middle East and North Africa, sociolinguistics and lexicography, and groups on languages of South Asia, the theory of grammar and typology, and comparative and historical linguistics;
- (12.) the literature of the peoples of Asia Department with sectors o the literatures of the Far East and the Indo-Chinese peninsula, literatures of South and Southeast Asia, literatures of the Near and Middle East, and a group on the general problems of literatures;
- (13.) the history and culture of the Ancient Orient Department with sectors on history, ideology and culture and material culture;

- (14.) the history of the non-Soviet Orient Department with sectors on recent history, medieval history, overall problems of Asian history and groups on international relations in Central Asia and the study of sources and documents on the history of Russian-Indian relations, and
- (15.) the comparative culturological studies Department with sectors on the comprehensive study of culture, comparative religious studies, and political cultures. There is an independent Department of the written relics of the peoples of the Orient with sectors on historical source studies, textology of literary monuments and literary source studies. There is also an independent scientific information unit. There are a number of laboratories with independent status such as:

the laboratory on Israel studies,

the laboratory on technological and economic studies,

the laboratory on the coordination of scientific publications;

a group on the automation of information processing in Oriental studies, and “Encyclopedia of Asia” group,

a Center for Indian Studies,

a secretariat for international relations and a standing secretariat of the Soviet Committee on Central Asian Civilizations.

The institute has relations with several major institutes in Japan, and with institutes in Australia, France, the Philippines, Malaysia, Yemen, and Cambodia. Its archives in Moscow house the collections of the older Pacific Institute (1931-50), the Moscow Group of the Institute of Oriental Studies (1942-50), and the Institute of Chinese Studies of the AN SSSR (1956-60). Directors of the institute since 1950 have been: S. P. Tolstov (1950-53), V. I. Ardiev (1953-54), A. A. Guber (1954-56), B. G. Gafurov (1956-77), E. M. Primakov (1977-85), and G. F. Kim (1985-88). Dr. Mikhail S. Kapitsa, Mikhail S., has been Director since 1988. **Structure and Scientific Personnel:** Director Kapitsa, Mikhail S., January '87; Deputy Directors: Kim, Georgii F., D. Hist. S.; '78; Malakhovskii, Kim V., D. Hist. S., since '71; Shirokov, Gleri K., D. Econ. S., since '76; and Solntsev, Vadim M., D. Phlg. S., since '65; St. Petersburg Branch. Director Petrosian, Iurii A., C. Hist. S., since '63; Deputy Directors: Khalidov, C. Phlg. S., since '62; and, Kichanov, E. I., C. Hist. S., since '58. (See: Ruble, Vol. I., pp 388-393 and pp. 404-406. This is a well-written and well-documented summary of the development of this important institute.)



2. Oriental Studies Institute--the St. Petersburg Branch was established in 1956 upon the basis of the remnants of the Institute of Oriental Studies in St. Petersburg which was moved in 1950 to Moscow. At the time of its establishment as a branch the St. Petersburg branch had five offices structured on an area studies principle: Arabic, Indian, Iranian, Far Eastern, and Turko-Mongolian; three groups in Kirghiz studies, Assyriology and related disciplines and Semitology, and three depositories: a manuscripts division, a library and the Orientalists' Archives. From 1956 to 1963, Academician Dr. I. A. Orbeli headed the St. Petersburg Branch. Dr. Iurii A. Petrosian, D. Hist. S. is the current director of the institute. In 1992, the institute

has some 133 researchers of whom 24 held doctoral and 85 held candidate degrees. **Present structure of the institute:** The institute presently has eight sectors and four groups. Sectors include:

the Near East;

Ancient East;

Far East;

historiography and study of sources on China and Central Asia;

Middle East; South and Southeast Asia;

Turkology and Mongolian studies, and Oriental manuscripts and documents.

The groups are the same as those of 1956. The archives and library of the institute have extensive holdings. The library holds some one million items, and the archives has some 133 collection groups that contain 120,000 items dating from the 10th century to 1965. The personal papers of some 146 Russian Oriental lists are housed in this archive--over 80,000 items. (See: A Scholars' Guide. . .)



3. World Economics and International Relations Institute in Moscow.

Located at 23, Profsouznaia (aya) st., GSP, Moscow. 117859. tel. 120-52-36. Fax: 310-70-27. Directed by Academician Vladlen A. Martynov.

Martynov (Martinov), Vladlen A., D. Econ S. Born in 1929. Corresponding member of the Problems of World Economics and International Relations Department of the Academy since August 1988; academician in 1993. Since 1972, he has been a Deputy Director of the World Economics and International Relations Institute in Moscow, and in 1989 he was elevated to the directorship of the World Economics and International Relations Institute in Moscow which was established in 1956 taking the place of the Institute of World Economy and World Politics (1927-1947) and that from 1947 to 1956 was part of the Economics Institute of the AN SSSR.

Retrospect: Established in 1956 taking the place of the Institute of World Economy and World Politics (1927-1947) and that from 1947 to 1956 was part of the Economics Institute of the AN SSSR. It has been headed in turn by: A. A. Arzumanian (1956-66), N. N. Inozemtsev (1966-82), A. N. Iakovlev (1983-85), E. M. Primakov (1985-89), and since 1989 it has been headed by V. A. Martynov. This is a large institute whose staff numbers more than 727 researchers of whom 93 hold doctorates and 361 hold candidate degrees. The staff includes one academician and three corresponding members of the Russian Academy of Sciences.

(Older materials)

Structure of the institute: The institute sets up sections and task forces to study new problems as they develop. In 1992, there were 18 Departments with various subsectors in the institute:

(1.) the efficiency of economic development in the main capitalist countries Department;

- (2.) the economics of inter branch industrial complexes of capitalist countries Department;
- (3.) international relations Department;
- (4.) disarmament problems Department;
- (5.) international economic relations Department;
- (6.) social and internal political problems of development in capitalist countries Department;
- (7.) Western European studies Department;
- (8.) the international maritime problems and ecology Department;
- (9.) Pacific studies Department;
- (10.) the agro-industrial complex Department;
- (11.) general problems of the political economy of present-day capitalism Department;
- (12.) computer science and economic-mathematical modeling Department;
- (13.) North American studies Department;
- (14.) military-economic and military-political studies Department;
- (15.) current information analysis Department;
- (16.) a center for the developing countries and the non-aligned movement with two sub-departments:
- (17.) foreign economic and foreign political problems in the developing countries Department, and
- (18.) economics and internal politics in the developing countries Department.

The institute maintains extensive relations with social science-economic institutes in Great Britain, Germany, Finland, Japan, USA, Italy, Bulgaria, Hungary, Vietnam, China, Cuba, Mongolia, Poland, Romania, Czechoslovakia, and Yugoslavia. The institute began publishing its monthly journal, *Mirovaia (aya) ekonomika i mezhdunarodnye otnosheniia*, in 1957. It also publishes the annual *Mezhdunarodnyi ezhegodnik-politika i ekonomika*, the quarterly bulletin *Ekonomiko-statisticheskaia (aya) informatsiia*, and the annual supplement *Ekonomicheskoe polozhenie kapitalisticheskikh i razvivaiushchikhsia stran*. Dr. V. A. Martynov, D. Econ. S. has headed the institute since 1989. Scientific Personnel: Director Primakov, E. M., D. Econ. S., since '85; Deputy Directors: Bikov, Oleg N., D. Hist. S., since '78; Guriev, Igor E., C. Econ. S., since '77; Martynov, Vladlen A., D. Econ. S., since '72; Strigachev, Vladimir I., D. Econ. S., since '63. **(For an excellent discussion of this institute, see: Ruble, Vol. I., pp. 396-399.)**(See also: **A Scholars' Guide. . .**)



4. Africa Institute in Moscow.

Located at 30/1 Spiridonovka st., K-1, Moscow. 103001. te290-09-56. Fax: 202-07-86. Directed by Professor Aleksei M. Vasiliev.
And at 8. build."2B" Moohovaia (aya) st.. Moscow, 103873. tel.201-67-55. Fax: 200-42-98. Directed by Academician Vitalii V. Zhurkin.

Zhurkin, Vitalii V., D. Hist. S. Corresponding member of the Economics Department of the Academy since August 1984; and academician of the Problems of World Economics and International Relations Department since 1993. From 1971 to 1988, he was a Deputy Director of the United States of America and Canada Institute. He is presently Academician Secretary of the Department of World Economy Problems and International Relations of the Russian Academy of Sciences.

Retrospect: Established in 1959. The institute scholars research economic socio-political, international, historical, and cultural-ethnological problems of African states. The

institute employs 209 scholars of whom 19 hold doctoral degrees and 125 hold candidate degrees. The institute maintains a small branch in St. Petersburg. Institute Structure: Institute scholars work in sections of modern problems, international relations of African states, social and economic problems of African countries, history, and language study. It coordinates its work with the Institute of Oriental Studies. The institute is structured in five major Departments, a scientific archives and an editorial and publications Department. It maintains groups on mathematical modeling, the study of capitalism in Africa, statistics, an analysis of the economic mechanism, African religions, law, and human rights.

(Older materials)

The Departments of the institute include:

- (1.) the international problems Department with sectors on problems of countries of Southern Africa and one on analyzing international conflicts;
- (2.) the economic studies Department with sectors on the study of productive forces, financial-economic problems, present-day global problems, and agrarian problems;
- (3.) the Soviet-African economic and scientific-technical cooperation Department with sectors on cooperation between the USSR and African countries and applied economic research;
- (4.) the individual countries studies department with sectors on the Arab countries, the tropical African countries, the socialist-oriented countries, systems analysis of social structures of the countries of West Africa, and groups on the problems of countries of the Horn of Africa and information and regional studies;
- (5.) the social, political and ideological problems Department with sectors on the social development of African countries, ideology and political problems, nationality and cultural problems, and documentation and scientific information.

Research thrusts of the institute: Under A. A. Gromyko, "Africa in the World Community"; economic cooperation between the Soviet Union and the developing African States under G. V. Smirnov, L. N. Aksiuk, Iurii M. Osipov, E. L. Simonov; control over exports in the African countries under G. V. Smirnov, S. A. Bessonov, G. I. Ruinstein; cooperation in raw materials extraction under L. N. Aksiuk; capitalist development in African countries under L. V. Goncharov; problems of economic development in Africa under Iurii M. Osipov and S. A. Bessonov; social and class structures and revolutionary processes in Africa under G. B. Starushenko, A. M. Vasil'ev; global processes and relationships between socialist and developing countries under V. B. Kokorev, N. D. Kosukhin, and A. A. Tkachenko; ongoing processes in the Third World and East European countries under V. I. Goncharov, L. V. Goncharov, A. M. Vasil'ev, G. B. Starushenko, and L. I. Aleksandrovkaia (aya), and forecasting of economic and scientific-technical development of African countries in five-year increments from 1991 to 2005 under M. M. Golanskii, S. A. Bessonov, and Iurii M. Osipov. The institute maintains relationships with a number of organizations around the world that include UCLA and the Center for Strategic and International Studies (USA); some 40 African studies centers; the Institute of Arab studies in Aix-en-Provence; the Italian-African Institute in Italy. The Institute publishes *Narody Azii i Afriki* and *Azia i Afriki segodnia*. Director Gromyko, Anatoli A., D. Hist. S., since 1976. Scientific Personnel: Director Gromyko, Anatoli A., D. Hist. S., since '76; Deputy Directors: Asoian, Boris R., C. Hist. S., since '83; Goncharov, Leonard V., C. Econ. S., since '60; Starushenko, Gleb B., D. Jur. S., since '66; Vasiliev, Aleksei M., since '83. **(See: Ruble, Vol. I., pp. 379-381. An excellent discussion of the Africa Institute.) (See also: A Scholars' Guide.)**



5. Latin America Institute in Moscow.

Located at 21 B Ordynka st., M-35. Moscow. 113035. te233-43-40/ Acting Director Professor Boris I. Koval.

Retrospect: Founded in 1961. Researches economic, agrarian, political problems, ideology, culture and international relations of Latin American states, including Cuba. The institute employs more 154 persons of whom 15 hold the doctoral and 92 the candidate degree. One staff member is a corresponding member of the RAS.

(Older materials)

Institute structure: The institute operates four Departments:

- (1.) the economics Department with sectors on the political l-economic analysis of problems of capitalism in Latin America; patterns of development and allocation of productive forces, and socioeconomic forecasting and statistical analysis and problems of foreign economies;
- (2.) the ideological and sociopolitical problems Department with sectors on sociopolitical analysis of problems of capitalism in Latin America; public thought and political systems; communist, workers' and anti-imperialist movements, and culture and ethnic problems;
- (3.) country studies and international relations Department with sectors on general problems of foreign policy; Cuba and countries of Central and South America, and
- (4.) the scientific information Department with sectors on information processing and external scientific ties.

The institute maintains an independent laboratory of information-retrieval systems. It publishes the journal *Latinskaia (aya) Amerika*. The institute maintains relations with institutes in Mexico, Argentina, Brazil, Colombia, Venezuela, Cuba, Germany, USA, France, Sweden, the Netherlands, and Spain. The first Director of the institute was S. S. Mikhailov (1961-64); Dr. Viktor V. Volskii, D. Econ. S., has been the Director since 1964. **Scientific Personnel:** Deputy Directors: Kosarev, E. A., C. Econ. S., since '73; and, Zaitsev, Nikolai, since '86. (See: Ruble, Vol. I., pp. 386-387.)(See: A Scholars' Guide. . .)



6. Problems of the Workers' Movement and Comparative Politology Institute in Moscow.

Located at 9a Kolpachnyi st. Center. Moscow. 101831. tel. 916-03-97. Fax: 297-87-49. Directed by Corresponding Member Timur T. Timofeev.

Timofeev, Timur T., D. Hist S. Born in 1928 in Ivanovo. Russian historian and economist. Corresponding member of the Economics department since 1966; corresponding member of the Problems of World Economics and International Relations Department of the Academy since August 1988. From 1961 to 1966, he was Deputy Director of the Institute of World Economics and International Relations. Since 1966, he has been Director of the International Workers' Movement Institute in Moscow which is subordinate to the academy's Philosophy and Law department and which examines problems of the international workers' movement

and of the social composition of the working class both in the USSR and abroad. His works deal with labor issues, the democratic movement and the theory of scientific communism. The institute's name was changed in 1991 to the Problems of the Workers' Movement and Comparative Politology Institute. He continues to be its director. (LDA 89-11378.) (GSE 25, p. 658.)

Retrospect: Established in 1966 as the Institute of the International Workers' Movement in April 1991, the institute was reorganized under its present name. Its Director is Timur T. Timofeev, a corresponding member of the RAS. The staff of the institute numbers 294 researchers of whom 36 hold the doctorate and 137 hold the candidate degree. There is one academician and one corresponding member of the Russian Academy on the staff of the institute. The structure of the institute is complex and the best picture of its work may best be shown by the kinds of research being undertaken by its scientists: under T. T. Timofeev, E. V. Klopov, B. I. Koval', A. M. Salmin, and S. V. Patrushev, work is progressing on "comprehensive study of problems facing various social movements in the changing world"--which includes topics such as the following: socioeconomic policy and the dynamics of manpower under S. V. Pronin, R. I. Tsvylev, and G. G. Pirogov; social and labor conflicts, forms and methods of production democracy in various areas of economics; role of trade unions under S. A. Ershov, P. Ia. Evzerov; the role of working masses in the processes of renewal and democratization in Russia; analysis of changes in material and social spheres under E. V. Klopov, and L. A. Gordon; trends in the development of the workers' movement in Russia, role of trade-unions and other public organizations under the transition to the market economy under L. A. Gordon; social and political problems of socialization of youth under V. N. Shubkin; the comparative study of the political and economic transformations in China and the USSR under V. G. Gelbras; socio-ecological problems and civil initiatives under O. N. Ianitskii, and B. M. Makliarskii; experience and traditions of workers' movements: the present-day problems of left-wing power under T. T. Timofeev; political cultures, civil society and political organization under A. M. Salmin, B. I. Slavnyi; ways and forms of social progress under S. L. Agaev; problems of mass consciousness; a concept of social movements under S. V. Patrushev; ideology and policy of national liberation movements under O. V. Martyshin; the theory of political process and analysis of political proactive under B. I. Koval'; social conflicts in the context of various political cultures under A. M. Salmin; evolution of socio-political thought--the development of socialist ideas under T. T. Timofeev, O. V. Martyshin, and S. V. Patrushev; professional unions and the working masses of the world under L. B. Moskvina. A number of institute scientists are working on two other major Academy-level programs--forecasts of socioeconomic development and biospherical and ecological studies to 2015. The institute has international relationships with a number of scholars and research institutes throughout the world. (See **A Scholars' Guide**. . .)



7. United States of America and Canada Institute in Moscow.

Located at 2/3 Khlebnyi st. Moscow. 12184. tel. 203-94-12. Fax: 200-12-07. Directed by Academician Georgii A. Arbatov.

Arbatov, Georgii A., D. Hist. S. Born in 1923 in Kherson. Russian historian and economist. Corresponding member, 1970; academician, 1974--of the Economics Department of the Academy. Academician of the new Department, Problems of World Economics and International Relations, since August 1988. He graduated

from the Moscow Institute of International Relations in 1949. From 1949 to 1962, he worked for the Foreign Literary Publishing House and for the journals *Voprosy filosofii*, *Kommunist*, and *Problemy mira i sotsializma*. From 1962 to 1964, he was head of a section of the Institute of World Economics and International Relations of the AN SSSR and the RAN. From 1964 to 1967 he was a member of the staff of the CC CPSU. Since 1967, he has been director of the USA and Canada Institute in Moscow that was founded in 1967 to support research on the history, international relations, economic policies, and the sociological and social composition of the USA and Canada. He was a member of the Central Auditing Committee of the CPSU from 1971 to 1976. He became a candidate member of the CC CPSU in 1976 and a member of the CC CPSU in 1981. He was a deputy to the 9th and 10th Convocations of the Supreme Soviet of the USSR. His works are on foreign policy and international relations. He has been a member of the Presidium since October 1988. (GSE 30, p. 16.)

Retrospect: The Institute of the United States was created in 1968, and included research sectors in the academy dealing with North American concerns. In 1974, the USA Institute was renamed the Institute of the USA and Canada with a Canadian section being created at that time. Its scholars research the history, international relations, economic policy, and sociological and social composition of the USA and Canada. In 1992, the institute had a staff of 254 researchers that included 34 holders of the doctoral and 150 holders of candidate degrees. Its staff includes one academician and one corresponding member of the RAS.

(Older materials)

Structure of the institute: In 1992 the institute was organized into nine Departments many of which had sub-sectors, and into several independent units as follows:

- (1.) US foreign policy problems Department with sectors on the US policy in the Pacific region, and general problems of Soviet-American relations, and US policy in the developing countries, US policy in Europe, problems of international security and US policy, US policy in the Near East, and a group on US foreign policy;
- (2.) US domestic, ideological and social problems Department with sectors on US political structure, US. social problems, US social consciousness, and a group on US political and legislative problems;
- (3.) US military-political problems Department with sectors on US military-political strategy, the mechanisms of decision-making in military policy, and conventional and general purpose arms;
- (4.) management problems in the United States and Canada department with sectors on organizational l, economic and social problems of management and problems of scientific-technical progress in management;
- (5.) US economics problems Department with sectors on US raw materials and energy problems, general problems of US capitalism, specific economic studies, the US economic mechanism, and a group on the efficiency of the US production sphere;
- (6.) US foreign economic policy Department with sectors on US economic tendencies and foreign economic relations;
- (7.) agriculture and food problems in the United States and Canada Department with sectors on agrarian problems in the United States and Canada, and topical research on the agro-industrial complex in the United States and Canada;
- (8.) the Canada Department with sectors on the economic and social problems in Canada and the political problems in Canada, and
- (9.) an information Department with sectors on information provision for scientific research, international relations and a group on the provision of information for the leadership of the institute.

There are a number of independent laboratories in the institute: a Laboratory on Ideological and Ideological-theoretical Aspects of US Foreign Policy, a Laboratory on Encyclopedic Publications, a Laboratory on Structural Analysis and Models of Military-political and Managerial Decisions, and a Laboratory on Applied Computer Science.

The institute maintains a scientific archives and houses an academic Council on complex study of US problems. It offers graduate work in the historical and economic sciences. It maintains relations with a number of important international institutes and with a large number of universities in the US and the world. The institute has published a monthly journal since 1970 entitled *SSHA: ekonomika, politika i idelogiia*. Dr. Georgii A. Arbatov, D. Hist. S., has been its Director since its founding in 1967. Personnel: Deputy Directors: Bogdanov, Radomir G., since '75; Kokoshin, Andrei A., C. Hist. S., D. Phil. S., since '84; Plekhanov, Sergei M., January '88; Prokhovskii, Anatolii A., July '88; and Spandarian, Viktor B., Apri'88. (See: **Ruble, Vol. I., pp. 395-396.**) (See also: **A Scholars; Guide. . .**)



8. European Studies Institute in Moscow.

Arbatov, Georgii A., D. Hist. S. Born in 1923 in Kherson. Russian historian and economist. Corresponding member, 1970; academician, 1974--of the Economics Department of the Academy. Academician of the new Department, Problems of World Economics and International Relations, since August 1988. He graduated from the Moscow Institute of International Relations in 1949. From 1949 to 1962, he worked for the Foreign Literary Publishing House and for the journals *Voprosy filosofii*, *Kommunist*, and *Problemy mira i sotsializma*. From 1962 to 1964, he was head of a section of the Institute of World Economics and International Relations of the AN SSSR and the RAN. From 1964 to 1967 he was a member of the staff of the CC CPSU. Since 1967, he has been director of the USA and Canada Institute in Moscow that was founded in 1967 to support research on the history, international relations, economic policies, and the sociological and social composition of the USA and Canada. He was a member of the Central Auditing Committee of the CPSU from 1971 to 1976. He became a candidate member of the CC CPSU in 1976 and a member of the CC CPSU in 1981. He was a deputy to the 9th and 10th Convocations of the Supreme Soviet of the USSR. His works are on foreign policy and international relations. He has been a member of the Presidium since October 1988. (GSE 30, p. 16.)

Retrospect: Founded in 1988. The institute emphasizes study of European affairs and foreign policy formation in Europe.

(Older materials)

Structure of the institute: The institute is organized into four Departments with sectors and groups as follows:

- (1.) the all-European processes Department with sectors on political problems of security in Europe, limitation and reduction of armaments in Europe and NATO strategy, and groups on commercial and economic ties and cultural and humanitarian cooperation;

- (2.) the general problems of Western Europe Department with sectors on Western European integration and social and political problems and a group on economic analysis;
- (3.) the applied research Department with groups on ecological security and management in theory and practice, and
- (4.) the economics and politics of Western European countries.

There are independent sectors on the role of Europe in the modern world, information services, and an inter-Departmental group on military and political integration.

The institute has a staff of 43 researchers of whom five hold the doctoral and 21 hold the candidate degree. One corresponding member of the Russian Academy of Sciences is on the staff. The institute has established relations with the Atlantic Council of the United States, the Institute of East-West Security Problems at Stanford University; the School of Advanced International Studies of the Johns Hopkins University, the British Academy; the Royal Institute of International Affairs, the International Institute for Strategic Studies; the Royal College of Great Britain, the Aspen Institute; the Economic Research Institute and European Academy; the Research Institute of Peace Problems and Security Policy; the Kiel Institute for Economic Research; the Institute of Federal Industry in Germany; the Institute of Politology and the Institute of Europe of the University of Amsterdam; the Center for European Political Studies in Belgium; the Council of Europe in France; the Stockholm International Peace Research Institute, and the Institute of Europe in Finland. Director Dr. Vitalii V. Zhurkin, D. Hist. S., since 1988.

(See: **A Scholars' Guide. . .**)



9. World Institute in Moscow. (Formerly Peace Institute)

Located at 23 Profwouznaia (aya) st. GSP-7, Moscow, 117859, tel. 128-93-89, fax: 310-70-27. Directed by Professor Aleksandr K. Kislov.

Retrospect: This institute was founded in 1990 from the Scientific Council for the Study of Problems of Peace and Disarmament that had been established in 1979. It is under the Directorship of Dr. Aleksandr K. Kislov, D. Hist. S. The institute has three major sponsors: the AN SSSR, the GKNT, and the Soviet Peace Committee. It is not organized in any traditional way and maintains a very small staff, in 1992 consisting of seven researchers, of whom three held doctoral and three held candidate degrees. Its staff is working on problems of the conversion of military production to civilian production, the problems of an international security system, peace and disarmament, and other such matters. The institute has established relations with the Woods Hole Oceanographic Institute and the Center for Marine Policy in the USA, with the Transnational Foundation for Research of Peace Problems and the Future (Sweden), and the Pacific Institute for the Study of Environmental Development and Security in the USA. (**See: A Scholars' Guide. . .**)

(1997 listing)

Institutions and Organizations of the Department: this is the latest list of institutes and other units under the direct or research supervisory control of the department.

1. Institute of Africa (IAf RAS)

30/1, Spiridonovka st., K-1, Moscow, 103001

tel.290-09-56, fax: 202-07-86
Directed by Prof. Aleksei M. Vasiliev, tel.290-63-85

2. Institute of Europe (IE)

8, build."2B", Mohovaia st., Moscow, 103873
tel.201-67-55, fax: 200-42-98
Directed by Academician Vitalii Vl. Zurkin, tel.203-73-43

3. Institute of the Latin America (ILA)

21, B. Ordynka st., M-35, Moscow, 113035
tel.233-43-40, tel: 233-40-70
Acting Director Prof. Boris Ios. Koval, tel.231-53-23

4. Institute of Comparative Politology and Labour Movements Problems (ICP RAS)

9a, Kolpachnyi st., Centre, Moscow, 101831
tel.916-03-97, fax: 297-87-49
Directed by Corresponding member Timur T. Timofeiev, tel.916-37-03

5. Institute of World Economy and International Relations (IWEIR)

23, Profsouznaia st., GSP-7, Moscow, 117859
tel.120-52-36, fax: 310-70-27
Directed by Academician Vladlen Ar. Martynov, tel.120-43-32

6. World Institute (WI RAS)

23, Profsouznaia st., GSP-7, Moscow, 117859
tel.128-93-89, fax: 310-70-27
Directed by Prof. Aleksandr K. Kislov, tel.128-93-89

7. Institute of the Unites States of America and Canada (IUSK RAS)

2/3, Khlebnyi st., Moscow, 121814
tel.203-94-12, fax: 200-12-07
Directed by Academician Georgii Ar. Arbatov, tel.290-58-75



National Research in World Economics and International Relations: There are several Oriental Studies Scientific Research Institutes that belong historically to other Departments of the AN SSSR. Several of the republic academy institutes devoted to special linguistic and/or area studies have not been moved to this category at this time. As this Department grows in importance in the future, some shifts of SRIs located in Russia dealing with similar research interests may be shifted. There are now two institutes in Russia that fall within the research areas of the six institutes directly under the subordination of the World Economics and International Relations Department of the Russian Academy of Sciences. They are listed below because their research matter seems to be clearly in line with the kind of research occurring in the six institutes listed above:

1900s

1. Oriental Studies Institute in Tashkent. In 1918, the Bolsheviks opened the Tashkent Oriental Institute, which became a major center for the study of Oriental, especially Turkic philology. During WW II, the Tashkent community of scholars was expanded greatly by evacuees from the European USSR areas. Following the establishment of the Uzbek Academy of Sciences in 1943, the State Public Library in Tashkent was elevated to the status of an Institute for the Study of Oriental Manuscripts of the Uzbek Academy. In 1950, it was renamed the Institute of Oriental Studies and was given research responsibility for the history and contemporary politico-economic development of the nations bordering Uzbekistan, for their foreign policies, for the history of their national liberation movements, and for the literary and cultural development of the countries involved.

1940s

2. Department of Oriental Studies in Frunze. This Department was formerly called the Department of General Turkic and Dungan Studies. No date for its founding given in the source. Scholars at the institute perform interdisciplinary studies on the Turkic and Dungan populations of the republic and the institute has sponsored research on Chinese treatment of national minorities in the northwestern area of the Peoples' Republic of China since the 1970s.

Department of Literature and Language (DLL) in Moscow
32a, Leninskii ave., Moscow, 117993, tel.938-19-36

(1997 update)
Bureau of the Department

Academician-Secretary

Academician Evgenii P. Chelyishev, tel.938-19-36

Chelyshev, Evgenii P., D. Phil. S. Born in 1921. Corresponding member of the Literature and Language Department of the Academy since 1981. Academician since December 1987. Academician Secretary of the Literature and Language Department since October 1988.

Deputies of the Academician-Secretary:

Academician Mihail N. Bogolubov, tel.218-77-32(Spb)

Bogoliubov, Mikhail N. Born in 1918 in Leningrad. Russian linguist and specialist on Iran. Corresponding member of the Literature and Language Department of the Academy since 1966; academician since 1993. He graduated from Leningrad State University in 1941 and has been a professor there since 1959. His works deal with the Khorezmian, Sogdian, and Yaghnolic languages. He is a deputy to the Academician Secretary of the Department.(GSE 3, p. 396.)

Academician Nikita II. Tolstoi, tel.938-54-46

Tolstoi, Nikita I., D. Phlg. S. Corresponding member of the Language and Literature Department of the Academy since 1984. Academician since December 1987. He is a deputy to the Academician Secretary of the Department.

Members of the Bureau:

Academician Tamaz V. Gamkrelidze, tel.23-38-85(Tbilisi)

Gamkrelidze, Tamaz V., D. Phlg S. Born in 1929. Academician of the Literature and Language Department of the Russian Academy since 1984. He is Director of the Oriental Studies Institute in Tbilisi that was founded in the 1960s and that is primarily concerned with the study of languages. It has eight Departments that include ancient and oriental languages, Indo-Persian languages, and a Phonetics Laboratory. The other Departments are basically historical-cultural area study centers.

Corresponding Member Anatolii Iv. Domashnev, tel.218-16-11(SPb)

Domashnev, Anatolii I. Corresponding member of the Literature and Languages Department of the Russian Academy in 1993. He is director of the Institute of Linguistic Research in Saint Petersburg.

Academician Sergei P. Zalygin, tel.209-57-40

Zalygin, Sergei P. Academician of the Literature and Languages Department of the Russian Academy of Sciences in 1993.

Corresponding Member Iurii N. Karaulov, tel.202-65-40

Karaulov, Iurii N., D. Phlg S. Born in 1935. Corresponding member of the Literature and Language Department of the Academy since 1981. Since 1981, he has been the Director of the Russian Language Institute in Moscow.

Corresponding Member Feliks F. Kuznetsov, tel.290-50-30

Kuznetsov, Feliks F. D. Phlg. S. Born in 1931. Corresponding member since December 1987. In 1988, he was named Director of the A. M. Gorkiy World Literature Institute in Moscow that dates back to the mid-1930s and that serves as the principal place for research on contemporary Russian and foreign literature in Russia.

Academician Dmitrii S. Lihachev, tel.218-19-01(SPb)

Likhachev, Dmitrii S. Born in 1906 in St. Petersburg. Russian literary critic and cultural historian. Corresponding member, 1953, and academician since 1970. Principal membership in Literature and Language Department. He graduated from Leningrad State University in 1928. He began his work at Pushkin House in 1939 (Institute of Russian Literature) and became head of the institute's sector of ancient Russian literature in 1954. From 1946 to 1953, he was a professor at Leningrad State University. His writings are many and distinguished. He has emphasized the aesthetic distinctiveness of the culture of ancient Rus' and the problems of the general theory of art. His works are characterized by a concentration on social ideology, literature, folk poetry, and the fine arts. He is a foreign member of the Bulgarian (1963), Austrian (1968), Serbian (1972), and Hungarian (1973) academies of sciences. He holds honorary degrees from Torun (1964), Oxford (1967), and Edinburgh (1970). Recipient of the State Prize in 1952 and 1969. In 1985, he received the V. G. Belinskii Prize for criticism. (GSE 14, p. 496.)

Corresponding Member Georgii Ios. Lomidze, tel.290-53-08

Lomidze, Georgii I., D. Phil. S. Born in 1914 in Tbilisi. Russian literary scholar. Corresponding member of the Literature and Language Department of the Academy since 1972. He graduated from the M. Gorkiy Institute of Literature in 1947. Since 1955, he has chaired the division of the history of Russian literature of the Gorkiy Institute of World Literature. He began publishing in 1935. Doctor of Philosophical Sciences (1960). He was a professor at the Academy of Social Sciences under the CC CPSU from 1965. In 1980, he received the N. A. Dobroliubov Prize for his contributions to the philosophical sciences. (GSE 15, pp. 123-4.)

Corresponding Member Petr Al. Nikolaev, tel.939-32-48

Nikolaev, Petr A., D. Phlg S. Corresponding member of the Literature and Language Department of the Academy since 1984.

Academician Dmitrii Vl. Sarabianov, tel.939-26-84

Sarabianov, Dmitrii V. Corresponding member of the Literature and Language Department of the Academy since December 1987; academician in 1993.

Prof. Nikolai N. Skatov, tel.218-19-01(SPb)
(no entry)

Corresponding Member Vadim M. Solntsev, tel.290-35-85

Solntsev, Vadim M., D. Phlg. S. Born in 1928. Corresponding member of the Literature and Language Department of the Academy since 1984. Since 1965, he has been Deputy Director of the Oriental Studies Institute in Moscow which was founded in 1930. In February 1988, he was made Director of the Linguistics Institute in Moscow.

Academician Iurii S. Stepanov, tel.291-17-91

Stepanov, Iurii S., D. Phlg. S. Born in 1930. Corresponding member of the Language and Literature Department of the Academy since 1984; academician in 1993.

Corresponding Member Edhiam R. Tenishev, tel.291-24-26

Tenishev, Edkhiam R., D. Phlg. S. Corresponding member of the Literature and Language Department since 1984.

Corresponding Member Natalia Iul. Shvedova, tel.202-65-43

Shvedova, Natalia Iu., D. Phlg. S. Corresponding member of the Literature and Language Department of the Academy since 1984.

Corresponding Member Viktoriia N. Iartseva, tel.291-79-57

Yartseva, Viktoria N., D. Phlg. S. Born in 1906 in St. Petersburg. Russian linguist. Corresponding member of the Literature and Language Department of the Academy since 1968. She graduated from the A. I. Herzen Leningrad Pedagogical Institute in 1933 and became a professor in 1963. She served as Director of the Institute of Linguistics of the AN SSSR from 1971 to 1977. Her works are devoted to several areas of historical and general linguistics. She has authored a number of studies of the English language, the Celtic languages, and Shakespeare. (LDA 89-11378.) (GSE 30, p. 430.)

Scientist-Secretary: Dr. Iurii L. Vorotnikov, tel.938-17-48

Staff of the Department

Dr. Anis Kh. Vafa, tel.938-17-56

Tatiana Gr. Kopylova, tel.938-19-36, 938-55-17

Andrei V. Lupyriev, tel.938-55-17, 938-55-28

Olga Val. Lupyrieva, tel.938-19-36, 938-55-84

Evgeniia Al. Rozanova, tel.938-19-36, 938-55-84

Academicians

- Balashov, Nikolai I.**, D. Phlg. S. Corresponding member of the Literature and Language Department of the Academy since 1984; academician in 1993.
- Bogoliubov, Mikhail N.** Born in 1918 in Leningrad. Russian linguist and specialist on Iran. Corresponding member since 1966. Academician since 1993. He graduated from Leningrad State University in 1941 and has been a professor there since 1959. His works deal with the Khorezmian, Sogdian, and Yaghnolic languages. (GSE 3, p. 396.)
- Bogoliubov, Mikhail N.** Born in 1918 in Leningrad. Russian linguist and specialist on Iran. Corresponding member of the Literature and Language Department of the Academy since 1966; academician since 1993. He graduated from Leningrad State University in 1941 and has been a professor there since 1959. His works deal with the Khorezmian, Sogdian, and Yaghnolic languages. (GSE 3, p. 396.)
- Chelyshev, Evgenii P.**, D. Phil. S. Born in 1921. Corresponding member of the Literature and Language Department of the Academy since 1981. Academician since December 1987. Academician Secretary of the Department since October 1988. (See above.)
- Gamkrelidze, Tamaz V.**, D. Phlg S. Born in 1929. Since 1969, academician of the Physical and Mathematical Sciences Department of the Georgian Academy of Sciences. Academician of the Literature and Language Department of the Russian Academy since 1984. He is Director of the Oriental Studies Institute in Tbilisi that was founded in the 1960s and that is primarily concerned with the study of languages. It has eight Departments that include ancient and oriental languages, Indo-Persian languages, and a Phonetics Laboratory. The other Departments are basically historical l-cultural area study centers.
- Leonov, Leonid M.** Born in 1899 in Moscow. Russian Writer. Academician of the Literature and Language Department of the Academy since 1972. He was raised by his grandfather. His first writing appeared in newspapers in Arkhangel'sk in 1915. His father, a poet, had been exiled to that area. He served in the Red Army in 1920, fighting on the southern front and writing for military newspaperpersons From 1922 on a number of stories, novellas, plays, and novels came from his pen. During the 30's and 40's he wrote mostly plays. His greatest novel was written after WWII: Russian Forest appeared in 1953 and won the Lenin Prize in 1957. He holds a number of orders and medals for his literary achievements.
- Likhachev, Dmitrii S.** Born in 1906 in St. Petersburg. Russian literary critic and cultural historian. Corresponding member, 1953, and academician since 1970. Principal membership in Literature and Language Department. He graduated from Leningrad State University in 1928. He began his work at Pushkin House in 1939 (Institute of Russian Literature) and became Head of the institute's sector of ancient Russian literature in 1954. From 1946 to 1953, he was a professor at Leningrad State University. His writings are many and distinguished. He has emphasized the aesthetic distinctiveness of the culture of ancient Rus' and the problems of the general theory of art. His works are characterized by a concentration on social ideology, literature, folk poetry, and the fine arts. He is a foreign member of the Bulgarian (1963), Austrian (1968), Serbian (1972), and Hungarian (1973) academies of sciences. He holds honorary degrees from Torun (1964), Oxford (1967), and Edinburgh (1970). He received the State Prize in 1952 and 1969. In 1985, he received the V. G. Belinskii Prize for criticism. (GSE 14, p. 496.)
- Sarab'ianov, Dmitrii V.** Corresponding member of the Literature and Language Department of the Academy since December 1987; academician in 1993.
- Sarabianov, Dmitrii V.** Corresponding member of the Literature and Language Department of the Academy since December 1987; academician in 1993. Member of the Bureau of the Department.

Stepanov, Iurii S., D. Phlg. S. Born in 1930. Corresponding member of the Language and Literature Department of the Academy since 1984; academician in 1993. Also a member of the Bureau of the Department.

Tolstoi, Nikita I., D. Phlg. S. Corresponding member of the Language and Literature Department of the Academy since 1984. Academician since 1987. At the Slavic and Balkan Studies Institute in Moscow Professor Tolstoi directs study and research on the history of the spiritual culture of the peoples of Central and Southeastern Europe in the context of European and world culture.

Trubachev, Oleg N., D. Phlg. S. Born in 1930 in Volgograd. Russian linguist. Corresponding member of the Literature and Language Department of the Academy since 1972; academician in 1993. He graduated from the Dnepropetrovsk University in 1952. He became Deputy Director of the Russian Language Institute in 1966 and has served as Head of the institute's sector on etymology and onomastics. His works are on the etymology of Slavic languages and on East Slavic onomastics. He has been editor-in-Chief of Etymology since 1963. (GSE 26, p. 389.)

Zalygin, Sergei P. Academician of the Literature and Language Department of the Academy and member of the Bureau of the Department.

Corresponding Members

Averintsev, Sergei S., Corresponding member of the Literature and Language Department of the Academy since December 1987. (LDA-11378.)

Berdnikov, Georgii P., D. Phlg. S. Born in 1915 in Rostov-on-Don. Soviet literary scholar. Corresponding member of the Literature and Language Department of the Academy since 1974. He graduated from the philology department of Leningrad State University in 1939. From 1977 to February 1988, he served as Director of the A. M. Gorkiy World Literature Institute in Moscow which is subordinate to the academy's Literature and Language department. It serves as the principal body in the Academy of Sciences for research on contemporary Soviet and foreign literature. His principal works are on Chekhov, I. S. Turgenev, and S. Karolin. (GSE 30, p. 24.)

Dmitriev, Anatolii V., D. Phil. S. Corresponding member of the Academy in 1993. In 1976, he was a Deputy Director of the socioeconomic Problems Institute in St. Petersburg which was established in 1975. He is leading studies on the scientific background of concepts of social development of Soviet society.

Domashnev, Anatolii I. Corresponding member of the Literature and Language Department of the Academy in 1993, and member of the Bureau of the Department.

Fedorenko, Nikolai T., C. Phi. S. Born in 1912 in Piatigorsk. Russian philologist and orientalist. State and public figure. Professor (1953). Corresponding member of the Literature and Language Department of the Academy since 1958. Son of a worker. He graduated from the Moscow Institute of Oriental Studies in 1937. In 1954, he became an ambassador extraordinary and plenipotentiary of the USSR. From 1955 to 1958, he was Deputy minister of foreign affairs. From 1958 to 1962, he served as ambassador to Japan. From 1963 to 1968, he was permanent representative of the USSR to the UN and from 1963 to 1968 he was USSR representative on the UN Security Council. In 1970, he became editor-in-Chief of the journal *inostrannaia (aya) literatura* (Foreign Literature). In 1971, he became secretary of the administrative board of the Writers' Union of the USSR. From 1966 to 1971, he was a member of the Central Auditing Commission of the CPSU. He is an honorary member of the China Research Institute in Tokyo (1961) and honorary academician of the Florence Academy of Fine Arts (1975). In 1988, he was appointed advisor to the Academy's Presidium. (GSE 27, pp. 128-9.)

Gamzatov, Gadzhi G., D. Phlg. S. Corresponding member of the Literature and Language Department of the Academy since 1984. He is the Director of the Tsadasa

Institute of History, Language, and Literature of the Daghestani Scientific Center in Makhachkala. In 1951 the name of the Daghestani national poet Gamzat Tsadasda was added to the institute name. The institute sector of Archeology and Ethnography was established in 1958. In the early 1970s institute scholars produced a historico-ethnographic atlas of the republic. The staff of the institute numbers 158 researchers of whom 23 hold doctorates and 84 hold candidate degrees. Structure of the institute: the institute is made up of 12 Departments: history of the CPSU; history of the Soviet period; history of the pre-Soviet period; archeology; ethnography; oriental studies; sociology; history of the arts; literature; folklore; grammar studies, and lexicology and lexicography. The study-museum holds 9,400 items including documentary materials and personal collections, Oriental manuscripts numbering 10,636 items, Arabic documents and books, and the archeological depository consists of six large holdings of some 1,200,000 items.

Karaulov, Iurii N., D. Phlg S. Born in 1935. Corresponding member of the Literature and Language Department of the Academy since 1981. Since 1981, he has been the Director of the Russian Language Institute in Moscow. Established in 1944 with a branch in St. Petersburg. For a short period of time it was merged with the Institute of Language and Thought becoming in 1958 the Institute of the Russian Language. The institute coordinates the collection of materials on the Russian language and its dialects and publishes general and specialized dictionaries. The institute has some 14 Departments: contemporary Russian language; culture of Russian speech; grammar and lexicology; literary language and sytlistics; dictionary of Lenin's Language; Russian language as a means of communication among nationalities; etymology and onomastics; the history of the Russian language; historical lexicology and lexicography; linguistic study of sources and history of the Russian literary language; dialectology and linguistic geography; computerized word fund of the Russian language with laboratories on computerized linguistics, experimental l-phonetics research and computers; a dictionary Department, and a manuscript Department. There are 164 researchers on the staff of whom 29 hold doctoral and 91 hold candidate degrees. One academician and three corresponding members of the Russian academy are on the staff

Kuznetsov, Feliks F., D. Phlg. S. Born in 1931. Corresponding member since 1987. In 1988, he was named Director of the A. M. Gorkiy World Literature Institute in Moscow that dates back to the mid-1930s and that serves as the principal place for research on contemporary Russian and foreign literature in Russia. The institute has a staff of 246 researchers of whom 74 hold doctoral degrees and 122 hold candidate degrees. One academician and six corresponding members of the RAS are on the staff. The 12 Departments in the institute include: the theory of literature, Russian classical literature, Russian literature of the late 19th and the early 20th centuries, Russian literature, foreign literatures of the 20th century, ancient literature, the literatures of Asia and Africa, folklore, foreign literary studies and criticism, foreign studies in Russian language and Russian literature abroad, and source study, bibliography and the history of science.

Lomidze, Georgii I., D. Phil. S. Born in 1914 in Tbilisi. Russian literary scholar. Corresponding member of the Literature and Language Department of the Academy since 1972. He graduated from the M. Gorkiy Institute of Literature in 1947. Since 1955, he has chaired the division of the history of Russian literature of the Gorkiy Institute of World Literature. He began publishing in 1935. Doctor of Philosophical Sciences (1960). He was a professor at the Academy of Social sciences under the CC CPSU from 1965. In 1980, he received the N. A. Dobroliubov Prize for his contributions to the philosophical sciences. (GSE 15, pp. 123-4.)

Mel'nichuk, (Melnichuk) Aleksandr S., D. Phil. S. (Linguistics). Born in 1921. Corresponding member of the Literature and Language Department of the Russian

- Academy since 1981. Since 1985, academician of the Literature, Linguistics, and Art department of the Ukrainian Academy of Sciences.
- Nikolaev, Petr A.**, D. Phlg S. Corresponding member of the Literature and Language Department of the Academy since 1984. Also a member of the Bureau of the Department.
- Novikov, Vasilii V.**, D. Phlg. S. Corresponding member of the Literature and Language Department since 1984.
- Riftin, Boris L.** Corresponding member of the Literature and Language Department of the Academy since December 1987. (LDA 89-11378.)
- Shvedova, Natalia Iurii**, D. Phlg. S. Corresponding member of the Literature and Language Department of the Academy since 1984. Also a member of the Bureau of the Department.
- Solntsev, Vadim M.**, D. Phlg. S. Born in 1928. Corresponding member of the Literature and Language Department of the Academy since 1984. Since 1965, he has been Deputy Director of the Oriental Studies Institute in Moscow which was founded in 1930. In February 1988, he was made Director of the Linguistics Institute in Moscow. In 1950, this Institute was merged with the Institute of the Russian Language and became the Institute of Linguistics of the Russian Academy of Sciences. At that time research on the languages taught in the Oriental Studies Institute and in the Institute of Slavic Studies was also transferred to this institute. Since its establishment, this institute has become one of the most foremost of its kind in the world. Its scientists research most European, Soviet, and African languages. It had codified the national languages of the former Soviet Union and compiled a dialectological atlas for the nation. The institute has a staff of 122 researchers, 42 of whom hold the doctoral degree and 69 hold the candidate degree. There are four corresponding member of the RAS on the staff.
- Tenishev, Edkhiam R.**, D. Phlg. S. Corresponding member of the Literature and Language Department since 1984. He is currently a member of the Bureau of the Department.
- Yartseva, Viktoria N.**, D. Phlg. S. Born in 1906 in St. Petersburg. Russian linguist. Corresponding member of the Literature and Language Department of the Academy since 1968. She graduated from the A. I. Herzen Leningrad Pedagogical Institute in 1933 and became a professor in 1963. She served as Director of the Institute of Linguistics of the Academy from 1971 to 1977. Her works are devoted to several areas of historical and general linguistics. She has authored a number of studies of the English language, the Celtic languages, and Shakespeare. (LDA 89-11378.) (GSE 30, p. 430.)
- Zalizniak, Andre A.** Corresponding member of the Literature and Language Department of the Academy since 1987. He is one of the supervisors for studying the historical development and functioning of the Slavic and Balkan Languages in the Slavic and Balkan Studies Institute in Moscow. (LDA 89-11378.)



Language and Literature Research Institutes:

The Literature and Language Department of the academy is one of the smaller Departments having only five research institutes directly under its superintendence. The research institutes subordinate to the Moscow Department are given below in the order of their founding.

1. Russian Literature Institute (Pushkin House) in St. Petersburg.

Located at 4 Makarova quay. St. Petersburg. 199034. Directed by Professor Nikolai N. Skatov.

Retrospect: Established in 1905, receiving its present name in 1932. The Directors of the institute have been: P. N. Sakulin (1930), A. V. Lunacharsky (skii) (1931-33), A. M. Gorky (1935-36), P. I. Lebedev-Polanskii (1937-47), N. F. Bel'chikov (1948-55), A. S. Bushmin (1956-65 and 1977-83), V. G. Bazanov (1965-75), A. N. Iezuitov (1983-87) and since 1987, N. N. Skatov has been Director of the institute. The institute is the official state repository for materials on Russian and folklore. The great library has some 570,000 items that include the largest specialized book depository in the field of philological disciplines. Its archive of this institute holds 825 major collections that include more than 300,000 manuscript holdings with several million pages of manuscript text covering, military history, social and revolutionary history, the Polish independence movement, urban history, institutional history, and the records of the Tsarist Censor--spanning the years from the 12th century to the present Dr. Nikolai N. Skatov, has been the Director since 1987. (For an extensive and well-documented discussion of Pushkin House, see: Ruble, Vol. III, pp. 454-459.)



2. A. M. Gorkiy World Literature Institute in Moscow.

Located at 25a Povarskaia (aya) st., Moscow. 121069. Directed by Corresponding Member Feliks F. Kuznetsov.

Kuznetsov, Feliks F. D. Phlg. S. Born in 1931. Corresponding member since December 1987. In 1988, he was named Director of the A. M. Gorkiy World Literature Institute in Moscow that dates back to the mid-1930s and that serves as the principal place for research on contemporary Russian and foreign literature in Russia.

Retrospect: Established by a decree of the Presidium of the CC CPSU in 1932, the institute from 1934 to 1938 was named the Gorky Institute of Literature subordinate to the Central Executive Committee of the . In 1938, the institute had its original name restored and was transferred to the AN SSSR. Directors of the institute have been: L. B. Kamenev (1934), I. K. Luppov (1935-40), L. I. Ponomarev (1940-44), V. F. Shishmarev (1944-47), A. M. Egolov (1947-52), I. I. Anisimov (1952-66), B. L. Suchkov (1967-74), Iurii Ia. Barabash (1975-77), G. P. Berdnikov (1977-87), and since 1987, F. F. Kuznetsov has been the institute Director. The institute has a staff of 246 researchers of whom 74 hold doctoral degrees and 122 hold candidate degrees. One academician and six corresponding members of the RAS are on the staff. The institute serves as the principal body in the academy for research on contemporary Russian and foreign literature.

(Older materials)

Structure of the institute: there are 12 Departments in the institute all with sectors or groups. The Departments include:

the theory of literature,
Russian classical literature,
Russian literature of the late 19th and the early 20th centuries,

Russian literature,
foreign literatures of the 20th century,
ancient literature,
the literatures of Asia and Africa,
folklore,
foreign literary studies and criticism,
foreign studies in Russian language and Russian literature abroad, and
source study, bibliography and history of science.

The institute has relationships with the Consortium of Washington Universities, the Kennan Institute for Advanced Russian Studies, the American Council of Learned Societies, the American Council of teachers of Russian, Brown University, and many other institutes and universities in Italy, Germany, and Japan. Dr. Feliks F. Kuznetsov, D. Phlg. S., has been Director since 1988. (**See: Ruble, Vol. III, p. 26.**)(**See: A Scholars' Guide. . .**)



3. Russian Institute of Art Sciences in Moscow.

Located at 5. Kozitskii st., K-9, Moscow, 103009. Directed by Professor Aleksei I. Komech.

Retrospect: Established in 1944 as the Institute of the History of the Arts and originally located under the iurisdiction of the History and Philosophy Department of the AN SSSR, from 1961 to 1977 the institute was placed under subordination to the Ministry of Culture of the USSR In 1977, it was given its current name and since 1982, it has been under the scientific and methodolical guidance of the Literature and Language Department of the Russian Academy of Sciences. Its Directors have been I. E. Grabar' (1944-60), B. M. Iarustovskii (1960-61), V. S. Kruzhkov (1961-73), Iurii Ia. Barabash (1973-75), and since 1975, its Director has been Dr. Meletina P. Kotovskaia (aya), D. Art Studies. The staff numbers 235 researchers of whom 37 hold doctoral and 138 hold candidate degrees. Its staff includes one corresponding member of the Russian Academy of Fine Arts. The scope of its work and interests may be seen in the subjects of its planned publication program from 1990-1995: artists of socialist culture; history of Russian music; Russian classical art; patterns and leading trends in the development of Twentieth-Century art: Western Europe and USA; synthesis of arts in Asia and Africa; Russian Soviet variety art, and with the Siberian Branch of the Russian Academy, monuments of folklore of the peoples of Siberia and the Far East; modern folk art in Russia, and the library of theatrical criticism. The institute maintains close ties with 22 art and culture institutes in the countries of Eastern Europe and is expanding its relations with American, French, Austrian, German, Finish and Grecian institutes.

(See: A Scholars' Guide. . .)

(The Literature and Language Department of the Academy oversees the research done in this institute.)



4. Russian Language Institute in Moscow.

Located at 18/2 Volhonka, G-19, Moscow, 12109. Directed by Corresponding member Iurii N. Karaulov

Karaulov, Iurii N., D. Phlg S. Born in 1935. Corresponding member of the Literature and Language Department of the Academy since 1981. Since 1981, he has been the Director of the Russian Language Institute in Moscow.

Retrospect: Established in 1944 with a branch in St. Petersburg. For a short period of time it was merged with the Institute of Language and Thought becoming in 1958 the Institute of the Russian Language. The institute coordinates the collection of materials on the Russian language and its dialects and publishes general and specialized dictionaries.

(Older materials)

The institute has some 14 Departments:

contemporary Russian language;
culture of Russian speech;
grammar and lexicology;
literary language and stylistics;
dictionary of Lenin's Language;
Russian language as a means of communication among nationalities;
etymology and onomastics;
the history of the Russian language;
historical lexicology and lexicography;
linguistic study of sources and history of the Russian literary language;
dialectology and linguistic geography;
computerized word fund of the Russian language with laboratories on computerized linguistics, experimental l-phonetics research and computers;
a dictionary department, and
a manuscript Department.

There are 164 researchers on the staff of whom 29 hold doctoral and 91 hold candidate degrees. One academician and three corresponding members of the Russian academy are on the staff. Dr. Iurii N. Karaulov, D. Phlg. S., and corresponding member of the RAS since 1981 is Director of the institute. The institute is collaborating on the publication of *The General Slavic Linguistic Atlas and The Linguistic Atlas of Europe*. The institute archives has 21 collections divided into three groups: printed books; a collection of manuscripts of the 16th to the 20th century, and a collection of materials on the history of science, including personal collections of scholars and scientists and documents on the history of the Leningrad Linguistic Society and the Moscow Linguistic Circle. (**See: A Scholars' Guide. . .**)



5. Linguistics Institute in Moscow.

Located at 1/12 Semashko st., K-9, Moscow, 103009, Directed by Corresponding Member Vadim M. Solntsev.

Solntsev, Vadim M., D. Phlg. S. Born in 1928. Corresponding member of the Literature and Language Department of the Academy since 1984. Since 1965, he has been Deputy Director of the Oriental Studies Institute in Moscow which was founded in 1930. In February 1988, he was made Director of the Linguistics Institute in Moscow.

Retrospect: Although established in 1950, this institute traces its beginnings back to an Institute in Petrograd in 1921, that in 1931 was reorganized as the Institute of Language and Thought incorporating the Commission for the Study of the Russian Language and the St. Petersburg Branch of the Institute of Language. At that time research on the languages taught in the Oriental Studies Institute and in the Institute of Slavic Studies was also transferred to this institute. Since its establishment, this institute has become one of the most foremost of its kind in the world. Its scientists research most European, Soviet, and African languages. It had codified the national languages of the USSR and compiled a dialectological atlas for the nation. In 1950, this Institute was merged with the Institute of the Russian Language and became the Institute of Linguistics of the Russian Academy of Sciences. The institute has a staff of 122 researchers, 42 of whom hold the doctoral degree and 69 hold the candidate degree. There are four corresponding member of the RAS on the staff. Dr. Vadim M. Solntsev, D. Phlg. S., has been the Director of the institute since 1988. (See: Ruble, Vol. III., p. 24.)



6. The St. Petersburg Branch has five Departments and an independent laboratory. Its staff numbers 111 researchers of whom 36 hold doctoral and 59 hold candidate degrees. One staff member is a corresponding member of the RAS. The branch maintains relations with institutions in more than 20 countries around the world. Its library is a branch of the Russian Academy of Sciences Library and its specialized linguistics collection counts more than 100,000 items. There is a large card file of the academic dictionary of the Russian language in the archives of the branch institute of more than 12 million items. (**See: A Scholars' Guide. . .**)



7. Linguistic Research Institute in St. Petersburg.

Located at 9, Tuchkov st. St. Petersburg. 199053. Directed by Corresponding Member Anatolii I. Domashnev

Domashnev, Anatolii I. Corresponding member of the Literature and Languages Department of the Russian Academy in 1993. He is director of the Institute of Linguistic Research in St Petersburg.



8. Kalmyk Institute of Social sciences in Elista.

Located at 8 Revolutsionnaia (aya) st. Elista. 358000. Directed by Professor Petr T. Bitkeyev.



9. Department of Foreign Languages in Moscow

Located at 44, build. Vavilova st. V-333, Moscow, 117333. Directed by Dr. Anna M. Sokolova.



10. St. Petersburg Department of Foreign Languages in St. Petersburg

Acting Director Dr. Iurii P. Tratiakov, tel. 218-45-32.



11. Russian Institute of Cultural Studies in Moscow

Located at 20 Bersenyevskaia (aya) quay, Moscow. 109072. Directed by Professor Kirill E. Razlogov

(The Literature and Language Department of the Academy oversee the research done in this institute.)



12. Basic Architectural and City Designing and Building Problems Scientific Research Institute in Moscow

Located at 5, Vozdvizenka st. Moscow. 121019. Directed by Professor Aleksandr V. Ryabushin.

(The Literature and Language Department of the Academy oversee the research done in this institute.)



13. Russian Institute of Art History in St. Petersburg

Located at 5 Isaakievskaja (aya) sq. St. Petersburg. 190000 Directed by Dr. Tatiana A. Kliavina.

(The Literature and Language Department of the Academy oversees the research done in this institute.)



14. Russian Scientific Research Center of Cultural and Natural Legacy in Moscow

Located at 2, Kosmonavtov st., Moscow. 129336. Directed by Professor Iurii A. Vedenin.

(The Literature and Language Department of the Academy oversee the research done in this institute.)



(1997 listing)

Institutions and Organizations of the Department: this is the latest list of institutes and other units under the direct or supervisory control of the department.

1. Institute of World Literature named after A. M. Gorkii

25a, Povarskaia st., Moscow, 121069

Directed by Corresponding member Feliks F. Kuznetsov, tel.290-50-30,
290-55-88

2. Institute of Russian Literature (Pushkin's House)

4, Makarova quae, Saint-Petersburg, 199034
Directed by Prof. Nikolai N. Skatov, tel.218-19-01

3. Institute of Russian Language

18/2, Volhonka, G-19, Moscow, 121019
Directed by Corresponding member Iurii N. Karaulov, tel.202-65-40

4. Institute of Linguistics

1/12, Semashko st., K-9, Moscow, 103009
Directed by Corresponding member Vadim M. Solntsev, tel.290-35-85

5. Institute of Linguistic Research

9, Tuchkov st., Saint-Petersburg, 199053
Directed by Corresponding member Anatolii Iv. Domashnev, tel.218-16-11

6. Kalmyk Institute of Social Sciences (KISS)

8, Revilutsionnaia st., Elista, 358000
Directed by Prof. Petr Tsed. Bitkeiev, tel.6-32-39, 2-37-84

7. Department of Foreign Languages

44, build. 2, Vavilova st., V-333, Moscow, 117333
Directed by Dr. Anna Mih. Sokolova, tel.135-63-41

8. Saint-Petersburg Department of Foreign Languages

Acting Director Dr. Iurii P. Tretiakov, tel.218-45-12

9. Russian Institute of Art Sciences

(The Russian Academy of Sciences carries out scientific-systematic
direction)
5, Kozitskii st., K-9, Moscow, 103009
Directed by Prof. Aleksei Il. Komech, tel.200-03-71

10. Russian Institute of Culture Sciences

(The Russian Academy of Sciences carries out scientific-systematic
direction)
20, Bersenievskaja quae, Moscow, 109072
Directed by Prof. Kirill Em. Razlogov, tel.230-01-77

11. Scientific-Research Institute of Basic Architectural and City Designing and Building Problems

(The Russian Academy of Sciences carries out scientific-systematic direction)

5, Vozdvizhenka st., Moscow, 121019

Directed by Prof. Aleksandr V. Riabushin, tel.203-80-37

12. Russian Institute of Art History

(The Russian Academy of Sciences carries out scientific-systematic direction)

5, Isaakiyevskaia sq., Saint-Petersburg, 190000

Directed by Dr. Tatiana Al. Kliavina, tel.314-41-36

13. Russian Scientific-Research Center of Cultural and Natural Legacy

(The Russian Academy of Sciences carries out scientific-systematic direction)

2, Kosmonavtov st., Moscow, 129336

Directed by Prof. Iurii Al. Vedenin, tel.286-13-19

National Research in Language and Literature:

In Russia, as a whole, however, there are 29 literature and language research units scattered in 18 different cities. The treasure hoard of language materials residing in some of these archives is priceless.



The 24 scientific research institutes not directly under the subordination of the Literature and Language Department of the Russian Academy of Sciences but whose scientists research in areas similar to those scientists in the subordinated institutes are listed below:

1900s

1. O. O. Potebni Linguistics Institute in Kiev.
2. A. S. Pushkin Language and Literature Institute in Tashkent. Opened originally in 1934 as an institute of the Uzbek Branch of the USSR Academy. In 1943, it attained independent institute status under the Uzbek Academy of Sciences.
3. Shota Rustaveli History of Georgian Literature Institute in Tbilisi. The original Shota Rustaveli Institute was established in 1935 at Tbilisi University. In 1942, the Rustaveli Institute joined the Georgian Academy of Sciences and since that time has become the center of study of Georgian literature from the fifth century to the present.
4. Linguistics Institute in Tbilisi. Established originally as the N. Ia. Marr Institute of Language, History and Material Culture in 1936 with the founding of the Georgian Academy of Sciences.
5. A. Rudaki Language and Literature Institute in Dushanbe. Established in 1941 as an independent institute of the academy.

Mid-1940s

6. Andreia Upita Language and Literature Institute in Riga. No date for founding given.
7. Nasimi Linguistics Institute in Baku. Founded in 1945. In 1969 assumed its present name and function.
8. Language and Literature Institute in Kishinev.
9. Language and Literature Institute in Tallinn.
10. Yanka Kupala Literature Institute in Minsk.
11. Makhtumkuli Language and Literature Institute in Ashkhabad.

1950s

12. Yakub Kolas Linguistics Institute in Minsk. Established in 1952 by a separation from the Institute of Literature, Language and Art.
13. Institute of the Lithuanian Language and Literature (ILYaL), Vilnius. Established in 1952 with the merger of the language and the literature institutes into the Institute of the Lithuanian Language and Literature.
14. Oriental Studies Institute in Dushanbe.
15. Oriental Studies Institute in Erevan.
16. Oriental Studies Institute in Tbilisi.
17. N. Davkareva History, Language and Literature Institute (Nukus Branch of the Uzbek Academy). No date for founding given in source.

1960s

18. Linguistics Institute in Alma-Ata. Having originally been a part of the Institute of Language, Literature and History of the Kazakh Academy of Sciences, this institute received independent status in 1961.
19. M. O. Auezova Literature and Art Institute in Alma-Ata.
20. Peoples of the Near and Middle East Institute in Baku.
21. D. I. Gulia Abkhazian Institute of Languages, Literature and History in Sukhumi.
22. K. S. Kekelidze Manuscripts Institute in Tbilisi. No date of founding for this institute is given in source.
23. Language and Literature Institute in Frunze. No date for founding given in source.

1970s

24. T. G. Shevchenko Literature Institute in Kiev. No date given in source.



Scientific Branches and Affiliates of the Russian Academy of Sciences

The Branches and Scientific Centers of the Russian Academy of Sciences in Moscow:

In 1989, there were two branches and eight "Scientific Centers" of the National Academy of Sciences of the USSR that were subordinate to the Presidium of the academy. Again, they are located in extremely isolated areas and many of their SRIs duplicate each other in their basic sciences research efforts. Some, of course, because of their location and specialized purpose, are unique institutes. The branches are the Kazan', and the Kola Branches. The scientific centers are Bashkir, Perm', Komi, Karelian, St. Petersburg , Noginsk, Saratov, and the Daghestani scientific centers of the Russian Academy of Sciences.



(1996 update)

Chernogolovka Scientific Center

Presidium of Scientific Center in Chernogolovka

Academician Iurii Andreevich Osipian,
Chairman, Presidium of Scientific Center in Chernogolovka RAS
Director, Institute of Solid State Physics, RAS

Professor Vitalii Vasilyevich Aristov,
Vice-Chairman, Presidium of Scientific Center in Chernogolovka RAS
Director, Institute of Technological Problems of Microelectronics, RAS

Professor Sergei Mikhailovich Baturin,
Vice-Chairman, Presidium of Scientific Center in Chernogolovka RAS
Director, Institute of Chemical Physics, RAS

Dr. Valerii Anatolievich Kravchenko,
Vice-Chairman, Presidium of Scientific Center in Chernogolovka RAS

Academician Aleksandr Evgenievich Shilov,
Member of Presidium SCC, RAS
Deputy Director, Institute of Chemical Physics, RAS

Academician Sergei Ivanovich Anisimov,
Member of Presidium SCC, RAS
Landau Institute for Theoretical Physics, RAS

Academician Vladislav Borisovich Timofeev,
Member of Presidium SCC, RAS
Institute of Solid State Physics, RAS

Professor Vladimir Alekseevich Borodin,
Member of Presidium SCC, RAS
Director, Experimental Scientific Equipment Factory, RAS

Professor Vladimir Nikolaevich Troitsky (skii) ,
Member of Presidium SCC, RAS
Director, Institute of New Chemical Problems, RAS

Professor Ardalyon Nikolaevich Ponomarev,
Member of Presidium SCC, RAS
Director of Branch, Institute of New Energetical Problems of Chemical
Physics, RAS

Professor Sergei Mikhailovich Aldoschin,
Deputy Director, Institute of Chemical Physics, RAS

Professor Oleg Alekseevich Raevsky (skii) ,
Deputy Director, Institute of Physiologically Active Compounds , RAS

Achitector Vladimir Alekseevich Tolmachev,
Director, Institute of Architecture, SCC RAS

Vladimir Arkadievich Safronov,
Director, Factory of Building Constructions, SCC RAS

Eugeny Nikolayevich Borisov,
Chairman, Administration of Chernogolovka

Dr. Valentina Sergeevna Kirilova,
Assistant of Chairman, Presidium SCC RAS

Background:

Chernogolovka, a small, cozy, picturesque town located 50 kilometers (30 miles) northwest of Moscow, is the site of one of the most well-known centers of the Russian Academy of Sciences.

At the initiative of the Nobel laureate N. N. Semenov, a branch of the Institute of Chemical Physics was founded in 1956 near the village of Chernogolovka. This served as the embryo for a new scientific center of the Russian Academy of Sciences. Thanks to the outstanding achievements of the scientists working here, over the past 40 years the Scientific Center in Chernogolovka has become an internationally recognized center for the fundamental sciences. Enormous contributions to the formation of the scientific center were made by remarkable scientific scholars, organizers, and members of the Russian Academy of Sciences: N. N. Semenov, F. I. Dubovitsky (skii) , G.V. Kurdiumov, Iurii A. Osipian, D. S. Korzhinsky (skii) , I. M. Khalatnikov, and others. They also organized scientific groups and educational departments around the institutes they headed in Chernogolovka. They trained many who now figure among the most prominent researchers in areas of physics, chemistry, and mathematics, performing work that is widely recognized internationally.

Now Chernogolovka is a well-designed town with a population of over 22 thousand. The town and scientific center grew especially rapidly during the 1970s and 1980s. Chernogolovka is a young town. This is reflected in the average age of its population-- about 30. The academic institutions of the scientific center employ most of Chernogolovka's working population, including more than 1000 Candidates of Science (a degree equivalent to a Ph.D.), 250 Doctors of Science, and more than 20 Members of the Russian Academy of Sciences. In the scientific center, there are currently nine research institutes, two specialized laboratories, and a factory constructing non-standard scientific equipment, all of which belong to the Academy of Sciences. A beautiful natural setting, well-planned growth, and highly developed social infrastructure and utilities system provide exceptional opportunities for fruitful scientific and technological activities in Chernogolovka. The academic administration of the scientific center (the Presidium of the Scientific Center) and organs of the local government (the Chernogolovka Territorial Administration) support and develop the town's social infrastructure and utilities and make decisions regarding municipal construction and other strategic issues.

Chernogolovka-- A Center for Scientific Research

The scientific center in Chernogolovka extends over an area of about 23 square kilometers (about 9 sq. miles). The residential area occupies slightly more than 1 sq. km. (about 0.4 sq. miles) of this area. The institutes are located in the forest to the north and west of the residential area. A 20-- 25 minute stroll along shady walking paths through a pine forest brings you to the laboratory and technological buildings.

The scientific center of the Academy of Sciences began to develop in the mid-fifties, unifying various institutes. The idea of locating several mutually complementary scientific research institutions together outside of a big city stemmed from the very character of development of modern science, which is complex and requires the unified efforts of teams of scientists, engineers, and technicians with different specializations. The scientific center in Chernogolovka was not originally planned as a unified whole. Appearing in 1956 as a suburban experimental branch of the Moscow Institute of Chemical Physics, the scientific center was joined by other institutes. Now it is a complex of scientific establishments of the Russian Academy

of Sciences; these are mainly physical and physicochemical institutes with a well-equipped experimental base.

The main fundamental problems the institutes deal with are investigating the structure and transformation of substances in various physicochemical conditions, establishing ties between the structure and properties of substances, and creating the scientific basis of new technological processes, materials, and artificial low-dimensional structures for new technologies. Investigations in modern fields of solid state physics, chemistry and chemical physics, theoretical and mathematical physics, mathematics, and biology are conducted in Chernogolovka.

The Scientific Institutions

The largest of all the scientific institutions of the center is the **Institute of Chemical Physics** in Chernogolovka, where fundamental problems of chemical physics are studied: kinetics and mechanisms of chemical and biological processes; processes of combustion, explosion, and polymerization; and mechanisms of elementary reactions involving high energy particles.

The second largest institute is the **Institute of Solid State Physics**, where investigations in low-temperature and dislocation solid state physics, superconductivity, electron kinetics, the physics of low-dimensional systems, high-pressure physics, and the physics of materials technology are successfully being carried out.

The scientific activity of the youngest institute, the **Institute of Structural Macrokinetics**, began in 1988 and is developing in the following directions: general and structural macrokinetics, processes of self-propagating high-temperature synthesis, applied materials technology, and the creation of technological processes for obtaining inorganic materials.

The main focus of work at the **Institute of Microelectronics Technology and High Purity Materials** is investigation of physical bases for quality control in semiconducting materials and microelectronic structures, the technology for preparing micro- and nanostructures, electrical and optical properties of metallic and semiconducting nanostructures, and the operating principles of X-ray optical elements.

The **Institute of Experimental Mineralogy** conducts fundamental investigations into the processes of ore formation. These studies aim to solve how to find deposits of useful minerals by studying models that reproduce under laboratory conditions the processes of matter transfer taking place in open systems under the pressure, temperature, and chemical compositions found in the crust and mantle.

At the **Institute of Physiologically Active Compounds**, investigations are conducted in the areas of synthesis, the study of structures, physicochemical properties, and the mechanisms of action by physiologically active substances of various classes, including agricultural preparations, enzymes, and proteins.

The work of the **Institute for New Chemical Problems** is devoted to fundamental investigations into the chemistry of new materials, solid state ionics, synthesis of inorganic compounds, and development of the production technology for refractory metal powders and new materials based on them.

The **Landau Institute for Theoretical Physics** is a unique center for theoretical physics created by the students of Academician L.D. Landau, after whom the institute was named. The spectrum of the institute's scientific directions embraces many fields of modern theoretical and mathematical physics: solid state theory, superconductivity, field theory, elementary-particle theory, and theoretical investigations in astrophysics. The presence of a strong group of theoreticians in the scientific center and its close cooperation with other institutes helps greatly in solving fundamental scientific problems.

A branch of the **Institute of Energy Problems in Chemical Physics** carries out research in the following basic directions: chemical-physical processes governing the solution of new energy problems, the mechanisms of physico-energetic action on nature and technical objects, the application of various types of radiation in developing new energy-saving and ecologically clean processes, radiation and laser chemistry, and mass spectroscopy.

The **Cosmochemistry Laboratory of Moscow's Vernadsky (skii) Institute of Geochemistry and Analytical Chemistry** was established in Chernogolovka as a special low-background laboratory for the study of radioactive meteorites and lunar probes using modern methods for measuring radiation.

The presence of suitable forest tracts near Chernogolovka determined the creation in our generally physicochemical scientific center of **an experimental base of Moscow's Severtsev Institute of Ecology and Evolution** for the development of work on the ecological behavior of wild animals.

A somewhat unusual matter for the scientific center was organizing the first industrial enterprise in the Academy of Sciences system, the **Experimental Factory of Scientific Instrumentation**, to produce equipment for scientific investigations and tools that automatically control experiments. Founded in 1972, the factory is now one of the best producers of scientific equipment in Russia and stands out for its high level of production and excellent technical equipment.

Developments and Technologies

Research by scientists from Chernogolovka's scientific center in various areas of fundamental physics, chemical physics, and chemistry is recognized all over the world. In recent years, an active search has been underway for ways to speed up the pace of scientific and technological achievements in production.

The results of applied research by scientists from the Institute of Chemical Physics on the development of catalytic processes, including processes of enzyme catalysis, nitrogen fixation, hydrocarbon oxidation, and the preparation of new medicinal compounds, have received wide attention.

Also of great interest is technology developed by specialists from the Institute of Solid State Physics to produce articles of a desired shape from single crystals of sapphire or from heat- and shock-resistant structural ceramics for engines, armored protection, and other applications. Technology for the preparation of magnetic recording elements using amorphous ferromagnetic materials and technology for deformation polishing optical elements for laser equipment were also developed at this institute.

Great progress has been made by specialists at the Institute of Microelectronics Technology in developing methods to obtain and analyze high purity materials for electronic

applications, and in the technology of preparing x-ray optical elements, nanostructures, and structures of silicon on a dielectric for the preparation of highly stable microcircuits.

Of great practical importance is technology using self-propagating high-temperature synthesis that is being developed at the Institute of Structural Macrokinetics to obtain various inorganic compounds, as well as articles and coatings from these compounds. Over 500 compounds and materials of practical interest have already been produced, and several dozen new technologies, many of which have been produced industrially, have been created.

The scientists of the Institute for New Chemical Problems have achieved considerable success in developing technology to produce ultrafine powders of refractory metals, and in developing a physicochemical basis for ecologically friendly complex treatment of metallurgical raw materials.

Among the achievements by the Chernogolovka branch of the Institute of Energy Problems in Chemical Physics in the area of applied research, we should point out the development of a new type of time-flight mass spectrometer with ionization at atmospheric pressure, which has a sensitivity three orders of magnitude higher than that of existing devices. Also created in this branch was a complex for laser monitoring the environment and determining the influence of destruction of the planet's ozone layer and of increasing doses of biologically active ultraviolet light on the biosphere. One of the important technological developments of this Branch is the plasma-chemical method of modifying the surfaces of polymeric materials, including elastomers.

Products from the Experimental Factory of Scientific Instrumentation are well known in Russia and neighboring countries: electron and ion guns; Auger-electron analyzers; energy and mass analyzers; gas and liquid chromatographs; NMR and EPR spectrometers; installations for molecular beam epitaxy; automatized units for the growth of "acoustic", "laser", and other single crystals; and various electronic devices for automation and data analysis.

1. The Institute of Chemical Physics in Chernogolovka of Russian Academy of Science (ICPC)

10 scientific departments,
and 60 laboratories:

1. Department of Combustion and Explosion
2. Department of Kinetics and Catalysis
3. Department of High Dynamic Pressure
4. Department of Substance Structure
5. Department of Polymer and Composite Materials
6. Department of Kinetics of Biological and Chemical Processes
7. Mathematical Department
8. Department of Photochemistry
9. Department of Chemical Technology
10. Department of Ecological Monitoring

1. Department of Combustion and Explosion

Professor G. B. Manelis, Head of Department

Gas Dynamics Laboratory
Professor Vladimir E. Fortov, Head of Laboratory, mail to:
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Phone/Fax: +07 095 9132322
WWW: <http://www.ficp.ac.ru>

The Gas Dynamics Laboratory unites researchers in the field of High Energy Density Physics.

2. Department of Kinetics and Catalysis

Professor O. Efimov, Head of Department

3. Department of High Dynamic Pressure

Professor A. Dremin, Head of Department

4. Department of Substance Structure

Professor L. O. Atovmyan, Head of Department

Laboratory of cryochemistry and radiation chemistry,
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5. Department of Polymer and Composite Materials

Professor B. Rozenberg, Head of Department

6. Department of Kinetics of Biological and Chemical Processes

Professor G. Bogdanov, Head of Department

7. Mathematical Department

Professor V. Gourarii, Head of Department

8. Department of Photochemistry

Professor V. Razoumov, Head of Department

Laboratory of Photodynamic processes
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9. Department of Chemical Technology

Professor V. Savchenko, Head of Department

10. Department of Ecological Monitoring

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2. Institute of Experimental Mineralogy of the Russian Academy of Sciences

Established: 1969

Director: academician Vilen A. Zharikov

location: Chernogolovka, Moscow district

Mail address: 142432, Institutski prospect, Chernogolovka, Noginski region, Moscow district, RUSSIA

Phone: 7(095) 913 21 12, 7(095) 524 50 37, 7(095) 524 50 74

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e-mail: iem@iem.ac.ru (Use this address for sending general information for all IEM)

Research thrusts: Experimental and theoretical research on physical chemistry of minerals, melts and fluids under the conditions of the Earth's crust and mantle, fluid-rock interactions, mineral synthesis. Interdisciplinary research in the areas of physics, chemistry, Earth and environmental sciences, materials synthesis and analysis.

Historical Note

The establishment of the Institute of Experimental Mineralogy within the Russian Academy of Sciences (IEM) was encouraged by a novel approach to the fundamental geological problems developed by D. S. Korzhinskii (1899-1985) and his disciples, as well as by growing demands for theoretical conceptions to be verified experimentally. The brilliant ideas of Korzhinskii have provided the basis for much of the research work being done at the Institute and they still serve as a source of inspiration for many specialists in geological sciences. First experiments were initiated in 1965 by a small group of his followers in a department of the Institute of Solid State Physics. Needless to say that D. S. Korzhinskii was a great scientist. Yet, he was much like a child in business affairs. The burden of organization and management of the Institute was carried by Professor V. A. Zharikov, one of his former students, who was elected Director of the Institute when Korzhinskii had passed away. In 1969 the Institute became a separate establishment of the USSR Academy of Sciences. Since then the team of IEM researchers have led the way to fundamental studies in areas such as magmatism, metamorphism, mantle processes, metasomatism, hydrothermal processes, ore-mineral equilibria, fluid-rock interactions, and other important geological phenomena. The emphasis put on the application of the methods of physical chemistry and thermodynamics to resolve otherwise very arduous problems may be recognized as a characteristic feature of all studies going on at the Institute.

Staff of the institute

The Institute has a staff of about 250 people of whom about 70 are research scientists. Most of the rest provide technical support for the experimental studies. They are busy designing, manufacturing, and maintaining a large number of experimental devices including those ordered by other institutions. At present the scientific staff includes 18 Professors and D. Sc. and 45 PhDs. Some of them hold also faculty positions at the Moscow State University.

The current team of leading scientists and their respective research areas include:

- Iurii V. Alekhin, D. Sc., Head of laboratory (transport phenomena, diffusion of hydrothermal fluids, surface geochemistry).
- V. N. Balashov, D. Sc. (theoretical modeling and computer simulations of ore deposits formations).
- V. S. Balitsky (skii), D. Sc., Head of laboratory (crystal growth, gemmology, modifying of natural and synthetic minerals).
- N. I. Bezmen, D. Sc.
- M. B. Epel'baum, Professor, D. Sc., Head of laboratory (magmatism, formation of granite magmas and rocks, properties of magmatic melts).
- V. V. Fed'kin, D. Sc., Corresponding Secretary of the Institute (metamorphism).
- V. I. Fonarev, D. Sc., Head of laboratory (evolution of metamorphism, geothermobarometry of metamorphic complexes, experimental petrology).
- Iurii E. Gorbaty, Professor, D. Sc. (physics of fluids, X-ray scattering, IR and Raman spectroscopy at high pressures and temperatures).
- N. S. Gorbachev, D. Sc.
- I. P. Ivanov, Professor, D. Sc. (metasomatism, mineral equilibria).
- A. G. Kalinichev, D. Sc., Head of laboratory (physical chemistry of aqueous solutions at high temperatures and pressures, computer simulations).
- A. R. Kotel'nikov, D. Sc.
- A. A. Marakushev, Full Member of the Russian Academy of Sciences, Professor, D. Sc., Head of laboratory (petrology, thermodynamics of geological processes).
- G. V. Novikov, D. Sc. (physics of minerals, Moessbauer spectroscopy).
- E. G. Osadchii, D. Sc.
- L. L. Perchuk, Professor, D. Sc., Head of laboratory (metamorphism, magmatism, geothermobarometry).
- E. S. Persikov, D. Sc., Head of laboratory (phase relations, structure of mantle magmas, volatile solubilities, viscosity, etc. at high and very high pressures).
- Iurii B. Shapovalov, D. Sc., Deputy Director, (experimental modeling of metasomatic phenomena).
- V. M. Shmonov, D. Sc. (permeability of rocks at high pressures and temperatures).
- K. I. Shmulovich, D. Sc. (phase equilibria in fluid systems, thermodynamics of fluid phases, mineral equilibria, fluid inclusions).
- G. P. Zaráisky (skii), Professor, D. Sc., Head of laboratory (experimental modelling and simulation of metasomatic zoning).
- V. A. Zharikov, Full Member of the Russian Academy of Sciences, Professor, D. Sc., Director of the Institute (magmatism, metasomatism, thermodynamics of geological processes).
- V. N. Zyryanov, D. Sc., Head of laboratory (radioecology, geothermobarometry).

Experimental Equipment

The Institute has a very strong department able to design and manufacture all kinds of high-pressure high-temperature equipment needed for scientific experiments. It was vital to focus much attention on in-house manufacturing of high-pressure devices, since there were no industrial enterprises in this country experienced in such a unique production. So, for almost three decades the Institute has been engaged in designing and manufacturing of the high performance experimental equipment and analyzing advanced materials. Certainly, all high-temperature and high-pressure equipment, listed below, have been perfected as a result of many years research

and experimentation. That is why there is a constant demand for the equipment built in IEM, including orders from research laboratories and universities in other countries (Sweden, India). The following apparatuses are now available for experimental work:

Wide range of hydrothermal autoclaves and externally pressurized vessels used typically at 700-800°C and pressure of up to 6-8 Kb.

Internally heated gas bombs with large internal volume (typically, 1400°C at 5-15 Kb).

Piston-cylinder apparatuses working at pressure of up to 35 kbars. The anvil-with-hole apparatus (up to 80 Kb). Still higher pressures (up to 250 Kb) are expected to be brought into reach as the split sphere apparatus should be launched yet in the nearest future.

High-pressure, high-temperature viscosimeter (up to 15 Kb), that is used to study magmatic melts.

Combined piston-cylinder and gaseous pressure apparatus used up to 10 Kb.

Flow-through high-pressure apparatus to study metasomatic zoning and ore concentration processes at temperatures up to 500°C and pressures up to 1.5 Kb.

High-temperature, high-pressure reaction vessel with the sampling device for studies of hydrothermal fluid systems at 500-600°C and 1-1.5 Kb.

Deep Sea / Borehole potentiometric probe designed in pursuit of oceanological, geological and geophysical research as well as environmental monitoring. It allows simultaneous measurements of pH, Eh, pS²⁻, pCl⁻, pK⁺, pNa⁺, pO₂, etc. at the ocean depth of about 8000 m and a temperature of up to 250°C

Variety of high-pressure cells for measurement of X-ray scattering in liquids or for in situ studies of hydrothermal processes (up to 550°C at 1-2 Kb and up to 8 Kb at ambient temperature)

IR spectroscopy cells for precise measurements of absorption up to 500°C and 1-2 Kb

Non-corrosive Raman spectroscopy cells working over the range of temperatures and pressures up to 500°C and 1-2 Kb.

Analytical Facilities

With funding of science so greatly diminished in recent years, it is getting harder to keep the analytical instrumentation at the Institute up-to-date. Yet, our researches can enjoy opportunities presented by the automated electron microprobe, scanning electron microscopy, wet analytical chemistry, mass spectroscopy, gas chromatography, AAS, Moessbauer spectroscopy, IR and Raman spectroscopy, X-ray powder diffraction. Many of these fields are headed by top-level specialists, who are constantly improving analytical techniques.

Computer Facilities

All laboratories are equipped with 386-, 486-, and Pentium-based personal computers. There are also several Sun- and DEC-workstations for large scale computations. All

computers have complete network capabilities. Access to external computing facilities is possible over Internet. See also more detail description of IEM network.

Publishing Activity

The scientists of IEM publish about 50-70 research papers a year. Most of the research results obtained at the Institute are published in the Proceedings of the Russian Academy of Sciences, Geokhimia (available as Geochemistry International in English translation), Petrologia/Petrology (Russian/English magazine). Recently, more results are getting published in the international journals, such as Geochimica et Cosmochimica Acta, Contributions to Mineralogy and Petrology, Advances in Physical Geochemistry, Metamorphic Petrology, Journal of Physical Chemistry, etc. The Institute also publishes a quarterly journal Experiment in Geosciences in English and the Contributions to Physical-Chemical Petrology book series in Russian.

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3. Institute of Microelectronics Technology and High Purity Materials of the Russian Academy of Science

The Institute of Microelectronics Technology Problems and High Purity Materials of the Russian Academy of Sciences started to form in 1982--1983 as a department of the **Institute of Solid State Physics**. On January 1, 1984 it obtained the status of an Institute. The organizer of the new Institute and its first Director Ch.V. Kopetskii, a corresponding member of the USSR Academy of Sciences, lay the foundation for such traditions as dynamism in research work, search for the application of the results in most unexpected fields, and orientation of research work for obtaining final results. These traditions help our Institute to survive in this hard for science time.

The new Institute was set the tasks of carrying fundamental research in the field of physics of microelectronics and properties of micro- and nano-objects, development of methods for testing and characterization of micro structures, designing new technological processes of micro-structurization, and search for and fabrication of new materials for microelectronics. To this end, provisions were made for small-scale production of high-purity materials and technological equipment. It was also

planned to build production premises, administrative building and a special building for production of integral circuits in cooperation with the Experimental Plant for Scientific Equipment USSR Academy of Sciences.

These tasks determined the structure of research and production departments. Moreover, some joint laboratories were created together with a plant of the Ministry of electronic industry, research institutes of the Ministry of means of communication, and GIREDMET Institute of the Ministry of nonferrous metallurgy.

IPTM grew quickly and by 1990 its staff increased to 800 people as compared to 320 people in 1984. The Institute established working contacts with many institutes of the USSR Academy of Sciences, Moscow State University named after Lomonosov, plants, and research institutes of Moscow, Leningrad (St-Petersburg), Minsk, Novosibirsk, Erevan, Kiev, Gorki (N. Novgorod), Kishinev, Tomsk, Vyborg, Zelenograd, Fryazino and other towns. Agreements on scientific and technological cooperation were signed with some research institutions in France, Sweden, Great Britain, Bulgaria, GDR, and Hungary.

Research workers of our Institute participated in international and All-Union conferences and symposia. The Institute was the organizer of four All-Union seminars on micro lithography and two All-Union conferences on scanning electron microscopy. It participated in organizing Russian-German and Russian-Ukrainian symposia on analytical chemistry, IV International Conference on X-ray Microscopy, Soviet-Japanese Seminar on Grain Boundary, Soviet-French Seminar on X-ray Microscopy, and many others.

The first paper on the work done at the Institute (Kratschmer E., Erko A., Petrashov V.T., and Beneking., Device Fabrication by Nano lithography and Electroplating for Magnetic Quantization Measurements.-- Appl. Phys. Lett., vol. 4 (10), 15 May, 1984, pp. 1011-1013) was presented for publication in January 1984. By 1994, the research workers of the Institute, who are now 145 including 21 doctors and 102 candidates of sciences, published more than 900 works, made over 1000 reports at various conferences, and received 100 inventor's certificates.

In the period 1984 to 1994, people at the Institute presented 16 doctorate and 47 candidate dissertations. Students from some educational institutions such as Moscow Steel and Alloys Institute (department of metallography) Moscow Physico-Technical Institute (department of nono-electronics), Moscow State University (department of electronics) do their graduation papers at our Institute. The Institute is also involved in the work of the IPTM- FTIAN-MGU scientific-educational center.

This collection of papers presents the major results of the ten-year research work, although it does not cover the whole spectrum of research carried on at the Institute.

Our research was carried on in cooperation with researchers from other institutes both in Russia and abroad. You will find their names among the authors of the papers. In the Introduction I would like to emphasize that workers of our Institute initiated research in two original directions that received world-wide recognition: metallic nano-electronics and Bragg-Fresnel x-ray optics. They also developed original techniques in electron-beam and ion lithography, plasma-chemical etching, and film deposition by CVD, ECR, electron-beam, magnetron and laser sputtering. These techniques make the basis for devices, set-ups and new technologies designed and developed at the Institute now. The research in the field of preparation and analysis of pure substances, started at the Institute of Solid State Physics, is successfully

continued. Thus, we successfully cope with the task, in spite of the difficulties of the critical moment.

The structure of the research departments of the Institute was regularly changed and improved: some laboratories were disbanded, new ones were formed. At present, the structure corresponds to the basic research directions of IPTM. These are physics of electronics and technology of heterosystems, physics and technology of elements for functional electronics, special materials for micro-electronics and pure substance, x-ray optics and submicron diagnostics.

A great contribution to the formation of research direction is due to candidate of science (physics and mathematics) G. I. Kokhanchik who unfortunately passed away prematurely. Of interest is the experience of the laser processes laboratory under candidate of science (chemistry) Iurii I. Dernovskii, that moved off from the Institute and works on the basis of complete financial independence by implementing and realizing the results of their research work.

Our Institute grew and developed in the years of perestroika when the government paid less attention to research and science developed rather by inertia. Since 1990, financing of research began to decrease and by 1994 dropped to a critically low level of 5% from the financing in 1990. Under these conditions, the development of the Institute, or rather its survival, was due to the efforts of the workers of the management department: former Deputy Director on general questions Iurii K. Suvorov, Chief engineer and Deputy Director on construction M. I. Verbukh, Chief book-keeper G. M. Korotkova and Head of planning and economy team R. P. Raikh. Heads of auxiliary services and Chief specialists also contributed to the development of the Institute. They are N. B. Serov (Chief mechanic), A. P. Pykhtin (former Chief power engineer), G. A. Serebriakov (Head of the personnel department), G. F. Shvedenkov (Head of the 1st department), L. P. Aristova (Head of the library), L. I. Korshunova (Head of the patent team), T. I. Petrashova (Head of secretarial services), A. K. Zamaraev (former Head of managerial services), G. I. Sal'nikov (Head of the technological production department), Iurii I. Bodryagin (former Head of the transport team) and many other workers.

We will always remember people who participated in the organization, formation of the Institute, who contributed to its development and progress but passed away too prematurely: E. T. Babichev, K. P. Borzov, V. I. Zhila, N. P. Zarovnyadnyi, Ch. V. Kopetskii, G. I. Kokhanchik, B. N. Lesovikov, D. A. Lutova, V. V. Makhrov, I. M. Pronman, V. S. Pugachev, F. D. Senchukov, E. M. Tseitlin, S. A. Shuiskov.

The formation of our Institute as an institution of an academic rank would have been impossible without the assistance of Vice President of the USSR AS academician E. P. Velikhov, department of informatics and computer technology of the Academy, encouragement and support of academician K. A. Valiev, planning and economy and scientific organizational departments of the Academy and the department for foreign contacts of the Presidium of the USSR Academy of Sciences.

For questions or comments, please send mail to:
webmaster@ipmt-hpm.ac.ru



4. THE INSTITUTE OF STRUCTURAL MACROKINETICS of the RUSSIAN ACADEMY OF SCIENCES

The Institute of Structural Macrokinetics Russian Academy of Sciences (Russian acronym is ISMAN) is young developing academic institution in the field of macroscopic kinetics of chemical reactions. The researchers working at the Institute are interested in the processes of any chemical nature in which an important part is played by physical factors, e.g. processes of heat and mass transfer, phase and structural transformations. Theoretical and experimental studies of mutual effect of chemical and physical processes on each other, the revealing of direct and inverse relations between them, the description of phenomena, modes, and effects due to these relations make up a scientific approach to investigations developed at the Institute. In this regard strongly exothermic processes, rich in macrokinetic effect, are of great interest. Because of this, the theory and practice of combustion became a basis for the research activity at the Institute.

The Institute is located in a small town Chernogolovka, Moscow region, and is part of the department of general and technical chemistry of Russian Academy of Sciences with a staff of nearly 500 people (researches and technicians). ISMAN was established in 1987 on the base of the department of macroscopic kinetics of the Institute of Chemical Physics, USSR Academy of Sciences. By the time the Institute was established a well-united team of young like-minded researchers who used macrokinetic approach in theoretical and experimental investigations and acquired a taste for practical applications had been already successfully working.

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5. Institute of Solid State Physics of the RUSSIAN ACADEMY OF SCIENCES (ISSP)

Moscow District, 142432,
TELEPHONE:(095)-524-50-22
FAX:(096)-576-41-11

The Institute of Solid State Physics of the Russian Academy of Sciences (ISSP) was founded in the 60s in Chernogolovka which is located 50 kilometers to the east of Moscow. For the last 30 years the ISSP has become one of the most outstanding Russian Institute and gained immense prestige in the world scientific community. The personnel of the Institute made very important and, in some cases, decisive contributions to many branches of physics of solids and material science and engineering, such as low-temperature metal physics of dislocations, spectroscopy of exciton states, phase transformations under high pressures, spectroscopy and electron transport in 2D-systems, helium physics, surface, physics, structure and technology of amorphous alloys, structures and properties of grain boundaries, high-purity metallic single crystals and goods produced of them fibrous composites with a metallic matrix, crystals of various shapes and so on. For the last few years fortunate has been wide involvement of our scientists in the research of the high-

temperature superconductivity of different materials including metallic cuprates, fullerenes and organic metals.

LABORATORIES OF INSTITUTE

Laboratory of Physical-Chemical Bases of Crystallization

Head of laboratory: Dr. N. N. Kolesnikov.

The scope of the Laboratory works includes two main aspects:

the melt growth of single crystals of inorganic compounds:
chalcogenides, halides, complex superconducting cuprates.
a physical-chemical study of these compounds and systems where they originate in order to facilitate their single crystal growth, or to achieve some desirable properties of these crystals.

Fields of research:

1. Crystal growth of zinc and cadmium chalcogenides from the melt for manufacturing transmitting, outletting and focusing optics of IR-devices, e.g. CO₂-lasers.
2. Single crystal growth of these compounds for manufacturing solid-state elements of devices for modifying or modulating IR-beams, e.g. polarizers, electro-optical and mechanical modulators, etc.
3. Single crystal growth of these compounds for manufacturing seeds or substrates for growth of films and bulk crystals from the vapor phase.
4. Chemical vapor deposition (CVD) of zinc and cadmium chalcogenides.
5. Single crystal growth of some Tl-based HTSC-phases in the system Tl-Ca-Ba-Cu-O. The single crystals have sizes up to 3x2x0.2 mm and can be used for various optical, structural and magnetic measurements.
6. Single crystal growth of lead fluoride for various investigations.
7. Single crystal growth of alkali halides, including mixed crystals, for IR-optics and different research purposes.
8. Physical-chemical study of systems with above mentioned compounds, especially investigation of T-x diagrams.
9. Experimental investigations of some properties of melts: volume effects of crystallization, surface tension, viscosity.

Experimental methods:

The Laboratory has equipment for the crystal growth by Bridgman method, zone melting, CVD and Czochralski technique. The growth of different crystals can be carried out, the composition and unit cell parameters of produced crystals being determined in the neighboring laboratories. The structure of crystals revealed by the relevant study, the devices and materials for the DTA and the chemical etching being available in the Laboratory. The Laboratory also has an equipment for the investigation of properties of the refractory compound's melts.

Laboratory of Reinforced Systems

Hof laboratory: Dr. S.T. Mileiko.

Established as research group in 1967, and since January 1967, has had the status of a laboratory with two main research directions: The fracture mechanism of non-

homogeneous solids and the search for new technological methods to produce metal and ceramic-based fibrous composites.

Laboratory of Spectroscopy of Semiconductor Surfaces

Head of the laboratory: Dr. V. A. Grazhulis.

Laboratory of the Physics of High Pressure

Head of the laboratory: Dr. E. G. Ponyatovsky (skii)

Laboratory of Structural Analysis

Head of the laboratory: Dr. Veniamin Sh. Shechtman

Research Directions:

Solid State Physics

Material science

Processing technique of materials



6. Landau Institute for Theoretical Physics in Chernogolovka

The L. D. Landau Institute for Theoretical Physics was founded in 1965. Initially, only five researchers worked at the Institute, and all of them were Landau's students. Since then, the institute has grown to one hundred members. From the founding of the Institute until 1992, its Director was Professor Isaak M. Khalatnikov. Since 1992 a Head of the Institute is Professor Vladimir E. Zakharov.

The Landau Institute for Theoretical Physics has been in operation for more than thirty years now, and all this time it has been a unique scientific center having no match not only in Russia but in all of the world. The Institute has always employed specialists of the highest caliber in all branches of modern theoretical physics, and has provided them with an ideal environment for interaction and joint work. Landau Institute has always been the place in the world where the best and newest Science was being developed. However, the Institute has always been much more than just a scientific center; it has also been an unique scientific school, known across the world as the Landau School. New generations of theoretical physicists have been continuously trained by the Institute's top researchers in one of the world's most conducive environments for learning.

The main fields of scientific research in the L. D. Landau Institute for Theoretical Physics over the past thirty years have been:

Condensed matter theory

Quantum field theory

Nuclear and elementary particle physics

Computational physics

Nonlinear dynamics

Mathematical physics

Unlike many other scientific centers in Russia, Landau Institute has had the strength to survive during the crisis times of the 90s. Some of our best experts did leave Russia, and are presently working at the leading scientific centers all over the world. Most of them have kept their scientific ties with the Landau Institute and have formed a world-wide scientific Landau network, always being proud to be a

part of the Landau School. The majority of our scientific experts, however, remain in Russia. At the moment the core faculty of Landau Institute consists 104 people. Forty seven of them have permanent positions in the leading scientific centers and in universities abroad.

Due to the support of the international scientific community as well as of our Landau network, the Landau Institute has continued its operation during this hard time. Here, as in the past, we are developing Science in spite of all odds. The process of training high-level young theoretical physicists is continuing, and continues to be one of the most important contributions of our Institute to the World's Science. At the moment the Institute has 16 graduate students.

In the last three years, we have organized two international Landau summer schools on theoretical physics and eight international conferences at our Institute, which attracted the world's best experts.

The questions and suggestions please mail to:
Webmaster@itp.ac.ru



Karelian Branch--Now the Karelian Research Center of the RAS

Chairman:

Nesterenko, I. M. Chairman of the center since October 1987.

Deputy Chairman: Kulikov, V. S. Deputy Chairman since May 1988.

Scientific research began in Petrozavodsk before Karelia was established as the Karelian Autonomous SSR. In 1946, the Presidium of the AN SSSR established the center as a Scientific Research Base with four institutes and four departments. Several of these departments evolved into independent research institutes over time until in 1986, the Center, which has become the Karelian Branch of the Russian Academy of Sciences had six independent institutes and one department. The Institutes and departments were:

the Language, Literature and History Institute (1931) with two Departments and six "sectors";

the Biology Institute (1953);

the Geology Institute (1961 and 1975) with a Department of Mineralogy, two laboratories, and two sectors of research;

the Forestry Institute (1957) with the Forestry Laboratory;

the Water Problems Institute (1950s);

the Economics Institute (began as a research group in 1946), and

the Mathematical and Automatic Methods of Scientific Research and Design Department (1971).

(1997 update)

**Karelian Research Centre of Russian Academy of Sciences
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Name of director/rector
Chairman of Presidium: Aleksander F. Titov

Year of foundation: 1946
Number of employees: 1187
Number of departments: 7

Organized as a research center, the Karelian Branch developed interdisciplinary practices of research from its inception. All institutes and Departments were heavily involved in applied scientific research without neglect of basic research, but a review of the research thrusts and publications of the results of research in each institute supports the applied science emphasis of these Karelian scientists. In the forty years from 1945 to 1985, scientists at the institute published 1400 scientific studies in the fields of scientific research located in the institutes under the Karelian Branch of the AN SSSR. Research institutes subordinate to the Karelian Branch in the order of their founding:

1. Language, Literature and History Institute of the Karelian Branch in Petrozavodsk. Established in 1931 as the Complex Karelian Scientific Research Institute under E. A. Gulling, D. Phil. S., the institute has undergone growth and expansion over the years broadening the areas of research and publication. From 1940 to 1945, the institute was called the Scientific Research Institute in the Culture of the Karelo-Finnish SSR; from 1945 to 1949, the Institute of the History, Language and Literature of the Karelo-Finnish Scientific Research Base of the AN SSSR; from 1949 to 1956, the Institute of Language and Literature and the History of the Karelian Branch of the AN SSSR; from 1956 to 1963, the Petrozavodsk Institute of Language, Literature and History of the An SSSR, and from 1967 to the present, the Institute of Language, Literature and History of the Karelian Branch of the AN SSSR. In 1986, M. N. Vlasova, C. Hist. S., was Director of the institute that housed several major Departments including:
the Philology Department under Dr. G. M. Kert, D. Philological S.;
the History Department under A. S. Zherbin, C. Hist. S.;
the Linguistics Department;
the Archaeology Department;
the Ethnography Department;
the Literature Department, and
the Ethnography Department.

Other scholars in the institute included: R. F. Nikol'skaia (aya), C. Hist. S.; Professor V. Ia. Evseev, D. Philological S.; Dr. G. A. Pankrushev, D. Hist. S.; A. P. Razumova, C. Philological S.; N. A. Labonen, C. Philological S.; Dr. Ia. A. Balagurov, D. Hist. S. Scholars at this institute concentrated on questions of the northwestern European region of the USSR. Institute scholars were also involved in developing an ethno-linguistic atlas of the Karelian ASSR. In 1991, the institute was headed up by Dr. Iurii A. Savvateev, D. Hist. S., a specialist in Archaeology and in Petrography. The institute is presently structured in two Departments:

The Philology Department with three "sectors"--
Linguistics under P. M. Zaikov, C. Phil. S.;
Literature under Iurii I. Duzhev, D. Phil. S., and
Folklore under N. A. Krinichnaia (aya), C. Phil. S.
The History Department with three "sectors":
History under M. V. Grigorevich, C. Hist. S.;

Ethnology under K. V. Pavlovne, C. Phil. S., and
Archaeology under Dr. K. S. Ivanovna, D. Hist. S.

In 1991, there were a total of 90 scientists and technicians working in the institute, of whom five held the doctorate and 42 held candidate degrees. From 1945 to 1991, researchers in this institute published some 467 bibliographic items--though a number of these were article rather than monograph length. Russian scientists often work as a group of writers rather than as individuals. The institute manuscript holdings consist of Russian folklore of some 182 collection of some 306,000 items, and national folklore or Karelians, Veps and Ingermanlanders with 156 collections containing more than 21,000 items. Dr. Iurii A. Savvateev, D. Hist. S. is Director of the institute. (**Information provided in a letter from S. V. Varkhatova, C. Hist. S., dated November 11, 1991.**)



2. Economics Research Institute in Petrozavodsk. Began as a research group in 1946 under A. V. Ivanov who was Head of the economics sector of the Karelian-Finnish Scientific Research Base of the AN SSSR. Ivanov headed the research group from 1946 to 1953 when P. A. Vasil'ev (1953-57) headed it. In 1948, it was renamed the economic sector and in 1951, the Department of Economics of the Karelian Subdivision of the AN SSSR. In 1958, this sector was given independent Department status and put under the direction of P. A. Ukhanov (1958-1972). From 1973 to 1974, it was under A. M. Pravdin, from 1974 to 1976 under A. I. Bogachiov, from 1976 to 1982 under A. S. Revaikin and from 1983 to 1987 under Sh. Sh. Baibusinov. Since 1987 it has been under Sergei M. Iaskunov, C. Econ. S., and subordinate to the Karelian Branch of the USSR Academy of Sciences. Scientists of this Department study the economic potential of the North, focusing particularly upon the forestry industry. The staff numbers 38 researchers of whom one holds the doctorate and 19 the candidate degree.

Structure of the Department: the Department-Institute is made up of seven departments:

integrated economic problems of production;
economic problems of management and economic mechanism;
economic problems of social infrastructure;
economic problems of production infrastructure;
economic-technological problems of machine-building and
metallurgy; economics of the agro-industrial complex, and
economics of the forestry complex.

There is also an independent group on the economics of science. Its scientists also study labor productivity. Scientists in this institute produced some 81 published studies from 1945 to 1985. Other members of this Department include: Sh. Sh. Baybusinov, A. M. Savin, I. P. Pokrovskaja (aya), S. N. Nokelaynen, V. N. Bakunovich, and S. M. Yakunov. (**See: Ruble, Vol. I., p. 124.**)



3. Forestry Institute in Petrozavodsk. Work in forestry began in the 1930s in the region as a result of a Russian scientific expedition led by Iurii D. Tsizerlinga and N. I. Kuznetsova. Another AN SSSR expedition was led by S. N. Nedrigailova and S. P. Uskova. Forestry was established in 1949 as a Department, gaining institute status in 1957. Institute scientists research the impact of nitric fertilizers on conifers. The Forestry Laboratory was established in 1948. Forestry scientists

produced 193 studies in forestry, forest preservation, forest botany, forestry chemistry, and paper making from 1945 to 1985.



4. Water Problems Institute in Petrozavodsk. Established in the 1946. Water Resources research had begun in Karelia in the mid-1940s, led initially by a corresponding member of the Russian Academy of Sciences D. V. Bubrikh, and by S. V. Grigor'ev, D. Geog. S., 1946 to 1964. Hydrological research was inaugurated in 1971, becoming a "sector" in 1985. Work in this field was led by A. A. Antonov, C. Geol. Mineralogical S., 1974. I. K. Polenov, C. Geol. Mineralogical S., 1974, led in the study of the chemistry of water and the study of bottom deposits. Research in water problems was initially led by V. A. Fryndling. Although established relatively late, scientists in this institute produced some 40 studies on hydrology, hydrochemistry, and water problems by 1985.



5. Biology Institute in Petrozavodsk. Established in 1953. In 1986, the institute had three laboratories and a biological research station and an experimental base for the study of Wetlands. The laboratories were: the Parisitology Laboratory founded in 1949; the Cattle breeding Laboratory established in 1949, and the Hydrochemistry Laboratory begun in 1953; the White Sea Biological Research Station was developed in 1957, and the Marshland Resources experimental base in 1951. Research thrusts in the institute included: the study of the flora and vegetation of Karelia, its animal marshland, and land resources including studies for the amelioration of the lands of northern Europe; the question of the improvement of rural farming; ecological and physiological plant research; genetic research; biochemical research, and immunological and molecular biological research. Scientists published 46 major studies in the biological sciences--43 in botany, physiology of flora, biochemistry and genetics--52 in zoology and parisitology--61 in ichthyology and hydrobiology--a total number of 202 from the beginning of the institute until 1985. Most of the Agricultural science research was done in the Biology Institute of the Karelian Branch. Studies on the soils of Karelia, field and fodder crop and meadow cultivation, marsh and wetlands improvement, stock raising, fur animal breeding , and poultry farming--work in all of these areas produced another 217 studies.



6. Geology Institute in Petrozavodsk. Established in 1961 as a Department and elevated to institute status in 1975. Leader of the development of geological research in Karelia was Professor P. A. Borisov, D. Geol. and Mineralogical S., and Director of the Geology Institute in 1986. Previous Directors were K. O. Kratts, 1962-1966; V. A. Sokolov, 1966-1976, and M. M. Stenar', 1976-1984. The institute has two major sectors of research, a Department of mineralogy and two laboratories. Studies in geology and the useful minerals of Karelia from the scientists in this institute had reached 216 by 1985.



7. Mathematical and Automatic Methods of Scientific Research and Design Department in Petrozavodsk began as an automation group under N. G.

Zaytsev, C. Tech. S. in 1959, was organized as a laboratory in 1968, and achieved independent Department status in 1971 under G. A. Borisov, C. Tech. S. The Department was comprised of three "sectors"--
the Automated Information Systems Sector under V. A. Lebedev, C. Econ. S.;
the Automated Scientific Research Sector under A. D. Sorokin, C. Tech. S., and
the Scientific Basis of Automated Projects Sector under G. A. Borisov, C. Tech. S.

In 1986, personnel in the Department totaled 71 workers of whom 24 were scientific "workers" and of whom six held doctorates--47 were Technicians. Scientists and technicians in this institute had produced some 40 publications by 1985. (Also see: Ruble, Vol. III, p. 97.)

Kazan' Branch

Kazan Science Center

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Kazan Institute of Biology
Institute of Mechanics and Machinery
Kazan Physical-Technical Institute
Institute of General and Physical Chemistry
Energetics Department

Chairman: Alemasov, Viascheslav E., D. Tech. S. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy since 1984; and academician in 1993. Since 1988, he has been Chairman of the Kazan' Affiliate of the Academy.

Deputy Chairmen: Ilgamov, Marat A., D. PM. S. Born in 1934. He was listed as a junior researcher in the Shell Theory Laboratory of the Nuclear Magnetism Department of the Physical Technical Institute in Kazan' in 1978. He became Deputy Chairman of the Kazan' Affiliate since October 1988. Karimov, Robert G. He has served as Deputy Chairman of the Kazan' Affiliate since November 1986. Research institutes subordinate to the Kazan' affiliate, listed by order of founding:

1. G. Ibragimova Language, Literature and History Institute in Kazan'. In October 1989, the institute celebrated its 50th year of establishment. Established initially in 1939, it was made subordinate to the Kazan' Filia(branch) of the AN SSSR in 1945 and, in 1967, was named in honor of G. Ibragimova. The Director of the institute since 1986 has been Dr. M. Z. Zakiev. In 1989, the institute had eight Departments:

1) Linguistics Department (23 members): Professor. F. A. Ganiev, D. Philological S., 1962; S. B. Vakhitova, 1954; Kh. R. Kurbatov, C. Phil. S., 1954; Rezeda K. Rakhimova, C. Phil. S., 1959; Zida R. Sadikova, C. Phil. S., 1960; Mugafa G. Mukhadiev, C. Phil. S., 1961; Galimzian Kh. Akhunzianov, D. Phil. S., 1961; Iskandar A. Abdullin, D., 1962; Rimma R. Abdullina, 1963; Rifkat G. Akhmetianov, C. Phil. S., 1963; Flera S. Baiazitova, C. Phil. S., 1966; Derriya B. Ramazanova, C. Phil. S., 1967; Tanzilia Kh. Khairutdinova, C. Phil. S., 1969; Firdaus G. Garinova, C. Phil. S., 1974; Farit S. Khakimzianov, C. Phil. S., 1976; Zaituna A. Iskhakova, 1979; Rasima R. Shamsutdinova, 1980; Rezeda I. Sepperova, 1983; Nailia Kh. Sharipova, 1984; Gul'zada G. Sabirova, 1984; Znzbe Kh. Vafina, 1985, and Farida B. Sitdikova, 1986 ;

- 2) **Literature, Manuscript and Textual Criticism Department** (17 members): NiG. Iuzeev, D. Phil. S., 1973; Nir G. Gizatullin, C. Phil. S., 1952; Adiba M. Sabirova (laboratory), 1966; Maigut V. Gainutdinov, C. Phil. S., 1968; Lena R. Gainanova, 1968; Iurmakhmet Sh. Khisamov, C. Phil. S., 1969; Yufar Z. Rameev, C. Phil. S., 1970; Nazim G. Khanyafarov, C. Phil. S., 1973; Marsel' I. Akhmetzianov, C. Phil. S., 1972; Rafis A. Akhmetov, 1976; Nazip F. Ismagilov, 1979; Firdausia Kh. Kadirova (laboratory), 1980; Farit K. Shaikhislamov, 1985; Farit Z. Iakhin, C. Phil. S., 1986, and Zilna R. Sal'ianova, (laboratory), 1988;
- 3) **National Creative Works Department**, (6 members): Flora V. Akhmetova, C. Phil. S., 1964; Khuziakhmet Sh. Makhmutov, C. Phil. S., 1969; Lenar Sh. Zamaletdinov, 1970; Salim M. Giliaztdinov, 1978; Aisilu Kh. Sadekova, 1983, and Ramilia F. Khisamutdinova, 1985;
- 4) **Art Criticism Department**, (10 members): Daniya A. Gimranova, 1964; Kh. K. Makhmutov, 1966; Flora F. Gulova, 1977; Dina K. Valeeva, C. Si., 1977; Mekhametzali G. Arslanov, C. Sci., 1979; Guzel' F. Suleimanova, C. Sci., 1979; Chulpan Z. Khazieva, (laboratory), 1979; Gennadii M. Makarov, 1984; Nailia Iurii Al'meeva, C. Sci., 1984, and Gul'nar B. Gubaidullina, 1985 ;
- 5) **History Department**, (16 members): Khusain Kh. Khasanov, D. Hist. S., 1947; Professor Midkhat K. Mukhariamov, D. Hist. S., 1951; Klara A. Nazipova, C. Hist. S., 1955; Iuirii I. Smikov, D. Hist. S., 1960; Munira A. Saidasheva, C. Hist. S., 1960; Professor Ziamil' I. Gil'manov, D. Hist. S., 1964; Saliyam Kh. Alishev, C. Hist. S., 1966, and Gablal'bar L. Faizrakhmanov, C. Hist. S., 1986;
- 6) **Archaeology Department**, (12 members): Dr. Aida G. Petrenko, D. B. S., 1966; Rustem S. Gabiashev, C. Hist. S., 1960; Evgenii P. Kazakov, C. Hist. S., 1967; Roza G. Sirazetdinova, 1973; Faiaz Sh. Khuzin, C. Hist. S., 1974; Galina I. Drozdova, 1974; Rafind F. Sharifullin, 1979; Madina Sh. Galimova, 1985; Vladimir N. Markov, 1985; Iskander Izmailov, 1986; Elena I Konoleva (laboratory); 1988, and Il'gizar R. Gazimzyanov, (laboratory), 1988;
- 7) **Ethnology Department**, (10 members): Rufa K. Iurazmanova, C. Hist. S., 1964; Aleksei A. Mazanov, 1969; Iulduz G. Mukhametshin, C. Hist. S., 1969; Farida L. Sharifullina, C. Hist. S., 1974; Svellana V. Suslova, C. Hist. S., 1974; Nail' A. Khalikov, C. Hist. S., 1977; Damir M. Iskhakov, C. Hist. S., 1981; Rozalinda N. Musina, 1981; Firsina Sh. Safina, 1970, and Iuliza F. Miftakhutdinova (laboratory), 1981, and
- 8) **History of Social Thought Department**, (10 members): Abrar G. Karimullin, D. Phil. S., 1964; Iak'ia G. Abdullin, D. Phil. S., 1971; Farit M. Sultanoov, C. Phil. S., 1977; Anvar N. Khairullin, 1974; Gamir M. Dabletshin, C. Phil. S., 1986; Rafazl' F. Mukhametdinov, 1981; Guriya G. Garaeva, 1981; Roza V. Valeeva, 1981, and, Mansur M. Zaripov, 1987.

This was the first Soviet institution to offer graduate training in ethnography. In 1939, the institute became the Tatar Republic SRI of Language, Literature and History. Eventually it was brought under the national academy system and has become a primary center for inter-disciplinary Tatar and Turkic studies. The institute is an important archeological research center for the mid-Volga region. In 1989, the institute had a total of 104 scientific researchers in the Departments of the institute of whom 14 held doctorate degrees and 56 held candidate degrees in the various disciplines represented in the institute. Since its founding the total number of scientists who have worked or are working in the institute has amounted to 254. These researchers have published some 227 monographs since the establishment of the institute. Some 227 "aspirants" have studied at the institute since its establishment. The Directors of the institute since its founding have been: N. A. Nigmatullin, 1939; Kh. A. Shabanov, 1939-1942; Kh. Kh. Iarmukhametov, 1942-1944; M. Kh. Gainullin, 1944-1953 and 1959-1961; Kh. F. Khairullin, 1953-

1959; K. F. Faseev, 1961-1963; M. K. Mukhariamov, 1963-1982; Ia. G. Abdullin, 1982-1986, and M. Z. Zakiev, from 1986 to the present. Dr. Mirfatikh Z. Zakiev, D. Philological S. is Director of the institute. (**Material taken from publication of the Kazan' Affiliate of the Russian Academy of Sciences by an editorial board from the Institute of Language, Literature, and History imeni G. Igragimova, entitled *50 let poiskov i otkritii*, The Tatar Book Publishing House, 1989, 240 PP.)**(Also, see: **Ruble, Vol. III, pp. 59-60.**)



2. Biology Institute in Kazan' (Kazan). Established in 1945. Studies the natural resources of the Tatar Autonomous Republic. The institute has sponsored national and regional conferences on aquatic ecosystems. Director Tarchevskii, Igor A., D. Bio. S., since 1976. (**See: Ruble, Vol. I., p. 258.**)

(1996 update)

**Kazan Institute of Biology
420503, Kazan, P.O.Box 30
tel: (007)-(8432) 38-73-48
E-mail: postmaster@sci.kcn.ru**

Departments:

Protein metabolism laboratory (Acad. I. A. Tarchevskii)

Regulatory lipids laboratory (Dr. A. N. Grechkin)

Molecular genetics laboratory (Dr. V. M. Chernov)

Energetic exchange and adaptation laboratory (Prof. L. H. Gordon)

Molecular biophysics laboratory (Prof. V. D. Fedotov)

Cell biophysics group (Dr. A. V. Anisimov)

Biocatalysis processes group (Dr. M. N. Davydova)

Cell wall biochemistry laboratory (Prof. V. V. Lozovaia)

Carbon metabolism laboratory (Prof. V. I. Chikov)

Water exchange laboratory (Dr. A. A. Zialalov)



3. A. E. Arbuzov Organic and Physical Chemistry Institute in Kazan'. Established in 1965. It does research on the composition and reaction of potential organic compounds, electrochemistry, and petroleum and gas chemistry. Its scientists are searching for a pesticide that does not harm humans or farm animals. Director Pudovik, Arkadi N., D. Chem. S., since 1971. (**See: Ruble, Vol. I., p. 259.**)



4. Physical Technical Institute in Kazan'. No date given in source. Does basic research in physics, mechanics, and applied mathematics. Structure and Scientific Personnel: Director Salikhov, Kev M., C. Chem. S., August '88;

Laser Annealing Laboratory: Head Khaibullin, Ildus B., since '77; Senior Researcher Shtirkov, Ye. I., since '76;

Mathematics Laboratory

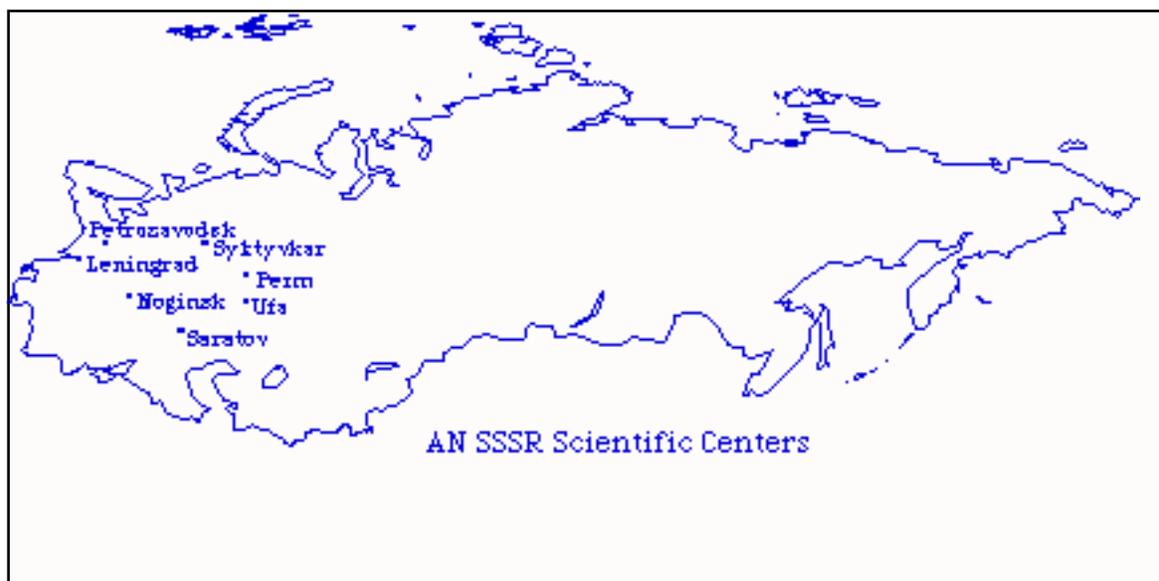
Optical Super-radiance Laboratory: Head Samartsev, V. V., since '76;

Quantum Acoustics Laboratory

Radiospectroscopy Laboratory

Nuclear Magnetism Department

Shell Theory Laboratory



Daghestan Scientific Center--established in 1990.

Chairman: Vacant

Deputy Chairman: Vagabov, Mustafa V., D. Hist. S. He was named Deputy Chairman of the Daghestani Affiliate in 1980. Research Institutes Subordinate to the Daghestani Affiliate, by order of founding:

1. Tsadasa History, Language and Literature Institute in Makhachkala. Derived from the Institute of Daghestani Culture in Makhachkala founded in 1924,

expanded and renamed the Scientific Research of National Cultures until 1945 when it came under its present name. In 1951 the name of the Daghestani national poet Gamzat Tsadasda was added to the institute name. The institute sector of Archeology and Ethnography was established in 1958. In the early 1970s institute scholars produced a historico-ethnographic atlas of the republic. The staff of the institute numbers 158 researchers of whom 23 hold doctorates and 84 hold candidate degrees. One staff member is a corresponding member of the Russian Academy of Sciences.

Structure of the institute: the institute is made up of 12 departments:

history of the Soviet period;
history of the pre-Soviet period;
archeology;
ethnography;
Oriental studies;
sociology;
history of the arts;
literature;
folklore;
grammar studies;
lexicology; and
lexicography.

Gadzhi G. Gamzatov, D. Phlg. S., a corresponding member of the AN SSSR from 1984 is Director of the institute. Other scientists who supervise the research program in the institute include: A. B. Baimurzaev, E. F. Kisriev, V. G. Gadzhiev, G. Sh. Kaimarazov, A. R. Shikhsaidov, V. G. Ivantsov, V. N. Ganzurov, G. A. Iskenderov, L. B. Gmyria, A. A. Kudriatsev, E. F. Kisriev, M. M. Magomedkhanov, M. O. Osmanov, A. I. Islammagomedov, G. A. Sultanov, P. M. Debirov, M. A. Iakubov, S. Sh. Gadzhiev, E. Iurii Kassiev, S. M. Khaibullaev, Ch. S. Iusupova, Z. Z. Alieva, N. S. Dzhidalaev, U. A. Meilanova, Z. G. Abdullaev, E. M. Nazarova, B. B. Talibov, K. S. Kadyradzhiev, B. B. Talibov, U. A. Meilanova, P. A. Saidova, K. Sh. Mikailov, N. S. Dzhidalaev, A. M. Adzhiev, Kh. M. Khalilov, A. M. Abdurakhmanov, U. A. Meilanova, and B. G. Khanmagomedov. The institute maintains ties with UNESCO, the European Caucasological Society in Great Britain, Jordan University and scholars in Sweden. The study-museum holds 9,400 items including documentary materials and personal collections, Oriental manuscripts numbering 10,636 items, Arabic documents and books, and the archeological depository consists of six large holdings of some 1,200,000 items. (**See: Ruble, Vol. III, pp. 85-86.**)



2. Geology Institute in Makhachkala. Established in 1956. It investigates the mineral resources and underground waters of Daghestani.



3. Physics Institute in Makhachkala. Established in 1957. Works on problems of semiconductor physics, thermophysics, cryophysics, Theoretical Physics and geophysics.



4. Social-Economic Research Institute in Makhachkala. (Formerly--The Economic Research Department in Makhachkala.) Established in 1959, this Department was subordinate to the Daghestani Branch of the USSR Academy of Sciences. In November, 1991, the Presidium of the Russian Academy of Sciences elevated the Department to institute status, converting it to the Social-Economic Research Institute, subordinate to the Daghestani Branch (formerly Scientific Center) of the AN SSSR. Its scientists participate in the preparation of economic plans for the Daghestani Autonomous Republic and support research on the region's economic history and development. In its new status, the institute is divided into three sections:

- (1.) Regional Problems of Scientific and Technological Progress,
- (2.) Social-Economic Analysis, and
- (3.) Problems of the Regional Agro-Industrial Complex.

The institute has a total of 26 personnel of whom 5 hold doctoral degrees in economic sciences, 19 have candidate degrees in the economic sciences, and two have candidate degrees in the geographic sciences. Scientific research personnel includes: Director Zeydulakh K. Iuzbekov, D. Econ. S. graduate of Daghestani State University, 1968, joined the Department in 1987; Scientific Secretary Izumryd Sh. Abdullaeva, C. Econ. S., graduate of Daghestani State University, 1959, joined the Department in 1970; Magomed A. Aliev, D. Econ. S., graduate of Daghestani State University, 1966, joined the Department in 1991; Magomed A. Bagomedov, C. Econ. S., graduate of Daghestani State University, 1979, joined the Department in 1985; Nargiz S. Bakrieva, C. Econ. S., graduate of the Azerbaiian Institute of Oil and Chemistry, 1962, joined the Department in 1971; Arkadii G. Ganiev, C. Geog. S., graduate of Daghestani State University, 1980, joined the Department in 1980; Magomed A. Gasonov, D. Econ. S., graduate of the Azerbaiian Institute of Oil and Chemistry, 1961, joined the Department in 1974; Gordeev, Oleg I., C. Econ. S. graduate of Leningrad Engineering-Economics Institute, 1961 and of the Leningrad Shipbuilding Institute, 1967, joined the Department in 1974; Myrad I. Zainalov, C. Econ. S., graduate of the Daghestani Polytechnical Institute, 1973, joined the Department in 1974; Khabibulla O. Kukuev, C. Econ. S., graduate of the Trade Correspondence School in Moscow, 1974, joined the Department in 1983; Viktor Z. Petrosyants, C. Econ. S., graduate of the Daghestani State University, 1964, joined the Department in 1971; Iurii N. Sagidov, D. Econ. S., graduate of Daghestani State University, 1962, joined the Department in 1990; Iakov I. Fel'dman, C. Econ. S., graduate of Kazan' LegaInstitute, 1951, joined the Department in 1964; Olga K. Chapieva, D. Econ. S., graduate of Daghestani State University, 1974, joined the Department in 1991; El'dar M. El'darov, C. Geog. S., graduate of Daghestani Pedagogical Institute, 1977, joined the Department in 1988; Dzhavid B. Eskerov, C. Econ. S., graduate of the Leningrad Finance Institute, 1970, joined the Department in 1979.

(Information provided in letter dated 21 November 1991 from Director Iuzbekov.) (Also see: Ruble, Vol. I., p. 115.)



5. Geothermal Problems Institute in Makhachkala. Established in 1980 to study geothermal resources of the republic, thermophysical processes at high temperatures, and temperatures of the earth's crust.



Kola Scientific Center

(1997 update)

Kola Science Center Russian Academy of Sciences

Headquarters of Kola Science Center.

14, Fersman str., Apatity, Murmansk region, Russia, 184200.

Telephone : +7 81555 31450 ; +7 81555 31441 ;+7 81555 37321.

Telex: 126129 KOLSC RU. Fax: +7 81555 30925.

President: Vladimir T. Kalinnikov, Dr. Sc. (Chem.), Corr.-Memb. of RAS ,

Professor Vladimir T. Kalinnikov, D Chem, S, (Chemist), Professor., Corresponding Member of RAS, Director of the Institute. Scientific interests : Solid state chemistry , inorganic chemistry, materials of electronic engineering (piezo-electrics, ferro magnetics, materials for acoustic electronics), complex use of the Arctic zone mineral raw materials, industrial ecology of the North. Expert in problems of inorganic chemistry, chemical technology of mineral raw materials, industrial ecology.

Vice-presidents:

Gennadii V. Kalabin, D. Sc. (Min.Eng.),

Valentin P. Petrov, D. SC. (Geol.),

Igor A. Kuzmin, Ph. D. (Phys.&Math.).

Secretary General: Anatolii N. Vinogradov, Ph.D.(Petr.&Min.).

Staff: 375 doctors, more 1500 high graduated researches and engineers besides auxiliary personnel.

Chairman: Kalinnikov, Vladimir T., D. Chem. S. Born in 1935. He has been Chairman of the Kola Scientific Center since October 1985. Research Institutes Subordinate to the Kola Affiliate, by order of establishment:

Kalinnikov, Vladimir T., D. Chem. S. Born in 1935. Chairman of the Kola Affiliate since 1985. Corresponding member since of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since December 1987. (LDA 89-11378.)

1. Polar Alpine Botanical Garden Institute in Kirovsk. Established in 1931. Studies acclimatization of plants to the northern climate and the physiology of native plants. This is the northernmost botanical garden in the world. Subordinate to the Kazan' Branch of the USSR Academy of Sciences. Director Kozupeeva, Tatiana A., C. Agr. S., since 1965. (See: Ruble, Vol. I., p. 262.)



2. Mining Institute in Apatiti No date given in source. Conducts geological studies of rock strata at mining sites.

(1997 update)

MI KSC, Mining Institute

Address: Fersman st.,24, Apatity,184200 Murmansk region, Russia.

Telex: 126129 KOLSC RU.

Telefax: +47 789 14140 +7 51295 14140 (from Finland, Norway)

Fax: +7 81555 33125

Tel.: +7 81555 30589

E-mail: root@ksc-mine.murmansk.su; root@rocknet.murmansk.su

Affiliation: Kola Science Center of the Russian Academy of Sciences

Staff: total-292, including 101 scientists of whom 52 are professors and hold doctors degrees.

Director: Nickolai N. Melnikov, D. Tech. S.(Engineer), Professor, Corr.-Memb. of RAS

Deputy directors: Anatolii A.Kozyrev, D. Tech.Sc.(Engineer), Aleksandr D.Maslov, Ph.D.(Engineer).

Scientific secretary: Anatoli I. Kalashnik, Ph.D.(Eng.)

Research laboratories:

Laboratory of Physical-Technical Problems of Underground Space
Development and Rational Use.

Laboratory of Geomechanical Problems of Underground
Construction.

Laboratory of Open-Pit Mining

Laboratory of Methods and Equipment for Underground
Construction

Laboratory of Underground Mining

Laboratory of Underground Mining of Thick Deposits

Laboratory of Blasting Control

Section of mining system analysis

Laboratory of Rock Mechanics

Laboratory of Mine Ventilation

Laboratory of Flotation Reagents and Complex Phosphate Ore
Beneficiation.

Laboratory of Metal Ore Beneficiation.

Laboratory of Non-Metal and Rare Metal Ore Beneficiation

Laboratory of New Technological Processes and Apparatus.

Laboratory of Electrical and Mineral Separation.

Laboratory of Physical-Chemical Methods of Analysis and
Control.



3. Marine Biology Institute in Murmansk. Founded in 1958 on the Murmansk Biological Station which dated back to 1898. The institute is comprised of 15 laboratories. The institute maintains two research vessels. Personnel totals more

than 300 workers including 3 professors, 46 doctors of sciences and 61 scientists and engineers.

Structure and Scientific Personnel: Director Gennadii G. Matishov, D. Geog. S., since '81--Graduated from Moscow University in 1980 and from 1967 to 1981 he worked at the Polar Research Institute of Marine Fishery and Oceanography, scientific fields-- ecosystems dynamics, paleo-oceanology, and marine fishery of the Arctic; Scientific Director Antonina D. Chinarina, D. Bio. S., scientific fields -- mechanisms of color change, trophic behavior of fishes; Scientific Director Vilorii B. Khasankaev, scientific fields--bottom stone materials for the reconstruction of the late-glacial history of the Barents sea; and, Scientific Secretary Viktor S. Zenzerov, D. Med. S., scientific fields--morphology of sea hydrobionts, morphology of thyroid gland of fishes, and biological active substances of hydrobionts;

Department of Ecosystem Research: Anatolii F. Fedorov, D. Bio. S., scientific fields-- radiobiology of the northern seas, polar aquaculture, and exploitation of Arctic mammals;

Laboratory of Pelagium Ecology: Vladimir S. Petrov, D. Geo. S., scientific fields-- bio-oceanography, anthropic influence on nature; Scientist Sergei F. Timofeev, D. Bio. S., scientific fields--anthropic evolution of marine ecosystems; Scientist Viacheslav M. Ryzhov, D. Bio. S., scientific fields--hydrobiology, ecology of phytoplankton; Scientist Nikolai M. Adrov, D. Geog. S., scientific fields--oceanology, paleo-ecology; Scientist Gennadii V. Il'in, scientific fields--hydrochemical and hydrological regime of northern European seas, hydrochemical structure of the polar front;

Laboratory of Paleoecology: Head Gennadii A. Tarasov, D. of Geological and Mineralogical Sciences, scientific fields--paleo-ecology, marine lithology; Scientist Liubov G. Pavlova, D. Geological and Mineralogical Sciences, scientific fields--marine ecology, geochemistry, environmental protection; Scientist Vasilii V. Alekseev, D. Geological and Mineralogical Sciences , scientific fields--benthogenous carbonic accumulation in high latitude areas of the Arctic seas in the Holocene period; Scientist, Irina V. Pogbodina (Sakharova), scientific fields--foraminifers in pleistocene-holocene bottom sediments of the northern European seas for paleogeographical and paleo-ecological reconstruction;

Laboratory of Benthic Ecology: Head Stanislav G. Denisenko, D. Bio. S., scientific fields--functional ecology of marine bivalves, productivity, specific and spacial structure of bottom biocenoses; Scientist Vladimir G., Averintzev, scientific fields--ecology and systematics of polychaetes of the Arctic and Antarctic, problems of forming and functioning of bottom ecosystems; Scientist Nina V. Denisenko, D. Bio. S., scientific fields--distribution and ecology of the arctic bryozoan, biogeographic division into regions of the seas; Scientist Aleksei Iurii Lysy, D. Bio. S., scientific fields--population structure and ecology of marine decapods, methods of estimating and forecasting commercial invertebrates and fish stocks and behavior; Scientist Elena N. Luppova, scientific fields--population ecology and ecology of littoral gammarids; Scientist Mikhail L. Opalyov, scientific fields--ecology of echinoderms of the Barents and White seas; Scientist Vladimir E. Kostilev, scientific fields--ecology of the Barents sea bivalvians; Scientist Sergei A. Korsun, scientific fields--ecology of benthic foraminifers;

Group of the Northern Seas Fishes Ecology: Scientist Emma L. Orlova, D. Bio. S., scientific fields of interest--ecology of nutrition of marine and freshwater fishes of prey; Scientist Vladimir V. Dushchenko, D. Bio. S., scientific fields--population genetics, structure and modelling of superorganismic systems;

Department of Morpho-physiology: Professor and Head Igor A. Shparkovskii, scientific fields--visceral systems of marine and fluvial fishes, effect of physiologically active substances on the digestive systems of fishes;

Laboratory of Marine Mammals: Head Vasilii L. Mishin, scientific fields--domestication and keeping in captivity of marine mammals; Scientist Tatiana B. Elfimova, D. Bio. S., scientific fields--veterinary science, pathology of seals; Scientist Nikonai N. Kavtsevich, D. Bio. S., scientific fields--cellular morphology and cytochemistry of the lymphoid system of marine mammals; Scientist Irina A. Erokhina, D. Bio. S., scientific fields--biochemistry, structural and functional affinities of blood albumens; Scientist Andrei A. Kondakov, scientific field--ecology of seals;

Group of Physiology: Scientist Vladimir M. Muraveiko, D. Bio. S., scientific fields of interest--electro-reception of vertebrates in evolution aspect, effect of natural and artificial geophysical factors on the behavior of marine and fluvial fishes; Scientist Aleksandr V. Mosevin, D. Bio. S., scientific field--physiology of smelling systems of elementary vertebrates; Scientist Andrei N. Lukashkin, scientific field of interest--processes of mechano-electric transformation in acoustic lateral receptional system;

Laboratory of Marine Fishes Recreation: Head Eduard E. Kalyuzhny, D. Bio. S., scientific field of interest--cultivation of fluvial fishes; Scientist Nonna G. Zhuravliova, D. Bio. S., scientific field--embryology of marine fishes; Scientist Natalia V. Chernova, D. Bio. S., scientific field--systematics and morphology of marine fishes; Scientist Zhanna V. Kaliuzhnaia (aya), scientific field --fine structure of alimentary system of marine and fluvial fishes in ontogenesis; Scientist Georgii V. Norvillo, scientific field of interest--ichthyoplankton of the Arctic seas;

Department of Experimental Hydrobiology:

Laboratory of Parasitology: Head Kirill V. Galactionov, D. Bio. S., scientific fields of interest--experimental investigation of marine trematodes life history, morphology and biology of parthenits, cercariaeums, metacercarias and maritas; Scientist Sergei F. Marasaev, D. Bio. S., scientific fields of interest--trematodes fauna of benthic gastropods in the northern seas; Scientist Irina I. Malkova, scientific field--ultra structure of trematodes; Scientist Natalia A. Mikhailova, scientific fields of interest--interrelations of mollusk lithorina populations with trematode parthenits, karyological investigations; Scientist Vladimir V. Prokofiev, scientific fields of interest--trematodes behavior adaptation to parasitism and working out of computer data base on parasites of the northern sea animals;

Laboratory of Algology: Head Vladimir N. Makarov, D. Bio. S., scientific fields of interest-- biology of laminaria, zoospores behavior, early stages of development, growth, sporification; Scientist Grigorii M. Voskoboynikov, D. Bio. S., scientific fields--cytology, physiology and ecology of algae; Scientist Valentina L. Shmeliova, D. Bio. S., scientific fields--primary production of phytoplankton and macrophytes of the Barents sea; Scientist Elena V. Shoshina, D. Bio. S., scientific fields--biology of red algae, life cycles, growth dynamics, reproduction, cultivation, rational utilization and protection;

Group of Benthos: Scientist Vadim N. Semenov, D. Bio. S., scientific fields of interest--biogeography and ecology of marine benthos, anthropic effect on marine ecosystems by over-regulation of bays; Scientist Evgenii I. Zhukov, D. Bio. S., scientific fields--ecology of common species of maerobenthos; Scientist Natalia A. Anisimova, D. Bio. S., scientific field of interest--distribution and ecology of echnoderms of the northern seas;

Department of Experimental Ichthyology: Head Aleksandr G. Chernitskii, D. Bio. S., scientific fields of interest--ecology of fluvial salmon, Atlantic salmon, sea trout, chrak, their osmo-regulatory peculiarities by change of salinity; Scientist

Nikolai M. Belkovskii, D. Bio. S., scientific fields of interest--physiological and biochemical aspects of carp and salmon adaptation to low temperatures; Scientist Iuri V. Lega, scientific fields--low temperature and salinity effect on the osmoregulation and main physiological parameters of salmon; Scientist Evgenii G. Berestovskii, scientific field--ecological aspects of the northern seas; Scientist Larisa I. Karamushko, scientific fields--bioenergetics of demersal fishes of the Barents sea; Scientist Oleg V. Karamushko, scientific fields--nutrition and trophic interrelations of commercial fishes larvae and fryes in the northeast Atlantic;

Department of Pelagium Functioning: Head Leonid L. Kuznetsov, D. Bio. S., scientific fields of interest--functional characteristics of phytoplanktonic, micriphytobenthic and ice-floric communities; Scientist Oleg K. Fomin, D. Bio. S., scientific fields of interest--problems of structural and functional organization of populations and communities of plancton; Scientist Vladimir M. Savinov, D. Bio. S., scientific field--distribution of phytoplankton production in the Barents sea; Scientist Pavel S. Tikhonov, D. Bio. S., scientific field--protein and peptid of biologically active substances of plants and hydrobionts; Scientist Nikolai V. Durzhkov, scientific field--microzooplankton; Scientist Pavel R. Makarevich, scientific field of interest--ecology of phytoplankton; Scientist Maria I. Moskvina, scientific fields of interest--nitrofixation and significance of bacterioplankton in nitrogen rotation, marine cyanobacteria; Scientist Valerii A. Baytaz, scientific field--productive-destructive processes in bacterioplanktonic community of the Barents sea; Scientist Olga N. Baytaz (Dudarenko), scientific field of interest--distribution of quantitative and productive indices of bacterioplankton of the northern European seas; Scientist Lubov E. Volkovskaia (aya), scientific fields--inter transformation of mineral and organic forms of biogenes in the Barents sea.

(Information taken from *Information Book of Murmansk Marine Biological Institute, USSR Academy of Sciences, Kola Scientific Center, Apatity, 1991. 39 pp.*)(Also see: GSE 3, p. 307.)

(1997 update)

Murmansk Marine Biological Institute

Address: Vladimirskaya (aya) st.,17, Murmansk 183010, Russia.

Tel.: +7 8152 565232.

Fax: +47 789 10288

Telex: 126118 PGI SU.

E-mail: vladimd@fifio.hsf.no

Telex: 126129 KOLSC RU.

Fax: +7 81555 30925.

Affiliation: Kola Science Center of the Russian Academy of Sciences.

Staff: total-228, including 79 scientists of whom 45 are professors and hold the doctoral degree.

Director: Gennadii G. Matishov, Professor, D. Sc.(Geog.), Corresponding Memb. of RAS.

Deputy directors: Vladimir V. Denisov, Ph.D.(Geogr.); Vladimir S. Petrov, Ph. D.(Geogr.); Oleg Ya. Sotshnev (Geogr.); Sergei F. Marasayev, Ph. D.(Biol.).

Scientific secretary: Victor S. Zenzerov, Ph.D.(Medic.).

Research laboratories.

Department of Benthic Ecology

Department of Palaeoecology sea

Department of Ecology and Parasitology of Sea Birds and

Mammals.
Department of Biooceanology
Laboratory of Marine Mammals
Department of Plankton and Microbiology
Laboratory of Algology and Mariculture
Department of Experimental Ichthyology and Mariculture of Fishes.

International High Latitudes Biostation "Hooker Island (Franz Iosef Land)"

International Biostation of Spitsbergen

General information.

Institute includes 8 Research Departments and laboratories

Benthic Ecology,
Palaeoecology Sea,
Ecology and Parasitology of Sea Birds and Mammals,
Biooceanology,
Marine Mammals,
Plankton and Microbiology,
Algology and Mariculture,
Experimental Ichthyology and Mariculture of Fishes,

International High Latitudes Biostation "Hooker Island (Franz Iosef Land)",
International Biostation of Spitsbergen and a number of auxiliary departments.

Facilities: 2 research vessels, 2 aquaria for marine mammals and fishes, the Experimental algal aquafarm, Murmansk aquarium for marine mammals (oceanarium), museum of Northern seas flora and fauna and working collection of zoobenthos samples, including over 6000 samples.



4. Polar Geophysics Institute in Apatity. Established in 1960. Conducts research in high latitude geophysics, the physics of the polar ionosphere, geomagnetism, polar aurora, and seismicity. Director Raspopov, Oleg M., D. PM. S., since 1976. Deputy Directors: Briunelli, Boris E., C. PM. S., since '69; and, Loginov, G. A., since '69;

Aurora Laboratory: Head Evlashin, Leonid S., since '70; Senior Researchers: Chernous, S. A., C. PM. S., since '80; and, Sukhoivanenko, Petr Ia., since '80; Junior Researcher Totunova, G., since '80;

Cosmic Ray Laboratory: Head (Unknown); Senior Researchers: Lazutin, Leonid L., since '66; and, Smirnov, V. S., since '67;

Ionosphere and Radiowave Laboratory: Head (Unknown);

Radar Investigations of the Polar Ionosphere Laboratory: Head (Unknown); Senior Researcher Sverdlov, Iurii L., since '66;

Seismology Laboratory: Head (Unknown);

Terrestrial Magnetism and Geo-electricity Laboratory: Head (Unknown);

Lovozero Geophysical Station: Head (Unknown);

Radio Weather Forecasting Bureau: Head (Unknown);
Unknown affiliation: Senior Researchers: Liatskii, V. B., since '72; and Shumilov, O. I., since '66; Junior Researcher Gurkalov, V., since '78. (LDA 89-1137)

(1997 update)
Polar Geophysical Institute

Address: Khalturina st. 15, Murmansk 183010, Russia.
Tel.: +7 8152 565829
Telex: 126118 PGI RU
Fax: +7 8152 560337
E-mail: admin@polar.murmansk.su
Affiliation: Kola Science Center of the Russian Academy of Sciences.

Staff: total-306, including 88 scientists of whom 53 are professors and hold the doctoral degree.

Director: Evgeny (Evgenii) D. Tereshchenko, D.P.M. S.
Deputy directors: Ake H. Pyatsi, Ph.D.(Techn.). Vladimir E. Ivanov, Ph.D.(Phys.&Math) -**Apatity Division**
Scientific secretary: Yury (Iurii) N.Kulikov, Ph.D.(Phys.&Math.). Yaroslav A. Sakharov, Ph.D.(Phys.&Math.) -**Apatity Division**

Apatity Division
Address: 14, Fersman st., Apatity, 184200 Murmansk region, Russia.
Tel.: + 7 81555 31030
Telex: 126129 KOLSC RU
Fax: +7 81555 30925
E-mail: root@pgi-ksc.murmansk.su



5. Economic Problems Institute of the Kola Scientific Center of the Russian Academy of Sciences in Apatity was established in 1986 from the Center's Department of Economic Research that had been organized in 1965. This Department-institute has been headed by: M. K. Mazurov (1965-70), K. V. Shkonda (1970-71), V. A. Fedoseev (1971-82), and N. G. Peshev (1982-87). Since 1987, its Director has been G. P. Luzin, D. Econ. S.

Structure of the institute: the institute is organized into four departments and some other units as follows:

- (1.) regional economic planning and management,
- (2.) regional problems of development and allocation of productive forces,
- (3.) economic problems of comprehensive exploration and utilization of natural resources,
- (4.) socioeconomic research of the development of the Arkhangel'sk region.

There is also a scientific consultative center in Vologda, a sector on information for research, and an independent laboratory for economic and mathematical modeling. The staff consists of 67 researchers of whom two hold the doctorate and 23 the candidate degree. The institute personnel are collaborating with scholars in Norwegian and Finnish Universities and various agreements have been signed with companies and firms in those two countries for the training of managers, the

exchange of consultative services and other matters. Dr. Gennadii P. Luzin, D. Econ. S. is the Director of the institute.

6. GI KSC, Geological Institute

Address: Fersman st. 14, Apatity 184200, Murmansk region, Russia.

Telex: 126129 KOLSC RU.

Telefax: +47 789 14153 +7 51295 14153 (from Finland, Norway)

Tel.: +7 81555 30167,

E-mail: felix@ksc-gi.murmansk.su

Affiliation: Kola Science Center of the Russian Academy of Sciences

Staff: total-- 216, including 112 scientists of whom 63 are professors and hold the doctoral degree.

Director: Felix P. Mitrofanov, D.Sc.(Geol.), Professor, Corr.-Memb. of RAS.

Deputy directors: Valentin A. Pripachkin, Ph.D.(Geol.) Mikhail P. Torokhov, Ph.D.(Geol.).

Scientific secretary: Iurii N. Neradowsky (skii) , Ph.D.

Research Laboratories:

Laboratory of Magmatism

Laboratory of Mineralogy of Rare Elements

Laboratory of Geology and Geochemistry of Granulite Belts

Laboratory of Metamorphism

Laboratory of Geochemistry of Gases

Laboratory of Regional Geophysics

Laboratory of Platinum-metal Ore Genesis.

Laboratory of Geochronology and Isotope Geochemistry

Laboratory of Metallogeny of Alkaline Massifs

Laboratory of Metallogenic Analysis

Laboratory of Geoelectrics

Laboratory of Geodynamics

Laboratory of Ceinzoic Geology and Mineral-forming Processes

Laboratory of Geological Sinergetics

Sector for the Study of Deep Inclusions

Sector for the Petrology and Metallogeny of the Imandrovsky (skii)

Pluton

7. INSTITUTE OF THE NORTH INDUSTRIAL ECOLOGICAL PROBLEMS

The Institute of North Industrial Ecological Problems was formed in June 27, 1989, and integrated in the system of the Kola Science Center , Russian Academy of Sciences. The aim for establishing the Institute was elaboration of scientific basement for ecological optimization of nature resources use in the North on the example of the Kola Peninsula as the most developed mining metallurgical region of North Russia.

The Institute basic directions:

study the structural-functional organization and anthropogenic dynamics of the North ecosystems;

elaboration of scientific foundation for the North ecosystems' sustainability under extreme nature conditions and anthropogenic effect from the mining-metallurgical industrials and determination of allowable loads on terrestrial and water ecosystems.

creating hydrobiological and water-toxic methodics for assessment the consequences of North fresh water ecosystems under effect from mining-metallurgical complex plus finding out the criteria of their sustainability;

define space-time change of various elements of nature structures (landscape, climate), subjected to one invariant-- aerotechnogenic load from mining-metallurgical complex;

assessment and long-term forecast of probable changes in ecological and nature-economy systems under different scenario of nature resources use;

elaboration of scientific-methodological foundation and principles of ecological expertise for natural mineral raw material protection and technologies when making a project and then developing nature resources and their complex treatment.

to originate high technologies for the waste purification, including air emissions and wastes from treating factories, pits quarries and smelters.

provide with information on the environment state and forecast of its elements by mathematical modelling;

creating ecological informational systems , including computerised nets for controlling, data base, geographical information systems and mathematical models for the forecast a and management of the Environment state.

The Institute staff is 88, including 36 research workers of whom 5 are professors and 16 hold doctors of sciences degrees.

The results of some investigations in 1995:

Ecological problems of biological systems

On the foundation of original approaches to use a net of certain sites one managed to give a detail multidisciplined analysis of biogeochemical cycles for mineral elements (Ca, Mg, K, Mn, Al, Fe, Zn, Ni, Cu, S, P, N,) in North forests under conditions of air emission pollution. After having determined the dependence of organic matter dynamics and biogeochemical cycles of mineral elements from the state type of the forest biosenosis, classified as a stage of its technogenic transformation we managed to define basic types of technogenic transformation in the North forest biogeosenosis; background, defoliated, technogenic thin forest and technogenic barren.

There has been suggested a conception of chemical composition in dominating species of forest plants in the North under conditions of industrial pollution emissions from the mining-metallurgical complex. The plants intensively uptake the pollutants (sulphur, nickel, copper, ferrum) and more mobile elements (nitrogen, phosphate, potassium), at that, the uptake of Ca, Mg, Mn and Zn is decreasing.

The Dose-effect dependencies, well calculated, between summary index of multifactor pollution and physiological fish response (geomathological and pathologoanatomical indexes) made a basement for introduced strategy for limiting loads from smelters over the Arctic basin catchment.

Hydrobiology and ichthyology problems appeared while use of water bodies' use.

Some approaches for assessment ecological risk, created by heavy metals' accumulation in bottom sediments of the lakes. One succeeded in defining some basic, non-specific and specific response of water communities to toxicofication, eutrophication, acidification in the Subarctic regions with well developed industrial complex. Some biological criteria for assessment aerotechnogenic water pollution with heavy metals and their acidification for testing when conducting monitoring. There has been made a map of critical loads of acid-forming matters and their exceedance for surface water within the Kola Peninsula regarding information obtained after having studied the water acidification according to a singular methodical scheme together with Fennoscandia countries (Norway and Finland).

The whys and wherefores of the water quality assessment criteria under conditions of their industrial pollution have been iustified. There was shown water ability for selfpurification and recovery under conditions of emission pollution abatement (on the example 15-20% decrease due to production volume reduction).

Regularities of heavy metals' accumulation in fish and morphopathological changes caused by this fact have been registered and proved. We recommended a set of indexes for liver, kidney, gills, skeleton used for assessment individuum and fish population state.

We obtained original data on response of organisms and white fish populations *Coregonus lavaretus* (L) to subtoxic influence from industrial emissions. For the first time there has been found out the fish ability to maturation under extremely small for this species size and life cycle reduction. A set of specific indexes for ichthyological monitoring for water quality in the North was recommended.

Relying on these determined regularities of water quality and bottom sediments for industrially developed region within the Arctic basin-- the Kola North there has been produced the analysis of migration, forms of living and transformation, sedimentation and bioaccumulation of anthropogenically formed elements. All this enabled us to reveal the specific development of eutrophication, acidification and coniugated to them a behaviour of toxic metals. Special methodics has been elaborated for defining integral index for water quality and assessment of multi-forming water ability as a factor of selfpurification ability.

The forest problems

There were suggested approaches for making a diagnosis of state and monitoring North forests, including

1. detecting a state spruce forests with the coefficient of defoliation and age of spruce accumulating organs.;
2. determination of standing timber productivity for basic and anthropogenically-transformed spruce on the basis of regression equation like that $\log y = a + b \log x$ using coefficients obtained, where dependent variable x -d2h, and y -- phytomass fraction or production;
3. program of monitoring observations.

Problems of soil science

There was elaborated an idea of forming. Al-Fe-humus soil acidity under conditions of industrial air pollution by sulphur and heavy metals' compounds. There was studied a role of biogenic acidification and acid formation matters, invaded from industrial emission, while forming soil acidification. There was recorded a non-line character of changing the parameters of soil acidification and circulation of mineral elements regarding the distance from pollution sources.

There was characterized microbial component biomass, structure and diversity for Al-Fe-humus podzol soils within the tundra area of the Kola Peninsula while defining biogeochemical functions of micro-organisms in maintenance of Arctic ecosystems' homeostasis. There was found out, that biomass of Fungi mycelium predominates the bacteria biomass only in cumulative organogenic horizon. There were recorded some discrepancies in structure of microbe component and content of dominating species between Al-Fe-humus podzol tundra and taiga soils.

Problems of ecology of biological systems

There was studied a mechanism of soil microbe component resistance under extreme nature and technogenic conditions. In ecosystems there is a biological mechanism, which decreases soil metallotoxicosis in a zone affected by large operating smelter. It is so-called multifunction ability of species, involved in the ecosystem, and the organisms' ability to uptake oligotrophic matter.

It was recorded, that micro-organisms tolerant to metals are usually tolerant to acids.

In microbial soil communities, bearing high concentrations of heavy metals (1000-2000 mgkg⁻¹ of copper and 2000-4000 mgkg⁻¹ of nickel), there predominate acidophile species of micro-organisms.

There were studied physiological and biochemical characteristics of p.p.Penicillium and Phodotorula fungi and their high immobilization ability for heavy metals (to 60% of copper and nickel from solutions). Fungi were recommended for biopurification of industrial wastes and given to the All-Russia Collection of Micro-organisms (Pushchino City)

Trace elements in biology

On the basis of chemical analysis of hair composition there were detected regional peculiarities of micro-element status for the children' organism living in the cities not far from smelters in the Kola Peninsula. Those peculiarities are characterised by low levels of content of many essential trace elements and a slight content of regional prior environment pollutants: Ni, Cu., Co.

Chemical thermodynamics and thermochemistry

Reasoning from the physico-chemical modelling for leaching technogenic deposits, containing nepheline under anthropogenic precipitation influence, one managed to determine the conditions for composing second minerals (gibbsite, kaolinite, analcinite, natrolite) and water complexes (Na, Al, Si), allowing to make forecast of ecological consequences caused by long keeping the industrial wastes from treating factories and then to upgrade technological processes while making second processing.

Chemical technology of nature water and wastes.

The Institute introduced an efficient way for doing less harmful radionuclide solutions by immobilization them in hardly soluble compounds -the products of polymerisation of hardening dispersions (geopolymeric adsorbents) and adsorbents from nature minerals (Joint with Institute of chemistry, KSC, RAS)

Adsorption and adsorbents

There was created technological regiment for radionuclides' immobilization, using metallurgical slimes of magnesium-iron content and vermiculite as hardening mineral dispersions.

8. Institute of Chemistry and Technology of Rare Elements and Mineral Raw Materials

Leading scientists:

VLADIMIR A. MASLOBOYEV, Dr. Sc. (Eng.), Corresponding Member of RAS

Scientific interests : Chemistry and technology of rare and dissipated elements, physico-chemical analysis of difficult polycomponent systems, comprehensive use of Kola peninsula mineral raw materials, extraction and separation of rare earth raw materials, synthesis and investigation of materials on their basis. Expert in problems of rare-earth raw materials, technology of rare and rareearth elements, separation and purification of rare elements by liquidextraction. Good command of English.

Main publications :

- Rare-Earth Phosphates.-- Leningrad, 1989, 208 p. (In Russian, with collab.)
- Rare-Earth Raw Materials of the Kola Peninsula and Problems of Their Comprehensive Utilization.-- Apatity, 1991, 137 p. (In Russian).
- Yttrium, Cerium and Zirconium Oxides for Ceramics Production on the Basis of Kola Peninsula Raw Materials // Proceedings of the second Indo-USSR symposium on rare-earth materials research, India, Trivandrum, 1990.
- Synthesis, Structure and Properties of the Double Potassium and Neodymium Polyphosphate $K_2Nd(PO_3)_5$ // Zhurn neorg. khimii, 1989, vol.34, No 5, pp.1175-1179. (In Russian, with collab.)
- Phase Formation in the $K_2O-Nd_2O_3-P_2O_5-H_2O$ System // Izv. AN SSSR,

Inorganic materials, 1982, vol.18, No 2, pp.292-297.(In Russian, with collab.)



The St. Petersburg Scientific Center

Chairman: Alferov, Zhores I., D. PM. S. Born in 1930. Russian physicist. He has been an academician of the General Physics and Astronomy Department of the AN SSSR from 1979. In 1963, he proposed that heterostructures be used for semiconductor lasers. The CO₂ gas dynamic laser that resulted was proposed by Prokhorov and V. K. Koniukhov in 1967 and built in 1970. Since 1968, he has been Head of the Contact Phenomenon in Semiconductors Laboratory of the A. F. Ioffe Physical Technical Institute. In 1984, he was awarded the USSR State Prize for his work--with others--on "Isoperiodic Heterostructures of Multicomponent (Quaternary) Solid Solutions of the Semiconductor Compounds A₃B₅," published from 1971-1981. In December 1987, he was made Director of the Ioffe Physical Technical Institute. In April 1989 he became Chairman of the St. Petersburg Scientific Center and was elected a member of the Presidium of the academy. (GSE, 31, p. 318.)

First Deputy Chairman: Ponomarev, Valentin M., D. Tech. S. Since 1978, he has been Director of the Computer Center in St. Petersburg that was established in 1978 as a multilevecomputing and data processing complex serving academy institutes in the St. Petersburg area. It develops methods for the automation of scientific research and creates program packages and systems for research design and control. He was named Deputy Chairman of the St. Petersburg Scientific Center in March 1988.



Noginsk Scientific Center

Chairman: Vacant

Deputy Chairmen:

Dubovitskii, Fedor I., D. Chem. S. Born in 1907. Since 1975, he has served as a Deputy Chairman of the Noginsk Scientific Center that is subordinate to the Chemical Technical and Biological Sciences Section of the Russian Academy of Sciences. Corresponding member of the General and Technical Chemistry Department of the AN SSSR from 1979. Since 1962, he has been Deputy Director of the Chemical Physics Institute in Moscow that is subordinate to the General and Technical Chemistry Department of the academy. The institute does combustion research and studies Chemical kinetics in various fields. In 1975, he was named Deputy Chairman of the Noginsk Scientific Center. Since 1978, he has been Head of the Combustion Division of the Chemical Physics Institute in Moscow that was established in 1931 to do combustion research and study the Chemical kinetics in various fields.

Kurdiumov, Georgii V., D. PM. S. Born in 1902 in Rylsk, in Kursk Oblast. Russian physicist. Corresponding member, 1946, and academician, 1953. Originally elected to the Physical and Mathematical Sciences Department. Principal membership is in the General Physics and Astronomy Department. Since 1969, academician of the Ukrainian Academy of Sciences Physical and Technical Problems of Materials Sciences Department. He graduated from the Leningrad Polytechnical Institute in

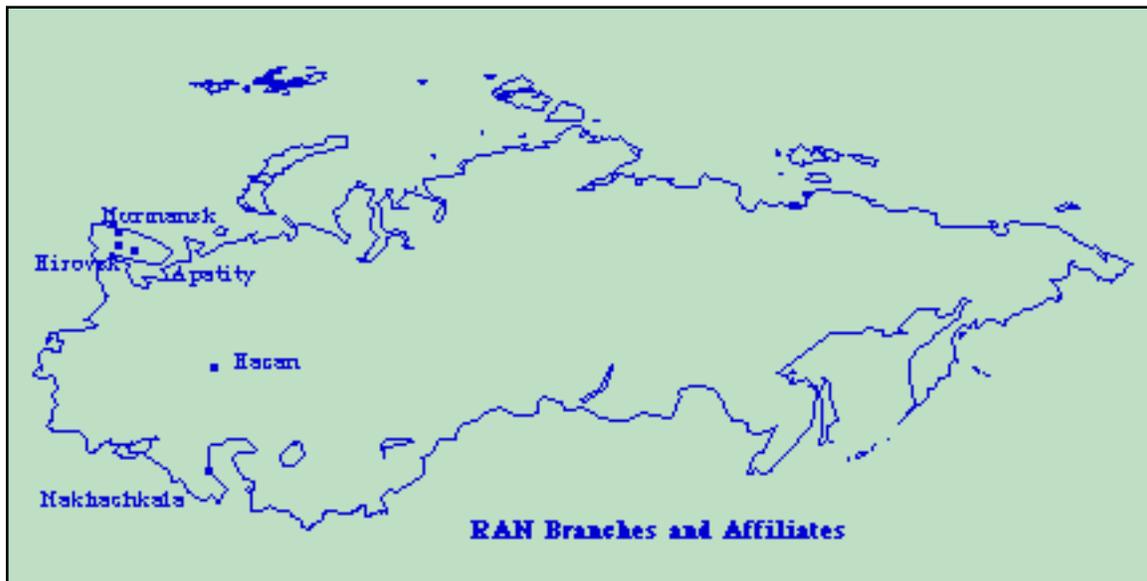
1926. From 1925 to 1932, he worked at the Leningrad PhysicoTechnical Institute. In 1932, he joined the Dnepropetrovsk PhysicoTechnical Institute. In 1944, he became Director of the Institute of Metallurgy and Metal Physics of the Central SRI of Ferrous Metallurgy. In 1962, he became Director of the Institute of Solid State Physics of the AN SSSR. Since 1975, he has served as Deputy Chairman of the Noginsk Scientific Center. Kurdiumov pioneered in studies of martensite transformations in crystalline materials, that is of fundamental importance for the theory of phase transitions and heat treatment of steels and alloys. He is a member of the German Academy of Sciences (1970) and of other academies throughout the world. Recipient of the State Prize, 1944. In 1979, he received the D. K. Chernov Gold Medal for his contributions in physics. (GSE 14, p. 123.)



Saratov Scientific Center

Chairman: Guliaev, Iurii V., D. PM. S. Born in 1935. Corresponding member of the General Physics and Astronomy Department of the academy since 1979. Academician of the Information Science, Computer Technology, and Automation Department since 1984. From 1972 to 1988, he was Deputy Director of the Radio Engineering and Electronics Institute in Moscow that does basic research in radio wave propagation, new electronic devices for detection, generation, and amplification of radio signals. In 1988, he was named Director of the Radio Engineering and Electronics Institute in Moscow. In 1988, he was also named Chairman of the Saratov Scientific Center of the Russian Academy of Sciences.

Deputy Chairman: Rezchikov, A. F. Deputy Chairman since August 1988.



RAS Affiliates

Interdepartmental Coordinating Council in St. Petersburg

Created in August 1979. Responsible for the coordination of scientific research in the northwestern part of the USSR including St. Petersburg, Arkhangel, Vologda,

Novgorod, Murmansk and Pskov Oblasts and the Karelian ASSR. The Chairman of the council is on the Presidium of the academy. The Interdepartmental Council has 14 scientific councils reporting to it.

Chairman: Glebov, Igor A., D. Tech S. Born in 1914 in Petrograd (St. Petersburg). Russian specialist in electric power. Corresponding member of the academy since 1974 and academician since 1976. He graduated from the M. I. Kalinin Leningrad Polytechnical Institute in 1938. He served in the Soviet army from 1941 to 1946. From 1946 to 1951 he was a staff member of a SRI of the academy and of an SRI of the Food Processing Industry from 1951 to 1961. He joined the staff of the All-Union SRI of Electric Machine Building in 1961, becoming its Director in 1973. His works are on electric power systems, applications of mathematical modeling in power engineering, design of electric machines and semiconductor converters. He is President of the International Conference of Large High-tension Electric Systems. He was awarded a State Prize in 1968. Since 1979, Chairman of Science and Technology Commission of the Council of the Union of the USSR Supreme Soviet. Since 1979, member of the Presidium of the academy. Director of the All-Union Scientific Research Institute of Electrical Machine Building. Until 1989, Chairman of the St. Petersburg Scientific Center that was founded in 1982 and of the Interdepartmental Coordinating Council of the USSR Academy of Sciences. member since 1943. (GSE 30, p. 385.)

Academy of Sciences Library.

Founded in 1714, the library is basically a library of natural and physical sciences. It coordinates a network of specialized academy libraries in St. Petersburg.

Director: Leonov, Valerii P. Director since April 1988.

Deputy Director: Liutva, K. V., C. Bio. S., Deputy Director since July 1982.



The Academy of Sciences in Moscow



The new Russian Academy Building in Moscow

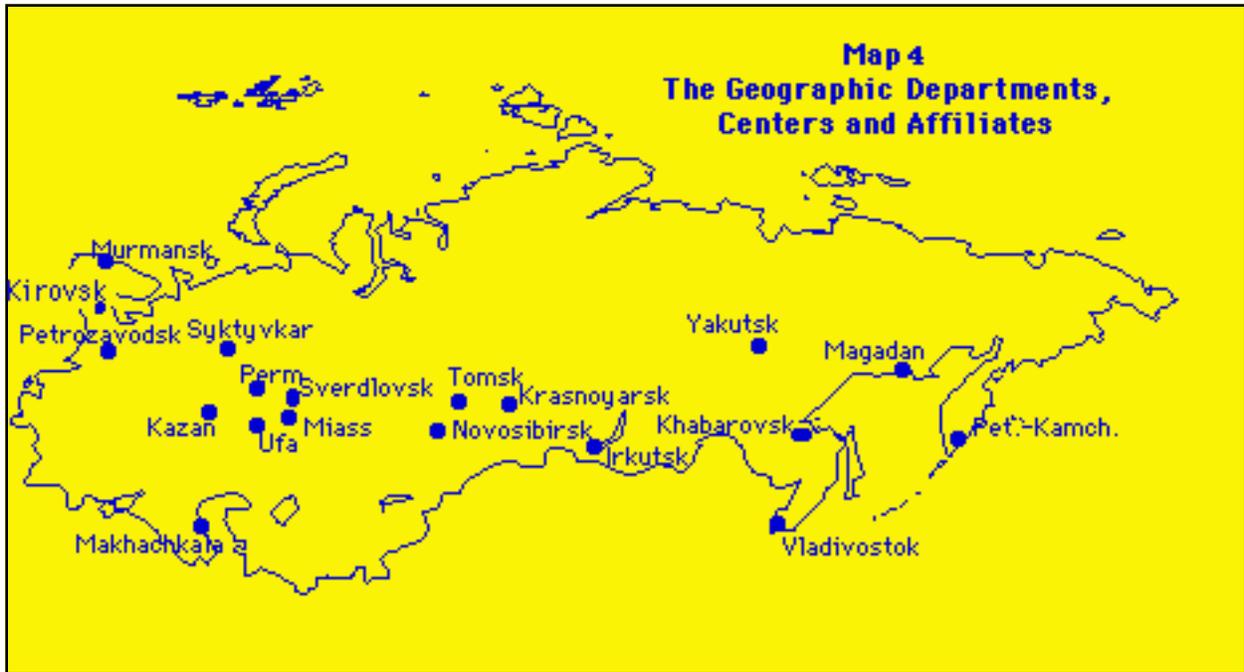
Part II

The Geographic Departments of the Russian Academy

Generalizations on the Siberian, Urals, and Far Eastern Department

Memberships--administrative responsibilities: In 1989, there were a total of 152 full and corresponding members of the Siberian, Far Eastern, and Urals Departments of the AN SSSR. Twenty-nine other Soviet scientists headed up 17 scientific centers, and scientific affiliates. Of the 152 academicians and corresponding members of the three geographic Departments, 60 were academicians and 92 were corresponding members of the respective Departments. All of the academicians and corresponding members of the geographic Departments of the RAS hold that membership in one of the 18 subject-matter Departments of the Russian Academy of Sciences in Moscow. The closeness of these personal and scientific ties between these Departments far distant from Moscow is very useful. Each of the heads of the three geographical Departments are Vice Presidents of the RAS. That the basic research carried on in the scientific research institutes under these Departments is under the academicians and corresponding members of these Departments is borne out by the fact that over 124 positions as Deputy Directors and Directors are held by the 152 academicians and corresponding members of these three geographic Departments--an amazing 81.5 percent. In other words, the top level research administrative positions in the institutes under these three Departments are under their direction a large number of the 152 members of these Departments held professorships in area universities in 1989. This pattern of university teaching holds true today.

Research Outreach of the AN SSSR: The geographic Departments with their branches, the scientific centers and affiliates subordinate to the Russian Academy of Sciences in Moscow are scattered throughout the broad expanse of Russia as Map 4 illustrates.



Akademgorodok--a main street

The Siberian Department--Retrospect: The Siberian Department (headquartered in Akademgorodok-Novosibirsk) of the Russian Academy of Sciences was created by decree in May 1957, to provide the "greatest possible development of theoretical and experimental research in the area of the physicochemical, natural and economic

sciences aimed at solving the most important scientific problems and the problems contributing to the most successful development of the productive forces of Siberia." (1) Mikhail A. Lavrentiev (1900-1980) was its first Chairman, serving from 1957 to 1975. His successor was Gurii I. Marchuk who occupied that position from 1975 to 1980--becoming President of the AN SSSR in that year. He was succeeded as Head of the Siberian Department by Valentin A. Koptiug (Koptiug), Valentin A., who also was a Vice President of the Russian Academy of Sciences in Moscow until his untimely death in 1996. Dr. Marchuk was President of the academy from 1986 until 1991. The Siberian Division (now Department) was created for the same purposes that the earliest Soviet scientific institutions had been created--to assist in the development of the Soviet economy. Academician Koptiug, in describing the developments of the Siberian branch since its founding, points to three main accomplishments of the branch: 1) the development of interdisciplinary research on fundamental problems--also intersectoral research; 2) the establishment of a closer link between scientific investigation and discovery and the national economy itself, and, 3) a major improvement in the training of scientific Personnel, both in increasing numbers and improving quality of the scientific workers produced. At Novosibirsk State University, for instance, over 30 academicians and 400 candidates of science teach classes there. In their third year at the university, students specialize in their chosen discipline at the Siberian Department's research institutes under a tutorial system. The university operates a boarding school in physics, mathematics, and chemistry for some 500 teenagers who are selected by competition among students in Siberia, the Far East, Kazakhstan, and Central Asia. The University officially interacts with other academic institutions in the region--Krasnoyarsk, Omsk, Kemerovo, Yakutsk, Tomsk, and Irkutsk--and with the Novosibirsk Electromechanical Institute to improve the linkage between academic science and higher education. In the research institutes of the Siberian Department, some 1000 postgraduate students participate each year, of whom some 500 combine this kind of education with their scientific and production work. In 30 years the institutes of the Siberian Department of the Russian Academy of Sciences produced about 800 doctors and 5000 candidates of sciences degrees. In 1987, there were some 9000 research staff assigned to the various institutes that comprised the Siberian Department of the Russian Academy of Sciences, of whom 80 were either academicians or corresponding members of the Russian Academy. Of the 9000 researchers some 700 held doctoral degrees in the sciences and about 5000 possessed the candidates degree. These figures should be contrasted to those for 1957 when the Siberian Division was created when in all institutions in Siberia there were only 300 candidate degree-holders, and but 40 persons with the doctorate degree.¹⁴

International Outreach: During the past 30 years over 50 thousand foreigners have visited Siberian Department Institutes, and international conferences have become traditional. Cooperation between Siberian institutes and research institutions in the United States, France, Germany, and Japan is increasing, particularly on problems of computational science and technology, the protection of the environment, chemical catalysis, and nuclear physics.

The Early Period of Establishment: Initially, the Siberian Department included all of the academy institutions that existed under Academy auspices beyond the Urals, which at that time counted Western Siberian, Eastern Siberian, Yakutsk and Far Eastern affiliates of the national academy as well as an institute in Krasnoyarsk and in Sakhalin. In 1957, the Siberian Branch numbered 12 scientific research institutes.

¹⁴ For a good brief discussion of the establishment and growth of the Siberian Department of the Academy of Sciences of the USSR, see: GSE 23, p. 427.)

In 1989, the Siberian Branch, by then a full-fledged Department of the academy, counted 35 SRIs directly subordinate to it. In 1992, the Department counted 108 scientific administrative and research units under its jurisdiction.¹⁵

The Regionalization of Scientific Research: From 1957 to 1969, major interdisciplinary scientific "centers" were established such as the first experimental center in Novosibirsk called "Akademgorodok" which set a pattern for further scientific regional development. In August of 1969, following this experimentation, the Central Committee of the CPSU and the USSR Council of Ministers, by decree, adopted the principle of establishing scientific institutions in "individual" economic regions. The Presidium of the Siberian Department with its expanded powers and support established a number of new institutes in Irkutsk, Krasnoiarsk, Yakutsk, Ulan-Ude and Tomsk. In 1970, a new center was founded--the Far Eastern Department whose control passed back to the national academy's Presidium. The Siberian Department's institutes in Vladivostok, Khabarovsk, Magadan, Kamchatka and Sakhalin were included in this reorganization and transfer.

Regional Development: In 1977, the ties with the national and regional economies of the Siberian Department were strengthened further by CC CPSU decrees following a trip by Brezhnev through the area and strong recommendations by him to the Central Committee. On the basis of this additional support, the Presidium of the Siberian Department established new institutes in Krasnoiarsk, Irkutsk, Yakutsk, Chita and Kemerovo, and organized 15 new extensions of the Siberian Department in various Siberian cities, built on previously existing institutes of the Novosibirsk scientific center but with a renewed emphasis upon solving urgent economic and industrial problems of the regions in which they were located. The academy "cells," as Koptuyug called them, may be found in Barnaul, Kemerovo, Krasnoyarsk, Kyzyl, Omsk and Tiumen'. A number of field stations also were established throughout Siberia during this period.¹⁶

¹⁵ Koptuyug, V. A., "A Matter of Honor for Siberian Scientists," *Ekonomika I Organizatsiya Promishlennogo Proizvodstva*, No. 5, May 1982, pp. 41-60.

¹⁶ Koptuyug, V., "The Science and Productive Forces of the Region," *Politicheskoye Samoobrazovaniye*, No. 5, May 1984, pp. 31-39. See also, GSE 7, p. 177.

Map 5 The Siberian Department

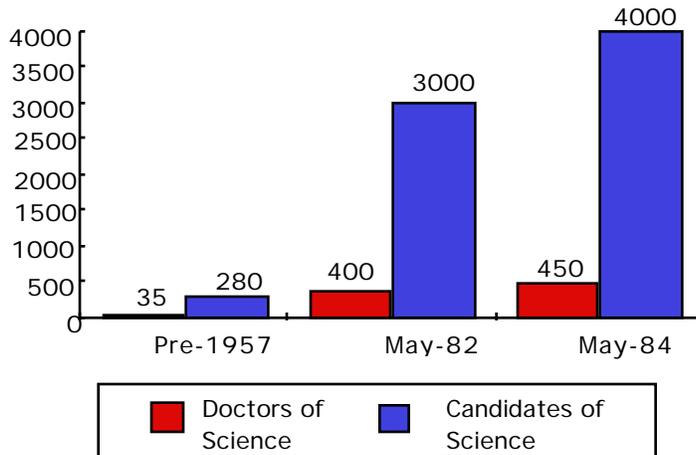


The Modern Siberian Department : By 1992, the Siberian Department had grown to include some 108 Scientific Research Institutes and other scientific administrative units. This increase in numbers of scientific units represents great growth in "academic science." In 1992 There were seven Scientific Centers of the Siberian Department headquartered in Akademgorodok-Novosibirsk: Irkutsk, Yakutsk, Krasnoyarsk, Tomsk, Buriat, Omsk, and Tiumen. In Chita and Barnaul research institutes on resources and environment were active. The Siberian Department also influenced the establishment not only of the Far Eastern scientific center, but also of the Urals scientific center of the national academy, both achieving independent

Department status in the mid-1980s, and of the Siberian Departments of the Academies of Medical and Agricultural sciences . It could also claim a great deal of credit for the expansion of higher education in the region. The emerging "critical mass" of scientific Personnel, laboratories, institutes, design bureaus, and industrial activity could be traced, Koptiug believed, to the "constant attention being devoted to the [Siberian] Department" by the CPSU Central Committee, the USSR and RSFSR Councils of Ministers, the USSR Academy of Sciences and its specialized Departments, the State Committee for Science and Technology (GKNT), and party and local political organs. The role of "science" in the development of Siberia has grown tremendously since 1957 when the Department was first established.

Siberian Scientists: By 1984, there were over 40,000 "scientific workers" in the Siberian Department scientific research institutes and design bureaus. Figure 33 shows the increase of senior scientists with advanced degrees in the Department from 1957 to 1984.

Figure 33
Chief Scientific Personnel in the
Siberian Department, 1957-1984

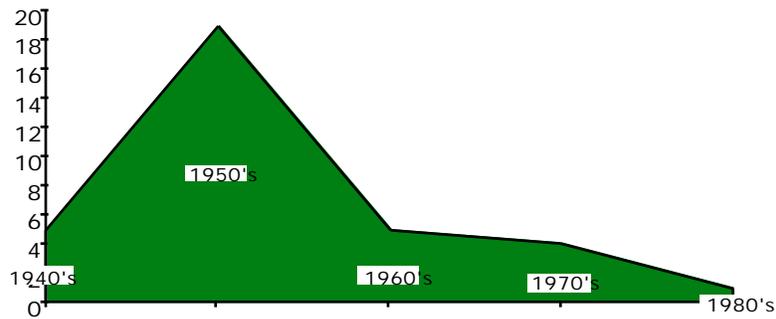


Source: Koptiug, V., "The Science and Productive Forces of the Region," Politicheskoye samoobrazovaniye, No. 5, May 1984, pp. 31-39.

Solving Regional Problems: As Figure 34 shows, from 1957 to the early 1970s the greatest number of scientific research institutes was established. By the 1980s and after splitting off several of the earlier institutes in the Far East, scientific development in the Siberian Department was more intensive than extensive. Basic research and the participation of its scientists in solving national economic problems became the focus of the members of the Department in the 1980s. Methodological seminars became the vehicle for a unification of effort among the various scientific elements in the higher educational institutions, the Academic Science System, and the ministerial scientific institutions in Siberia. These conferences and seminars became the "means of the unification of the intellectual potential of the Siberian region" and for "the intensification of scientific activity."

Figure 34

Establishment of Scientific Research Centers in the Siberian Department



Source: Koptiug, V., "The Science and Productive Forces of the Region," Politicheskoye samoobrazovaniye, No. 5, May 1984, pp. 31-39.

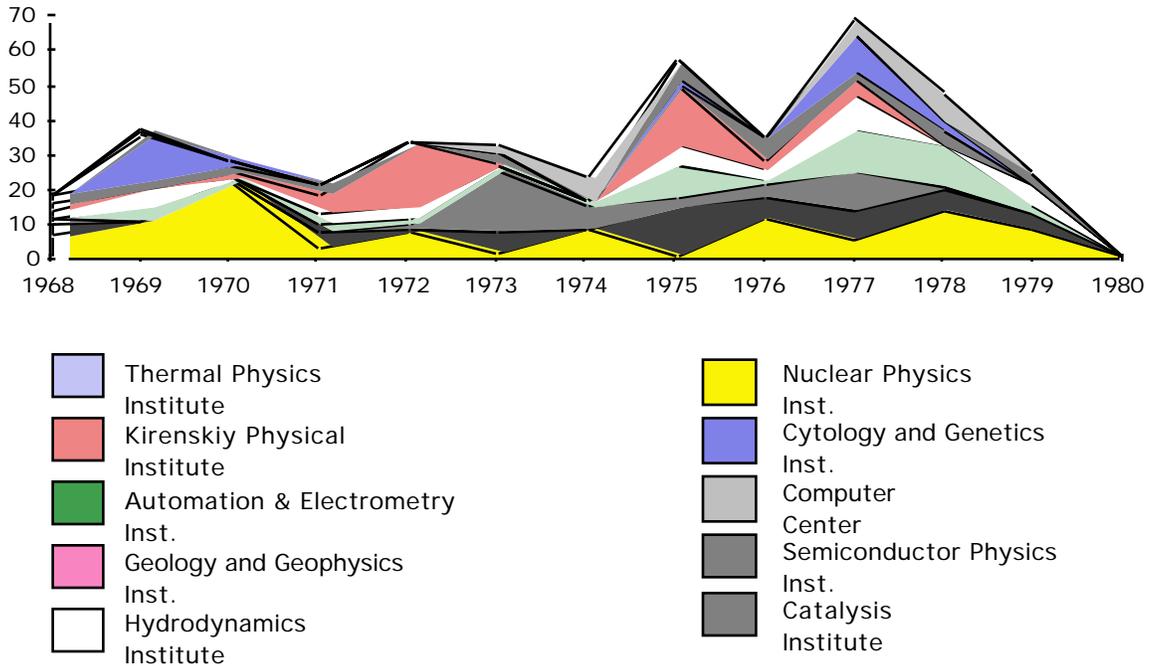
Scientific Research and the Development of Technology: It was in the Siberian Department that experimentation with tying the SRIs directly to the industrial and agricultural enterprises of the area was tested shortly after the decree of 1977. As early as 1979, scientists in the Siberian Department had submitted 20 Technical-economic reports to the USSR GOSPLAN on important national economic and technical developments.

The Acceleration of Scientific and Technical Progress: By 1984, the Siberian Department had signed bilateral agreements with 22 union and republic ministries and Departments. Under these agreements "associations of industry and science" were established, arrangements which were encouraged by the decree of the CC CPSU and the USSR Council of Ministers "On Measures on the Acceleration of Scientific and Technical Progress in the National Economy." Out of these new arrangements the 'goal program' emerged with the blessing of the GKNT and GOSPLAN and under the direction of the Academy of Sciences of the USSR and the Presidium of the Siberian Department. In 1984, the Siberian Department was working on 24 comprehensive goal programs and 47 specific programs under those--all aiming at the solution of scientific and Technical Problems in areas of power engineering, petroleum, gas, coal and other mineral prospecting, production and processing, chemistry and powder metallurgy, automation and computer technology--a high priority throughout the scientific community--construction, agriculture, health care, and environmental protection. Throughout Siberia where scientific centers of the Siberian Department were located, new and experimental structures of cooperation were developed.

Emphasis on the Hard Sciences: The emphasis upon the hard sciences and the assignment of top-level scientific personnel to the Siberian Department is shown in Figure 35 below.

Figure 35

Personnel Assigned to Ten Siberian Departments



Program Development in Siberia: The role of Siberian scientists in the forecasting, long-range planning and formulation of programs for the development of greater productivity in the economy throughout the region was increased in importance. They developed the Sibir' Program--"The Comprehensive Assimilation of the Natural Resources and the Development of the Productive Forces of Siberia." This program was a set of 40 scientific goal programs that were approved by the General Assembly of the GKNT in 1984, the USSR Academy of Sciences, and the RSFSR Council of Ministers as well as by the interested ministries and Departments.

Coordination and Unification of Effort: The Sibir' Program united the efforts of "several hundred organizations of various Departments in Siberia, of which only one-eighth were from the Siberian Department proper. This fact illustrates the increased role Siberian scientists are now playing in economic development in the region and in the nation.

Scientific Achievements: In the first 25 years of its existence, the scientists in the Siberian Department Institutes received 12 Lenin Prizes, 16 USSR State Prizes, 14 Lenin Komsomol Prizes and 19 prizes and medals from the USSR Academy of Sciences. Eight of the ten scientific journals published by the Department also were published in English. As may be seen in the personnel short biographical sketches listed below, two-thirds of both the academicians and the corresponding members of the Siberian Department of the Academy of Sciences of the USSR in 1987 held major administrative positions in the scientific research institutes. **(Information provided by letter dated 25 October 1991 from then Vice President of the AN SSSR and Chairman of the Siberian Branch Koptuyug--with accompanying materials.)**



[Note: At this point the report of a visitation by a team of western engineers and scientists to Akademgorodok in 1996, provides insights to more current conditions in the scientific research institutes there. While it is rather brief and not all institutes were visited, the material provided is very informative.]

(1997 update)

Visit to Akademgorodok in 1996 by scientific team.

NOVOSIBIRSK

The Presidium of the Siberian Branch of the Russian Academy of Sciences (SB RAS)

The study team was hosted by **Academician Yurii Shokin**, chairman of the Siberian branch. The SB RAS, founded in 1957, is headquartered in the Akademgorodok near Novosibirsk. This branch covers a larger geographic area of Russia than the other two branches of the RAS.

The branch has 12 regional centers and is composed of 74 research institutes and experimental design offices covering the fields of physics, mathematics, and technical, chemical, biological, geological, and social sciences. The branch employs 40,000 people. Among the 9,000 research staff of the Siberian branch are about 55 academicians, 64 corresponding members of the RAS, 700 doctors of science and 5,000 candidates of sciences. Academician Shokin in his remarks mentioned that the branch is experiencing decreasing budgets. He regards the branch as a large research corporation.

Institute of Automation and Electrometry

The Institute of Automation and Electrometry, founded in 1957, has 25 scientific laboratories. The focus of the institute is on lasers, and non-linear physics, new information technologies, and task-oriented computer systems. The institute currently employs 500, including three academicians, 25 doctors of science and 100 candidates for doctors of science. Approximately one half of the institute's funding is derived from international contracts. The institute's work includes materials and device development for short wavelength systems, flight simulators, ferroelectric materials for computer memory storage, mathematical modeling, x-ray tomography, and precision gravimeters.

Institute of Thermophysics

For the past quarter century the Institute of Thermophysics has focused its research on drag reduction and laminar flow of submerged bodies. Methods of drag reduction include injection of gas bubbles into the boundary layer and injection of a fast-made polymer solution into both a plate's turbulent boundary layer and turbulent flow formed inside a pipe. Problems of acoustic radiation by turbulent boundary layer and dynamics of interaction between sound and bubble layers have been studied. A significant number of experiments were conducted in a low turbulent air dynamic wind tunnel followed by field experiments in the Black Sea. The development of cavitation flow and hydroacoustics of wakes are also being studied at the institute.

Lavrentyev Institute of Hydrodynamics (LIH)

The LIH was the first institute founded at the Academgorodok near Novosibirsk in 1957. The three goals of the LIH were to develop main research directions, to establish active relations with science and industry, and to train young research fellows for advanced science and engineering. Approximately 500 people are employed at LIH under the direction of Academician Vladimir M. Titov. A scientific staff of 170 includes about 135 Ph.D.s, 43 doctors of science, three academicians, and two corresponding members of the RAS. The institute does fundamental and applied research in the areas of mathematical problems of continuum mechanics and of detonation and explosive processes. The work in applied hydrodynamics includes stratified flow and dynamic flow (turbulence, internal waves, shock, and acoustic wave propagation).

The Detonation and Explosive Processes Laboratory concentrates on applied research in explosive working of materials and high velocity processes (Fig. 1.9). These include explosive hardening, welding compaction, forming of structures from powders, and detonation spraying. Industrial investigations are ongoing with Sweden, Japan, Germany, the United States, and Yugoslavia.

The LIH Applied Hydrodynamics Laboratory efforts include stratified and turbulent flows; wake characteristics; the surface and internal wave generation mechanisms; the effect of waves on submerged bodies; and experimental testing of mathematical models and compilations.

LIH contributions have ranged from the development of innovative solutions to practical problems to pioneering efforts in fundamentals.

Institute of Theoretical and Applied Mechanics (ITAM)

The ITAM was founded in 1957. The staff numbers 600 of whom 35 are professors and 180 are candidates of science. Their focus is on mathematical modeling, aerodynamics, and physical gas dynamics.

The institute has the reputation of being the best institute in the countries of the former Soviet Union in fundamental aerodynamics. The institute has eight wind tunnels of varying sizes and capabilities. One hypersonic wind tunnel uses nitrogen as the working fluid and operates at a Reynolds number of about 10^5 , at altitudes of 80 to 90 km at Mach 16 to 24. All of these wind tunnels are computer controlled. ITAM is collaborating with Princeton University in designing a new generation of wind tunnels.

ITAM scientists are active in international conferences and do much of their work through contracts with companies and academic institutions outside Russia. ITAM has two teaching departments: Novosibirsk State University and Novosibirsk State Technical University. The institute's research directions include aerodynamic research; applied aerodynamic research; hydrodynamic research and cold gas dynamic spraying of metals on glass, on other metals, and on ceramics; solid rocket motors; and self-forging projectiles. This institute is very competitive and is moving toward funding economic self-sufficiency.

Institute of Computational Technologies

This institute has a staff of 120 people working in 10 laboratories. Their applied work activities have almost stopped. They are now adapting their developed software to other applications.

The major departments of this institute are as follows:

The Department of Natural Phenomena Processes, which has five laboratories: Aerodynamics, Atmospheric Modeling, Satellite Data Processing, Interval Analysis, and Numerical Analysis

The Department of Mechanics and Continuous Media, which comprises three laboratories: Computational Hydrodynamics (turbulence in ships' wakes), Aerodynamics (internal flow of turbines), and Plasma Physics

The Department of Informational Technologies, which provides a communication network, data banks, and data analysis in support of all of the institutes at the Akademgorodok.

19 September 1996

(1996-7 update)

Siberian Branch of Russian Academy of Sciences [Russia] [SB RAS]

The Scientific and Technological Design Institutes

Centers:

Novosibirsk Research Center
Buryat Research Center
Irkutsk Research Center
Kemerovo Research Center
Krasnoyarsk Research Center
Tomsk Research Center
Tyumen Research Center
Yakut Research Center
Others Research Center

The Institutes of Novosibirsk Research Center of SB RAS

Novosibirsk Research Center

Institute of Cytology and Genetics
Institute of Biology
United Institute of History, Philology and Philosophy involving:
 Institute of History
 Institute of Archeology and Ethnography
 Institute of Philosophy and Law
 Institute of Philology
Institute of Economics and Industrial Engineering
Institute of Soil Science and Agrochemistry
Central Siberian Botanical Gardens
Boreskov Institute of Catalysis
Institute of Chemical Kinetics and Combustion
Institute of Inorganic Chemistry
Novosibirsk Institute of Organic Chemistry
Novosibirsk Institute of Bioorganic Chemistry
Institute of Solid State Chemistry

United Institute of Geology, Geophysics and Mineralogy involving:

- Institute of Geology
- Institute of Mineralogy and Petrography
- Institute of Geophysics
- Technological Design Institute of Monocrystals
- Engineering Centre for Geophysical and Ecological Instrument Making

Institute of Mining

Budker Institute of Nuclear Physics

United Institute of Semiconductor Physics involving:

- Institute of Semiconductor Physics
- Technological Design Institute of Applied Microelectronics

Institute of Laser Physics

United Institute of Automation and Electrometry involving:

- Institute of Automation and Electrometry
- Technological Design Institute of Scientific Instrument-Making
- Technological Design Institute of Data Processing Equipment

United Institute of Hydrodynamics involving:

- Lavrentiev Institute of Hydrodynamics
- Technological Design Institute of Hydro-Pulse Techniques

Institute of Theoretical and Applied Mechanics

Institute of Thermal Physics

Institute of Mathematics

United Institute of Computing Mathematics and Information involving:

- Computing Centre
- Institute of Computational Technologies

Institute of Information Systems

State Public Scientific Library

Institutes of Buryat Research Center of SB RAS

Buryat Research Center

Buryat Institute of Social Sciences

Buryat Institute of Natural Sciences

Buryat Institute of Biology

Baikal Institute of Environmental Management

Buryat Institute of Geology

Institutes of Irkutsk Research Center of SB RAS

Irkutsk Research Center

Limnological Institute

Baikal Ecological Museum

Siberian Institute of Plant Physiology and Biochemistry

Irkutsk Institute of Organic Chemistry

Institute of Geography

Vinogradov Institute of Geochemistry

Institute of the Earth's Crust

Institute of Solar-Terrestrial Physics

Melentiev Siberian Energy Institute

Irkutsk Computing Centre

**Institutes of Kemerovo Research Center of SB RAS
(1997 update)**

Kemerovo Research Center

The Kemerovo Region (the area equals 95 thousand sq.km, and the population 3176 thousand people) is the most industrialized region of Siberia. It is known as a supplier of caking coals and iron ore, and one of the most important centres of heavy industry in the Russian Federation. Its reserves of coal equal 725 billion tons of which slightly over 3 billion tons have been extracted by now.

A high rate of industrialization, including industries involved in extracting and processing raw materials, adversely affects the environment quality and human health in this Region.

The Kemerovo Research Centre (KemRC) of RAS SB

Institute of Coal Research

Institute of Carbon Materials Chemistry

Department of Industrial Center's Ecology

Kuzbass Botanical Gardens

RAAS SB

Kemerovo Research Institute of Agriculture

Higher Education:

Kemerovo State University and 4 other institutes

Krasnoyarsk Research Center

Institutes of the Krasnoyarsk Research Center of the SB RAS

Institute of Biophysics

Sukachev Institute of Forestry

United Institute of Chemistry and Chemical Technology involving:

Institute of Chemistry of Natural Organic Materials

Institute of Chemistry and Chemical Metallurgy Processes

Kirensky Institute of Physics

Krasnoyarsk Computing Center

Department of High-Disperse Materials Physics

Institutes of Tomsk Research Center of SB RAS

Tomsk Research Center

Institute of Ecology of Natural Complexes

United Institute of Atmospheric Optics involving:

Institute of Atmospheric Optics

"Optika" Institute of Design and Technology

Institute of Petroleum Chemistry
United Institute of Heavy-Current Electronics
Institute of Heavy-Current Electronics
Technological Design Institute of Heavy-Current Electronics
Institute of Strength Physics and Material Science
Republic Engineering Center
Tomsk Branch of the Institute for Structural Macrikinetics of RAS

Institutes of Tyumen Research Center of SB RAS

Tyumen Research Center

Institute of the Earth Cryosphere
Institute of Northern Development
Institute of Multi-Phase Systems Mechanics

Institutes of Yakut Research Center of SB RAS

Yakut Research Center

Institute of Cosmophysical Research and Aeronomy
Institute of Mining of the North
Yakut Institute of Geosciences
Permafrost Institute
United Institute of the Physical-Technological Problems of the North involving:
Institute of the Physical-Technological Problems of the North
Institute of Non-Metallic Materials

The Scientific Institutes SB RAS in The Siberia

Institute of Information Technologies and Applied Mathematics --(Omsk)
Omsk Branch of the Institute of Catalysis --- (Omsk)
Institute of Sensor Microelectronics --- (Omsk)
Chita Institute of Natural Resources --- (Chita)
Institute for Water and Environmental Problems of RAS SB --(Barnaul)
Tuva Interdisciplinary Institute of RAS SB --- (Kyzyl)



1997 update:

[The insert below is included here because it gives the most graphic description of the present situation of a large segment of Russian Science today. It was downloaded from the internet and emanates from the Siberian Department itself.]

Some Words about The Siberian Branch of The Russian Academy of Sciences

The Siberian Branch of the Russian Academy of Sciences (SB RAS) is a regional association of research and designing institutions, pilot and medium-scale production of the Russian Academy of Sciences as well as the services maintaining the functioning of the infrastructure of Siberian research centers located in seven

regions, 2 territories and four republics (i.e. the general territory of about 10 million square kilometers).

There are research centers of the SB RAS in Novosibirsk, Tomsk, Krasnoyarsk, Irkutsk, Yakutsk, Ulan-Ude, Kemerovo, Tyumen, Omsk, individual research institutes are located in Barnaul, Chita, Kyzyl. (see Scientific Potential of Siberia).

There are 75 research institutions in SB RAS and 11 designing bureaus and pilot plants carrying out research in mathematics and physics, engineering and technology, chemistry and biology, Earth science, humanities and economics. (see Research Institute of SB RAS). About half of scientific potential of SB RAS is concentrated in Novosibirsk Research Center.

A wide network of biological and geological research stations carry out field and stationary research in biosphere and geosphere

The research centers of SB RAS are integrated with Universities and other Siberian colleges forming regional research and educational centers (RREC) in Barnaul, Krasnoyarsk, Omsk, Tyumen. Universities and colleges of Novosibirsk, Tomsk, Ulan-Ude, Yakutsk work in close contact with the research centers of the SB RAS.

SB RAS STAFF

The staff of the SB RAS is 40,437 people, as of January 1, 1995. 78% of them work at research institutions and 11,599 (22,3%) are employed by nonscientific organizations.

The distribution of researchers with respect to research centers and cities

Novosibirsk - 24,768 (61,3%)
Barnaul (+ Cherga) - 838 (2,1%)
Irkutsk - 4,801 (11,9%)
Chita - 152 (0,4%)
Tomsk - 2,970 (7,3%)
Kyzyl - 124 (0,3%)
Yakutsk - 2,446 (6,0%)
Krasnoyarsk - 2,397 (5,9%)
Buryatia (Ulan-Ude) - 957 (2,4%)
Omsk - 506 (1,3%)
Kemerovo - 280 (0,7%)
Tyumen - 198 (0,5%)

In 1990 -1994 the general quantity of people employed by SB RAS decreased by 23.3% (in 1993 the decrease in researchers employed by SB RAS was 1,645, and decrease in parascientific employees was 1389). The dynamics of research staff of SB RAS.

There are around 11,000 researchers working at present at SB RAS (in Novosibirsk research center there are 6,000) including 1,258 Doctors of sciences and 5,278 Candidates of sciences (in Novosibirsk research center respectively 811 and 2,951). The age of researchers is below 33 - 17.2%, 33-50 - 54.4%, over 50 - 28.4%.

INFRASTRUCTURE

The institutions and organization providing services and functioning of the infrastructure of research centers employ 29.5% of the general staff of SB RAS. This includes the personnel of pilot plants, experimental farms, geological field stations (8.4%); transportation, utilities, housing, repairs and supplies (8%), health service (6,6%) kindergartens and nursery schools (4.1%), cultural institutions (0.2%).

FINANCING

The basic budgetary financing of the SB RAS has been drastically reduced over last three years. The table below presents the per cent relation of the fundamental financing in comparable prices to 1990.

The structure of financial support to research institutions of SB RAS has changed significantly. In 1990, the budgetary support was 39.2% of the general financing, 18.8% was special-purpose financing of the Ministry of Science, the institutes themselves earned about 42% from contracts with industry.

Industrial crisis drastically reduced contracts with the institutes and they now represent about 10% of their financing. The loss of this source of income was offset, although by no means completely, by various grants and hard-currency earnings from contracts with foreign partners. Therefore, budgetary support, however reduced, constitutes the major part (65%) of the general financing of research institutions.

INTERNATIONAL RELATIONS

The structure and content of SB RAS international relations have significantly changed over last three years. 18 International research Centers have been set up and are actively operating co-founded together with Siberian Branch of RAS by research institutions and Universities of European countries, the USA and Japan. These centers function as international non-governmental organizations (as open institutes or laboratories under the auspices of SB RAS) and carry out research on major interdisciplinary problems.

In 1993 - 1994 Institutes of the SB RAS held annually about 35 - 40 international conferences and symposia. About 1500 foreign scientists visit annually the Siberian Branch of the Russian Academy of Sciences. The expenses of the foreign trips of Siberian researchers were covered mostly by the inviting parties or by Soros Foundation. Only due to this the decline in the number of foreign trips was insignificant (from 1805 in 1992 to 1756 in 1993).

GENERAL DIRECTIONS OF SCIENCE ORGANIZATION

Siberian Branch of the Russian Academy of Sciences was established in order to form a regional component of the country's scientific potential and to promote the development of its eastern territories. Since the first days of its existence, the work of SB RAS has been based on the productive combination of fundamental and applied research and close relations of science and education. The specific features of SB RAS from the very beginning have been the following:

research centers have always been complex (multidisciplinary);
the research staff of the Institutes and their material resources have
been widely used to promote higher education in the region;

regional component in establishing research centers and determining the directions of their research and applications of their results have always been very strong;
there is a variety of forms of cooperation with industry;
there has always been necessity to support the infrastructure, utilities and social sphere of research centers.

COMPLEXITY

The principle of complexity (multidiscipline character) of research centers which helped them to obtain important scientific results owing to the close interaction of industry and research now proved to reflect the major trends in the development of the world science. This trend consists in shifting the emphasis from individually initiated scientific projects to special-purpose projects aimed at certain, often global projects whose solution requires joint efforts and multidisciplinary approach.

At present the Siberian Branch of the Russian Academy of Sciences is a well-developed and territorially distributed system of complex research centers embracing practically all main urban, political and national centers in Siberia. A powerful research and experimental base has been formed including nationally important pilot and experimental plants, a well-developed network of geological and biological research stations carrying out systematic research for long periods of time. Unfortunately, recently organized Tyumen and Omsk research centers could not achieve fully-fledged development because of reduced financing.

In order to concentrate our efforts on the most important interdisciplinary problems of the world science, major projects of the Russian Academy of Sciences and national scientific and technical programmes the following priority scientific and technological programmes have been worked out and pursued in SB RAS:

fundamental and applied research in mathematics;
fundamental laws of matter structure in micro-and macroworld;
theoretical study of solids intended for the development of new electronic development on their basis;
molecular electronics;
fundamental research in quantum optics and quantum electronics and development of new applications of results;
mathematical modelling, information technologies and computing engineering;
physic-technical and system studies of energy;
mechanics, theoretical studies of machine building and machine reliability;
theoretical studies aimed at the development of new materials and progressive technology;
study of chemical composition and reactivity of compounds, kinetics and mechanisms of chemical reactions;
new materials and substances for the creation of the new generation of mechanisms and technology;
physic-chemical basis of the evolution of living organisms, problems of genetics and selection, plant physiology and biotechnology;
environmental, genetic and evolutionary principles of rational utilization, reproduction and protection of biological resources;
complex investigation in regional and global geological processes and theoretical studies of prospecting and mining;

working out new methods of waste-free and complex processing and refining of mineral resources and y-products, oil, coal and timber; economic and social research; interrelation of general and regional process of historic development, scientific progress and culture of peoples and national groups in Siberia.

COOPERATION OF SCIENCE AND EDUCATION

The experience of SB RAS in productive interaction of research and education represented first by Novosibirsk State University established simultaneously with SB RAS has been expanded to all the cities where research centers are located and facilitated establishing closer relations with already existing Universities (in Irkutsk, Tomsk, Yakutsk) and setting up new Universities such as Krasnoyarsk (first established as an affiliation of Novosibirsk University), Altai, Kemerovo, Tyumen, Omsk Universities. An affiliation of the Novosibirsk University has been recently set up in Ulan-Ude. The cooperation with other higher educational institutions such as, in particular, Novosibirsk, Tomsk and Omsk Technical universities also has proved useful and productive.

The integration of the research centers of SB RAS with Siberian Universities and colleges resulted in the creation of Regional Scientific and Educational Complexes (RSECs) in Barnaul, Krasnoyarsk and Omsk. Their efficient operation is hindered at present by the crisis of Russian science and higher education which can be attributed to insufficient financing as well as low prestige of higher education and learning especially in the field of natural sciences.



The Novosibirsk State University in Akademgorodok-Novosibirsk

PROGRAMME "SIBERIA"

Territorial distribution of research centers in Siberia and their close relations with national economy made it possible to work out in 1977 a regional scientific and technical programme "Siberia" aimed at promotion and support of suggestions, feasibility studies and carrying out of scientific and technological projects, retraining programmes for experts for the solution of socio-economical, environmental, scientific and technical problems common to Siberia.

This programme has from the very beginning brought closer and facilitated the coordination of operation of research, academic and industrial institutions of the region. As a result of its activity coordination councils were established, panel meetings and joint conferences were held which strengthened the ties of science and industry, accelerated the scientific progress in industry and oriented their joint efforts to the regional requirements and needs.

The regional scientific and technical programme "Siberia" is primarily supported now by Interregional Association "Siberian Accord" which unites at present 19 subjects (i.e. major administrative and political units) of Russian Federation which is at the same time its main customer. The financing of the programme "Siberia" comes from different sources main of which are:

1. budgets of Siberian Subjects of Federation;
2. investments of different companies (with state, private and mixed ownership);
3. special-purpose budget allocations of the Russian Ministry of Science supporting regional scientific and technical programmes;
4. allocations of other Russian Ministries for the support of national projects.

In 1993 programme "Siberia" embraced 53 projects with the total cost of 1934 million roubles.

Previously, without expert opinion of SB RAS specialists having at their disposal a wealth of information on Siberian nature and economy no decision on major economic project in Siberia had been made. Now the scientific expertise in the eastern part of the country is mostly neglected which has already led to some hasty decisions.

CONNECTIONS WITH INDUSTRY

SB RAS has always been interested in the practical application of its scientific, technological and designing results and maintained close connections with industrial enterprises and ministries. The system of information propagation and "implementation" support has proved efficient enough and was represented by special industrial departments of the SB RAS Presidium, coordinative programmes with leading Ministries, exhibitions and reports to the Soviet Government in the end of each five-year plan period, direct implementaional contracts with enterprises etc.

In the course of reforms brought about complete disintegration of the previously existing system of interactions between scientists of the SB RAS and the industry of the country.

As a result, SB RAS temporarily had to change its priorities and focus on relations with foreign partners. Many of its Institutes (e.g. Novosibirsk Institute of Catalysis,

Institute of Thermal Physics, Institute of Nuclear Physics, Unified Institute of Geology, geophysics and mineralogy etc) making use of already obtained results enter into contracts with foreign companies.

SB RAS intended on the basis of scientific and industrial cooperation with foreign partners to expand existing research centers adding to their structure compact science-intensive enterprises thus turning these research centers into a kind of technoparks. An example of such an activity is setting up of a Russian-Thailand joint venture "Tyurus" specialized in the production of precious stones and the Russian-German Tomographic Center in Novosibirsk research center. Unfortunately, political and economic instability in our country make foreign investors who seem interested in this kind of business rather shy.

The situation could be soon improved under two conditions:

- adequate legislative protection of foreign investments;
- parallel development of investment in science-intensive production in Russia itself.

Technological and scientific parks seem promising because of the following:

- insufficient financing and necessity to attract investments retaining at the same time the existing schools of fundamental research;
- possibility of creating new jobs for many researchers and higher-school professors as well as university and college graduates when many existing institutions are declaring redundancies to provide the inflow of young scientists and somehow to offset the "brain drain";
- future requirements for restructuring the industry of the Russian Federation and CIS taking into account the concept of sustainable development and based on progressive technologies;
- the existing market relations must be developed and emphasis transferred to civilized production.

The advantages of the research centers when under favorable economic conditions technoparks are established are as follows:

- research centers are already well-developed multidisciplinary research units with considerable scientific and technological experience, skill and established relations with similar organizations;
- there are complex designing bureaus and pilot plants and production within SB RAS research centers;
- there are experimental plants and their equipment and machinery can provide the primary material basis for future science-intensive joint ventures;
- availability of high-skilled labour force and retraining capacities of SB RAS and Siberian colleges and Universities;
- availability of working premises which could be provided by some of the Institutes and other institutions of SB RAS declaring redundancies.

The technological parks seem a promising idea but they can be established only as a result of stabilization of economical and political life in Russia.

FINANCING

Previously, budgetary financing covered only half of the costs of SB RAS and the rest was earned by the Institutes entering in contracts mostly with industrial enterprises.

The recent economic crisis resulted in the fact that the real financing now is one fifth of what it was in 1990 (Fig. 6). The sharp decline in industry, especially military and industrial complex practically destroyed this source of financing. To a certain extent this has been offset by contracts with foreign firms. At present the proportion of budgetary and non-budgetary financing is 60:49, i.e. the real non-budgetary financing has reduced 5-6 times.

Recently, the cost structure of the Institutes has changed significantly. The proportion of salaries and wages has grown from 1987 to 1993 from 37.5% to 64.5% and the proportion of costs of materials and equipment dropped from 27% to 5%.

The situation is deteriorating very rapidly. Many institutes have stopped purchases of equipment, conserved some larger plants, drastically reduced field works and some experimental research.

Price hikes, especially with respect to energy, led to unheard of increase in overheads which was most painful to experimental basis and infrastructure (experimental plants, housing, nursery schools, health service etc.)

The construction of resident houses for researchers must be now financed by researchers themselves and after a short period of optimism difficult financial situation made the scientific community in Siberia lose interest in such innovations.

The faulty and insufficient budgetary financing made it necessary for SB RAS to set up a special bank "Sibakadembank" allowing the Institutes of SB RAS to manipulate financial resources and be granted low-interest credits. Affiliations of the Bank have been opened also in Tomsk and Ulan-Ude.

LABOUR POTENTIAL, EQUIPMENT, LOOKING FOR NEW STRUCTURAL ORGANIZATION OF THE INSTITUTES

The budgetary financing of the SB RAS is now one fifth or one sixth of what it used to be, say, in 1990 and the SB RAS is now on the verge of extinction.

To declare more redundancies under conditions of decreased financing is senseless as it would mean the end of the Branch. Nevertheless, the number of people on the SB RAS payroll has reduced by 20.7% over last four years. It can be attributed to very small salaries, inadequate material and equipment supply, changes in housing policy of the country so that the Institute cannot now grant an apartment to a person working there.

More and more scientists permanently or temporarily leave the country (about 160 researchers a year). Russian scientists are in high demand in the West which is an indirect proof of the generally high level of our science. Most researchers have been employed by leading organizations and corporations in the USA (35%), Germany (20%), France (15%), Japan (7%) and other countries.

In order to retain its basic labour potential SB RAS introduced a contractual system of payment to its leading researchers which provided a social protection to actively working scientists. In addition, special measures have been taken to support young researchers. Special scholarships and fellowships have been established for post-

graduate students much greater than those offered by the Government, a system of bonuses has been introduced for researchers taking their Doctorate degree (younger than 40) and Candidate degree (younger than 30), some institutes cover some or all the costs of young scientists attending international scientific conferences, the decision has been made to create a special housing fund for young scientists etc.

About 4,000 researchers have left the SB RAS (200 Doctors and 1600 Candidates of Sciences). The measures taken by SB RAS helped it to some extent recover its scientific potential. Over the same period the general number of researchers reduced only by a thousand people whereas the number of Candidates decreased only by 420 people, and the number of Doctors even increased by 240 people.

16 international research centers set up by Siberian Branch of RAS and functioning as non-governmental organizations (as open institutes) to some extent helped us to deal with the problem of brain leakage. Some of our scientists come back. Foreign scientists come to Siberia attracted by unique natural objects, such as Lake Baikal, Altai mountains, Siberian taiga etc., pioneering experimental plants of the SB RAS and achievements of some of our scientific teams.

One more difficult problem is the maintenance of the equipment and the largest experimental plants, such as solar radiotelescope and set of observatories in Irkutsk, experimental plant for the investigation of space particles in Yakutsk, system of unique accelerators of elementary particles in Novosibirsk etc. These plants help us to keep up to the world standards.

It is quite evident, that the SB RAS will not be able to afford creating new centers. That is why we see our main task in operating and maintaining them and pin our hopes on the Ministry of Science of the Russian Federation which could provide assistance also through federal research centers created by it.

The General Meeting of SB RAS approved the suggestion of the Presidium of SB RAS to centralize part of the finances in order to coordinate the solution of the problems common for many of the Institutes.

SUPPORTING INFRASTRUCTURE AND PRESERVATION OF RESEARCH CENTERS

Siberian research centers were created in the sixties and represent almost perfectly the development trends of the world science. Novosibirsk research center became the prototype of similar towns in Japan and France. Their emergence reflected the new multidisciplinary approach to the solution of global environmental, energy, technological and other vital problems of humanity.

Unfortunately, the unique Russian experiment may perish because such a combination of research, designing, industrial and social infrastructure providing efficient functioning of the SB RAS over the entire period of its existence now threatens the very existence of science in the eastern part of the country. SB RAS cannot any more afford maintaining these complexes and their complete separation from scientific and designing activity destroy the unified system of research centers. The situation calls for original decisions on the state level.

Siberian research centers are situated at a considerable (up to 30 km) distance from the city centers and SB RAS has to maintain the utilities and power structures (large boilers, 700 km of cable networks, 630 km of water communications and sewage

etc.). Siberian Branch has also to maintain around 900 objects of social infrastructure (residential houses, utilities, health and educational institutions, recreational facilities etc. with total area over 2 million square metres.

The difficulties are aggravated by the fact that the major part of residential houses of the SB RAS was built in the sixties and seventies and therefore require capital repairs and renovations which is practically impossible due to the absence of funds. In this connection the Presidium of SB RAS had to divert some money from research.

One of the most serious problems is also the maintenance of public utilities. Built more than 30 years ago their facilities require renovation the cost of which would be billions of roubles.

This problem has been discussed heatedly for several years. For closed cities the problem has been somehow solved by special legislation. For Novosibirsk and other research centers of SB RAS it is an unsettled question.

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Membership of the Siberian Department: Scientists who comprise the membership of the Siberian Department are Generally younger than their counterparts in the older Departments. Those who were the pioneers in Novosibirsk when the Siberian branch of the AN SSSR was established in 1957, were virtual youngsters at the time.

Academicians--age and schools: Forty-two of the 43 academicians' birth dates are known. In 1991, the Siberian Department had one academicians who was 92 years old; four who were in their 80s, and seven in their 70s. Thirty of the academicians were born in 1925 or later, the latest being 45 years old. The average age of this larger group of academicians of the Siberian Department was 59.7. This is the lowest average age of a Departmental academician grouping in the study. Thirty-five of the 43 academicians have been or are Directors of scientific research institutes in Russia; six hold Deputy Directorships. Thirty of the academicians also hold an academician's ranking, similar to a joint appointment, in one of the 18 subject Departments of the Russian Academy of Sciences in Moscow. The closeness of the linking among the disciplines, particularly between the scientific disciplines, their scientists, and their research institutes is demonstrated clearly by these relationships. The institutions from which the academicians of the Siberian Department received their degrees is known in the cases of only 23 of the 43 academicians. Ten institutions graduated these 23, and the Moscow State University produced the lion's share, 11; Leningrad State University produced five, and the others came from the D. I. Mendeleev Moscow Institute of Chemical Technology, the University of Kazan', the Leningrad Polytechnic Institute, the Institute of Water Transport Engineers, Petrograd University, the Leningrad Industrial Correspondence School, and the University of Tomsk.

Corresponding Members--age and schools: Twenty-six of the 41 birth dates of the corresponding members of the Siberian Department are known. Of these, three were in their 80s; seven in their 70s, and 16 were born after 1922. However, like the academicians in this Department, the corresponding members have a relatively low average age: 60.6 years. The youngest member was 50 years old. Twenty-two of the 41 corresponding members of the Siberian Department also hold memberships in one of the 18 subject-matter Departments of the Russian Academy of Sciences. Eight of the corresponding members of the Siberian Department have

served or are serving as Deputy Directors of a scientific research institute, and, 15 of them have been or are Directors of research institutes. The educational background of 21 of the 41 corresponding members includes graduation from the following institutions: Moscow State University, seven; University of Irkutsk, two; University of Tbilisi, one; University of Novosibirsk, one; Leningrad State University, one; the University of Sverdlovsk, one; the Moscow Physico-Technical Institute, one; the Moscow Engineering Physics Institute, one; the Moscow Institute of Hydro melioration, one; the Odessa Agricultural Institute, one; the Leningrad Mining Institute, one, and, the Sverdlovsk Mining Institute, one.

Chairman:

Dobretsov, Nikolai L., D. GM. S. Born in 1936. Corresponding member since 1984, and academician of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the AN SSSR from December 1987. Following Dr. Valentin Koptuyug's untimely death in January 1997, Nikolai Dobretsov was name Chairman of the Siberian Department of the Russian Academy of Sciences. He graduated from the G. V. Plekhanov Mining Institute in St. Petersburg in 1957. He worked in the geological field party on the Altai Geological Expedition of 1957-1960. He joined the Geology and Geophysics Institute of the Siberian Department in 1960, working in the Metamorphic Formation Laboratory from 1972 to 1980. From 1971-72 he worked in the Chemistry Laboratory of the Tectonics and Geophysics Institute of the National Academy. From 1980 to 1988, he served as Director of the Geology Institute of the Buriat Scientific Center in Ulan Ude (established in 1973). Since 1988, he has been the Chairman of the Ulan Ude Scientific Center. In 1988, he was named Director of the Institute of Geology and Geophysics of the Siberian Branch of the National Academy. He has been designated a professor since 1972. He has chaired the commission on metamorphosis and metamorphogeny of mineral deposits and has headed the Petrography Committee of the Academy. He is currently Head of the Compound Geology, Geophysics and Mineralogy Institute in Akademgorodok-Novosibirsk which conducts basic geological work on Siberian mineral resources. It studies the oil-gas capacity of the paleozoic stratum in Western and Eastern Siberia, proposes methods for accelerating the mining of oil and gas in Siberia, and is working on the natural gases found in a solid state in the Earth's crust. Dobretsov also heads the Geological Correlation Laboratory of the Geology Institute.

Nakoriakov, Vladimir E., D. Tech. S. Born in 1935. Engineer. Specialist in the mechanics of heterological systems and solid state physics. Since 1981, he has been a corresponding member of the Problems of Machine Building and Control Processes Department of the AN SSSR and the RAS and an academician and Deputy Chairman of the Siberian Department since December 1989. He is author and co-author of 250 scientific works of which six are significant monographs and he is credited with eight inventions. He graduated from the Tomsk Polytechnical Institute in 1958 and from 1958 to 1964, he worked at the Transportation Energetics Institute. In 1965 he joined the staff of the Thermal Physics Institute. In 1974, he was named Head of the Two-Phase Laboratory of Thermal Physics Institute in Novosibirsk, becoming Deputy Director in 1986, and in 1988, he was named the Director of that institute that was founded in 1959 to study heat transfer, thermal physics of ionized gases, and gas dynamics. He is responsible for experiments leading to the development of a theory that shows a greater velocity being achieved in filtration through heat exchange during condensation and a forced flow in various media. He has been a professor at the Novosibirsk University since 1976 and served as Prorektor and rector of that university from 1983 to 1985. While serving at the university, he guided the doctoral work of six students and the research of 40 aspirants for the candidate degree. He was named to the Siberian Department

Presidium in 1983, becoming Deputy Chairman of the Siberian Department in 1985. He received the Government's Laureate Prize in 1983 and holds other medals and awards.

Rzhanov, Anatolii V., D. PM. S. Born in 1925 in Ivanova. Russian physicist. Academician of the Siberian Department since 1962. It is subordinate to the academy's Siberian Department. Corresponding member of the General Physics and Astronomy Department of the national academy and of the Siberian Department since 1962. Academician since 1984 of the Information Science, Computer Technology, and Automation Department. He graduated from the St. Petersburg Polytechnic Institute in 1941. From 1944 to 1962, he worked at the Institute of Physics of the AN SSSR and since 1962, he has been Director of the Institute of Semiconductor Physics of the Siberian Department of the AN SSSR. That institute was established in 1964 to research microelectronics with emphasis on the physics of semiconductors, lasers, non-linear optics, and the stability of semiconductor materials. He has taught at the University of Novosibirsk since 1963 becoming a professor there in 1966. He joined the Presidium of the Siberian Department in 1976. His works are in the physics of dielectrics and semiconductors and in semiconductor electronics. He discovered and studied the piezoelectric effect in polarized barium titanate ceramics, and he produced and conducted research on samples of point-contact and fused germanium diodes and triodes. (GSE 22, p. 528.)

Head Scientific Secretary

Tsvetkov, Iurii D., D. Chem. S. Born in 1933. Chemical physicist. Corresponding member of the General and Technical Chemistry Department of the AN SSSR from 1984--and reconfirmed in 1992. He graduated from the Moscow Physico-Technical Institute in 1957 and worked at the Institute of Chemical Physics from 1957 to 1959. In 1959, he joined the Institute of Chemical Kinetics and Combustion Institute of the Siberian Department, as a junior researcher, a Scientific Secretary, a senior researcher, and Head of a laboratory studying the chemistry and physics of free radicals (1968), and Deputy Director of that institute from 1968 to 1971. In 1983 he was Head Scientific Secretary of the Siberian Department of the AN SSSR, and in 1992 he was reconfirmed as the Head Scientific Secretary of the Siberian Department of the Russian Academy of Sciences. He has been on the Presidium of the Siberian Department since 1985. Since 1973, he has been a professor at the Novosibirsk State University holding a chair in physical chemistry, and as a professor has guided the research of three doctoral and of 15 aspirants for the candidate degree. He received the State Prize in 1988. Since 1974, he has been Chief of the Electron Spin Echo Decay Curves department (Chemical Kinetics of Combustion Institute), and since 1975, he has been Deputy Director of the Chemical Kinetics of Combustion Institute in Novosibirsk.



Presidium Headquarters in Akademgorodok, Novosibirsk

Members of the Presidium: In June 1992, the Russian Academy of Science confirmed 29 persons as members of the Presidium of the Siberian Department of the RAS. They included 16 academicians, nine corresponding members and four scientists not yet elevated to either corresponding member or academician status. The Presidium's Central Bureau is made up of 12 scientists: Nikolai L. Dobretsov, Semen T. Vas'kov, Konstantin K. Svitashov, Iurii I. Shokin, Anatolii S. Alekseev, Anatolii P. Derevianko, Kirill. Zamaraev, Valerii V. Kuleshov, Aleksandr N. Skriskii, Vladimir M. Titov, and Vladimir K. Shumni. The other members of the Presidium are: Gennadii I. Gritsko, Vladimir E. Zuev, Dmintrii G. Knorre, Vladimir A. Krutikov, Valerii V. Kuleshov, Mikhail V. Kurlenia, Vladimir P. Larionov, Mikhail M. Lavrent'ev, Valerii L. Mironov, Iurii N. Molin, Vasilii TS. Naidakov, Vladimir E. Nakoriakov, Nikolai D. Podufalov, Vasilii F. Shabanov, Aleksandr N. Skriskii, Vladimir M. Titov, Valerii V. Tikhomirov, Andrei A. Trofimuk, and Gelii A. Zherebtsov. In April and May of 1992, the Presidium selected two outstanding scientists to sit on the Presidium. They were Valerii K. Dupliakin, D. Chem. S., and Vladimir P. Mel'nikov, Corresponding member of the Siberian Department.

Academicians

Aleksandrov, Kirill S., D. PM. S. Born in 1931. He is a specialist in the field of crystallography and the physics of crystals. He graduated from the Leningrad V. I. Ul'ianova-Lenin ElectroTechnical Institute in 1954 and began work at the A. V. Shubnikov Crystallography Institute in 1958, at the Physics Institute in Krasnoyarsk as a junior researcher, Head of a laboratory and a Deputy Director from 1968 to 1981. Since 1983, he has been Director of that institute--the L. V. Kirenskii Physics Institute in Krasnoyarsk that was established in 1956 to study thin magnetic film physics, superstrong stationary magnetic fields, ferro-electric physics, and radiospectroscopy. It is subordinate to the Krasnoyarsk Scientific Center of the academy's Siberian Department. He also became Deputy Chairman of the Krasnoyarsk Scientific Center in 1983. As a professor he has held the chair of Solid State Physics at the Krasnoyarsk State University since 1971. He was elected a corresponding member in 1972, and he has been an academician of the General Physics and Astronomy Department of the academy and of the Siberian Department since 1984. (Material from an unpublished manuscript: Perasoval'nii Sostav, 1957-1989. Novosibirsk: Akademia Nauk SSSR Publishing House, 1989. Hereafter: Sib. Unpub. MSS., 1989.)

Alekseev, Anatolii S., D. PM. S. Born in 1928 in Pskov Oblast. Russian geophysicist. He was elected a corresponding member of the academy in 1972 and an academician in 1984. Since 1984, he has been an academician of the Information Sciences, Computer Technology and Automation Department of the National Academy and also of the Siberian Department. He joined the Presidium of the Siberian Department in 1980. He graduated from Leningrad State University in 1952. From 1955 to 1963, he was on the staff of the St. Petersburg Division of the V. A. Steklov Institute of Mathematics of the AN SSSR. In 1963, he joined the Computer Center of the Siberian Division, becoming Deputy Director of the center in 1980. In 1964, he taught at the University of Novosibirsk, becoming a professor in 1970. Since 1980, he has been on the Presidium of the Siberian Branch. He Developed principles for geological data gathering from vibration sounding of the earth's interior. His major work is in seismology. He has headed the Scientific Society for the Mechanical Mathematical Sciences in Energetics, the coordination of the Soviet Scientific Committee on the Earth's Vibration Processes, the Soviet Committee for Methods of Distance Finding, the Committee for Computing Technology, and the regional section of Siberia and the Far Eastern Scientific Service for Modeling Complex Mathematical Problems. Since 1976, he has been a member of the American Mathematical Society, and since 1981 a member of the American Photogrammetry Association, and since 1983 he has been a specialist (consultant) on sources of seismic control. In 1982, he received a State Prize and is the holder of a number of other medals recognizing his achievements. (Sib. Unpub. MSS., 1989) (GSE 30, p. 9.)

Bagaev, Sergei N., D. PM. S. Born in 1941. Physicist. Corresponding member since 1990 of the General Physics and Astronomy Department; academician in 1993. Specialist in laser physics and quantum electronics. He is a lead researcher and heads a Department of the Thermal Physics Institute in Novosibirsk of the Siberian Department of the RAS. He conducts experiments in optical spectroscopy, studying the quantum Doppler Effect of gases from cold to extremely high temperatures. He also acts as a consultant to the Medical Scientific Council of the Russian Academy of Sciences.

Barkov, Lev M. Born in 1928 in Moscow. Russian High Energy physicist. Corresponding member since 1972, and academician since 1984. He graduated from Moscow State University in 1952 and joined the Institute of Atomic Energy staff. In 1967, he joined both the staff of the Institute of Nuclear Physics of the Siberian Department in 1967 and the teaching staff of the University of Novosibirsk, receiving his professorship there in 1973. Since 1969, he has been Head of "Barkov's Department" of the Budker Nuclear Physics Institute in Novosibirsk that was created in 1957 and that concentrates on controlled thermonuclear reactions and accelerator technology. His principal membership is in the Nuclear Physics Department of the RAS. In 1980 he established the chair of nuclear physics at Novosibirsk University that he occupies. His works deal with neutron moderation and multiplication in uranium-water systems. He investigated pion production and the interaction of pions with matter. (GSE 30, p. 22.)

Boldirev, Vladimir V., D. Chem. S. Born in 1927. Inorganic Chemist. Specialist in the field of Solid State and Kinetic Heterogeneous Reactions. Academician since 1990. He pioneered in the classification of physical reactions of solids. He graduated from the Tomsk State University in 1948 and joined its faculty. From 1958 to 1963 he held the chair of radiation chemistry at the Tomsk Polytechnical Institute. From 1964 to 1975, he worked at the Chemical Kinetics and Combustion Institute in Akademgorodok, heading the Laboratory of Chemical Kinetic Reactions in the Solid State. In 1967, he was named Deputy Director of that institute, and in 1975 he became its Director. In 1976, he became Director of the Physico-chemical Institute's Foundation for the Recasting of Mineral Raw Materials. He has been a professor

since 1963, holding the chair of Solid State Chemistry at the Novosibirsk State University. Since 1971, he has chaired the Scientific Council on the problems of solid state chemistry of the Siberian Branch. From 1976 to 1988, he was Head editor for the chemical series scientific journal *Izvestia* of the Siberian Department of the SSSR. He has authored 78 scientific works, co-authored another 450, been credited with 95 inventions and holds eight patents.

Borovkov, Aleksandr A., D. PM. S. Born in 1931 in Moscow. Russian mathematician. Corresponding member of the Mathematics Department of the Russian Academy of Sciences and of the Siberian Department since 1966, and academician since 1992. He graduated from Moscow State University in 1954 and became a professor at Novosibirsk University in 1966, holding a chair in the theory of probability and mathematical statistics. From 1961, he was Head of the Probability Theory and Mathematical Statistics Department of the Mathematics Institute in Novosibirsk. He has been the Deputy Director of the Mathematics Institute of the Siberian Department. Winner--with others--of 1979 State Prize for a cycle of works on asymptotic methods of the theory of probability. His major work is in the theory of probability. He is an Honored Scientist of the former Soviet Union. (GSE 3, p. 479.)

Cherskii, Nikolai V., D. Tech S. Born in 1905 in the settlement of Olga, in Primore Krai. Russian scientist whose specialties are in the mechanics and the development of petroleum and gas deposits. Corresponding member of the Geology, Geophysics, Geochemistry and Mining Sciences Department and of the Siberian Department since 1968, and academician of both Departments since 1981. He first joined the Presidium of the Siberian Department in 1969. He graduated from the Institute of Water Transport Engineers in Vladivostok in 1931 and from the Academy of the Petroleum Industry in 1951. From 1953 to 1955, he worked in the Yakutsk scientific geological management. In 1955, he became Deputy Director and from 1964 to 1988, he was Chairman of the Yakutsk Scientific Center. He has served as the Director of the Institute of Physical and Technical Problems of the North since 1973. His works include the design of gas wells, the development of methods for calculating the reserves of natural gas deposits and for exploiting gas hydrate deposits, and container-pipeline transportation. He was co-discoverer of the property of natural gas of forming deposits in the crust in the form of a solid gas hydrate. He served as a Deputy to the 7th, 8th, and 9th convocations of the Supreme Soviet. He holds a number of medals recognizing his scientific contributions. (GSE 29, p. 131.)

Chirikov, Boris V., D. PM. S. Born in 1928. Physicist. Specialist in theoretical and statistical physics. Corresponding member since 1984, and academician since 1992. He has authored and co-authored 100 scientific works of which 10 are monographs. From classical dynamics, he developed the theory of dynamic chaos. He graduated from the Moscow State University in 1952. He worked in the Thermal Technical laboratory of the Institute of Atomic Energy imeni I. V. Kurchtov. In 1958, he joined the staff of the Budker Nuclear Physics Institute of the Siberian Department in Akademgorodok, in 1964, he headed one of its laboratories, and in 1985 was made Head of the Theoretical Department of the Institute. He has been a professor at the Novosibirsk State University since 1974, holding the chair in General Physics. He is on the editorial board of five natural science journals, including Nuclear and Statistical Physics journals. He is also on the Scientific Council for Nuclear Physics of the Siberian Department of the Russian Academy of Sciences.

Derevianko, Anatolii P., D. Hist. S. Born in 1943. Archeologist. Specialist in the fields of archeology and of the ancient history of Siberia and the Far East. Corresponding member since 1979, and academician since December 1989. He became a member of the Presidium of the Siberian Department in 1980. He graduated from the Blagoveshchenskii Pedagogical Institute in 1963 and from

graduation until 1976 he worked as an aspirant in the Department of the Humanities Research Institute studying the economics and industrial development of Siberia in the Museum of History and Culture. In 1983 he became Director of the History, Philology, and Philosophy Institute of the Siberian Branch in Akademgorodok. He was active in Komsomol organizational activities in the late 70s. From 1980 to 1982, he was rector of the Novosibirsk State University. He is author of 120 scientific works of which 15 are major monographs; he has co-authored 105 scientific works of which six are important monographs. His "History of Science and Culture of Mankind" and "History of the Peoples of Central Asia" both published by UNESCO are major contributions to the literature. He received his doctorate from the German Archeology Institute in the GDR in 1987. In 1991, an agreement was signed between the Siberian Department of the RAS and the Gorni Altai Republican Soviet that established an open international non-governmental organization for international research: The Altai International Center for Humanitarian and Biospheric Research. The center will involve the collaboration of three major bodies: the United Institute of History, Philology and Philosophy in Akademgorodok-Novosibirsk, the Cytology and Genetics Institute in Akademgorodok-Novosibirsk, and the Gorno-Altai Republican Soviet in Gorno-Altai, Russia. As Head of the United Institute of History, Philology and Philosophy, Derevianko will play a major role in the development of this international research center's development.

Dobretsov, Nikolai L., D. GM. S. Born in 1936. Corresponding member since 1984, and academician of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Russian Academy of Sciences and of the Siberian Department since December 1987. He graduated from the G. V. Plekhanov Mining Institute in St. Petersburg in 1957. He worked in the geological field party on the Altai Geological Expedition of 1957-1960. He joined the Geology and Geophysics Institute of the Siberian Department in 1960, working in the Metamorphic Formation Laboratory from 1972 to 1980. From 1971-72 he worked in the chemistry laboratory of the Tectonics and Geophysics Institute of the National Academy. From 1980 to 1988, he served as Director of the Geology Institute of the Buriat Scientific Center in Ulan Ude that was established in 1973. Since 1988, he has been the Chairman of the Ulan Ude Scientific Center. In 1988, he was named Director of the Institute of Geology and Geophysics of the Siberian Branch of the National Academy. He has been designated a professor since 1972. He has chaired the commission on metamorphosis and metamorphogenesis of mineral deposits and Head of the Petrography Committee of the national academy.

Dorodnitsyn, Anatolii A., D. Tech. S., born 1910 in Tula District Russia. Academician of the Mathematics Department of the Academy since 1953. He graduated in 1931 from Grozny Oil Institute, received his candidate degree in Physical and Mathematical Sciences from the Main Geophysical Observatory in St. Petersburg in 1939, and his doctorate in Technical Sciences from the Zhukovskii Central Aero-hydrodynamic Institute in 1942, was made a professor in 1949 and elected as an academician of the academy in 1953. He worked from 1936 to 1941 at the Main Geophysical Observatory, in 1941 at the Zhukovskii Central Aero-hydrodynamic Institute, from 1944-1946, he was professor of Moscow Aviation Institute, from 1945 to 1955, he was a senior researcher and Head of a Department of the Steklov Mathematical Institute in Moscow, from 1948-1951, professor at Moscow State University; from 1952 to the present he has been a professor, Head of the Aerodynamics Group, Head of the Applied Mathematics Group, Head of the Mathematical Physics Group of the Moscow Physical-Technical Institute, and from 1955 to 1989, he served as Director of the computing center of the academy in Moscow. From 1989 to the present he has served as Director Emeritus of that center. Since 1960 he has been editor in Chief of the Journal of Computational Mathematics and Mathematical Physics. His research interests have included: aero-

hydrodynamics, computational mathematics, and mathematical physics, geophysics, informatics, mathematical modeling, and ecological problems.

Ershov, Iurii L., D. PM. S. Born in 1940 in Novosibirsk. Russian mathematician. Since 1970, he has been a corresponding member of the Mathematics Department of the Russian Academy of Sciences and also a member of the Siberian Department, and academician since 1990. He has authored 103 scientific pieces of which two major monographs are significant--"The Theory of Numbers" (1977) and "The Solution of Problems in Constructing Models" (1980). He has co-authored 12 publications of which the most famous is "Mathematical Logic." He graduated from the University of Novosibirsk in 1963 and became a Professor there in 1967. In 1967, he was Head of a Department in Mathematical Logic and was named a professor, holding the chair in algebra and mathematical logic. From 1973 to 1976, he was dean of the mathematical faculty at the Novosibirsk University. He was named rector of the university in 1985. His works include the theory of algorithms, the theory of models, and number theory. Since 1968, he has been a member of the Association for Symbolic Logic. He has been on the Presidium of the Siberian Department since 1986. He has been on the Scientific Council on the problems of mathematical modeling of the AN SSSR from 1987. He is on the Accreditation Commission for Symbolic Logic. He is an Honored Scientist of the Soviet Union and the editor of a scientific journal. (GSE 9, p. 134.)

Galazii, Grigorii I., D. Bio. S. Born in 1922 in Mechebilovo in Barvenkovo Raion, Kharkov Oblast. Russian botanist and hydrobiologist. Specialist in Limnology, forestry, and geobotany. Corresponding member of the Siberian Department and of the Oceanology, Atmospheric Physics, and Geography Department of the AN SSSR from 1970, and academician since 1992. He graduated from the University of Irkutsk in 1942. In 1949, he joined researchers at the Eastern Siberian Affiliate of the Siberian Department. In 1954, he worked at the Baikal Limnology Station of the AN SSSR, and from 1961 to 1987, he was the organizer-Director of the Limnology Institute in Irkutsk that was created to study the lakes and man-made seas in the area between the Urals Mountains and the Pacific Ocean, particularly Lake Baikal. His research is on the habitat of ligneous vegetation on the shores of Lake Baikal and adjoining mountain ranges in order to reconstruct the postglacial period's climate, water level, and topography as a means to find ways to protect and use the natural resources of Lake Baikal. He has written 287 scientific works that include eight monographs. In 1987, he was named Director of the Baikal Ecological Museum of the Irkutsk Scientific Center. He has served as Deputy Chairman of the Scientific Council on the problems of hydrobiology, ichthyology and the utilization of biological water resources. He is Vice President of the all union hydrobiological society. He also heads the Eastern Siberian Affiliate's Geographical Society. (GSE 6, p. 48.)

Godunov, Sergei K., D. PM. S. Born in 1929. Mathematician Specialist in applied and computer mathematics and the theory of differential equations. Corresponding member since 1976; Academician in 1993. He graduated from the Moscow State University in 1951 and began work at the V. A. Steklov Mathematics Institute and the Institute of Applied Mathematics of the AN SSSR. He was also given a professorship at Moscow State University. From 1969 to 1980, he worked at the Computer Center, becoming Head of a Department in 1980 and in 1981 he was named Deputy Director of that institute. In 1987 he headed the Department of differential equations of the Steklov Institute. He was a professor at the Novosibirsk State University from 1977, holding a chair in differential equations. He is an Honored Scientist of the academy and editor of a journal. He received the Lenin Prize in 1959, the A. N. Krilov Prize in 1972, and has received a number of medals and recognitions of his scientific contributions.

Gitel'zon, (Gitelzon) Iosif I., D. Bio. S. Born in 1928. Biophysicist. Specialist in biosynthesis, blood regulatory systems, and ocean bioluminescence. Corresponding member since 1979, and academician since 1992. He graduated from the Moscow State University in 1951 and from the Krasnoiarsk Medical Institute in 1952. He worked at the Krasnoiarsk Agricultural Institute from 1953 to 1957. In 1957, he joined the Physics Institute Krasnoiarsk. In 1961, he headed the Laboratory of Photobiology of that institute. In 1981 he headed all laboratories and in 1985, he was made Director of the Biophysics Institute of the Siberian Department located in Krasnoiarsk. He is a professor, holding a chair in physiology and biochemistry of animals and humans at the Krasnoiarsk State University. He is an Honored Scientist of the former Soviet Union. In April 1991, the Presidium of the Siberian Department of the RAS established the International Center for Closed Ecological Systems that is intended to work closely with other scientists throughout the world working on man-made biospheres--something that Russian scientists had developed in BIOS-3 in the 1970s and 1980s. Dr. Gitelzon, as Director of the Institute of Biophysics is also heading up this new international research institute.

Granberg, Aleksandr G., D. Econ. S. Born in 1936. Specialist in planning for the national economy and the development of modeling of economic research. Academician since 1992. He graduated from the Moscow State University in 1960 and began working at the Computer Center of GOSPLAN, and at the Moscow Institute of the National Economy. From 1963 to 1969, he was at the Novosibirsk State University, and from 1965 he has held the chair on applied mathematical methods for economic planning. In 1969, he joined the Economy and Organization of Industrial Production Institute of the Siberian Department, heading the sector on economic-mathematical modeling and methods of optimizing territorial planning, becoming its Deputy Director in 1975 and its Director in 1985. He has been a member of the Siberian Presidium since 1986. He has been Head of the Scientific Council of the Academy on the Economic Sciences since 1985. In 1988, he became Head editor of the journal Economics and the Organization of Industrial Production. He received the Lenin Komsomol Prize in 1968. In the early 1990s the Siberian Department established the Siberian International Center for Regional Studies in Novosibirsk that had as its Scientific Research Director Professor Granberg. The Center's base institution is the Institute of Economics and Industrial Engineering of the Siberian Department in Akademgorodok-Novosibirsk of which Dr. Granberg is also the Science Director. In the process of being organized at present, the center will involve the Siberian Department, the International Regional Science Association and Geographic Union will be its founders and its activities will involve research groups from universities and research centers from the United States, Germany, Canada, Sweden, Israel, Hungary in research into regional economics.

Isaev, Aleksandr S., D. Bio. S. Born in 1933. Biologist, Forester, Entomologist. Corresponding member since 1976, and academician of the General Biology Department of the National Academy and of the Siberian Department since 1984. He joined the Presidium of the Siberian Department in 1980. He graduated from the Leningrad Forest Technology Academy in 1954. From 1954 to 1960 he worked with a forest protection organization, and from 1960 to 1988, with the Forestry and Timber Institute serving as its Director from 1977 to 1989. From 1978 to 1988, he served as Chairman of the Krasnoiarsk Scientific Center of the Siberian Branch. He was on the Presidium of the Siberian Branch from 1980 to 1988. He headed the Scientific Council on the Biological Sciences from 1985 to 1988. In 1988 he was made Chairman of the government committee on forestry of the national academy. He was a delegate to the 25th and 26th Congresses.

Knorre, Dmitrii G., D. Chem S. Born in 1926. Chemist, Biochemist, specialist in chemical kinetics of complex reactions, bioorganic chemistry, and molecular biology. Corresponding member since 1968, and academician since 1981. Principal

membership in the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) of the academy and of the Siberian Department since 1981. He graduated from the D. I. Mendeleev Moscow Chemico-Technological Institute in 1947. He worked at the Chemical Physics Institute from 1947 to 1960 when he joined the Siberian Department in a laboratory studying natural polymers and joined the Department of biochemistry of the Novosibirsk Institute of Organic Chemistry. In 1962, he acted as Head of the Natural Polymers Laboratory of the Organic Chemistry Institute in Novosibirsk that was established in 1958 and whose basic work is in the study of aromatic and heterocyclic chemistry and in natural products. He was named Director-organizer of the Novosibirsk Bioorganic Chemistry. He was named to the Presidium of the Siberian Branch in 1988. From 1967 to 1983, he was a professor on the faculty of natural sciences holding the chair in molecular biology from 1979. He is an Honored Scientist of the former Soviet Union. He received the Laureate Prize of the Soviet Ministry in 1987, and the M. M. Shemiakin AN SSSR Prize in 1988. He holds other recognitions and awards for his work.

Kontorovich, Aleksei Z., D. GM. S. Born in 1934. Geologist. Specialist in general geology and the geochemistry of oil and gas. Academician since 1990. Deputy Director of the Institute of Geology and Geophysics of the Siberian Department in Akademgorodok-Novosibirsk. He is the author of 26 research works and co-author of 360 publications. His monographs "The Geology of Oil and Gas of the Siberian Platform," (1976) and "Prognosis of Oil and Gas Reserves" (1981) are thought to be most significant. He is a professor at the Novosibirsk State University where he has directed the doctorate work of eight students and the postgraduate work of 55 aspirants for the candidate degree. He is on the Scientific Council on problems of the geology and geochemistry of oil and gas of the Russian Academy, of the Lithology Committee, and is coordinator of the studies on Oil and Gas in the Vostok Region of the Scientific Council for the "Sibir" program of the Siberian Department. He is Head of the Novosibirsk Oblast Scientific Technical Oil and Gas Development Department imeni Academician I. M. Gubkina.

Koropachinskii, Igor Iurii, D. Bio. S. Born in 1928. Biologist and Dendrologist. Corresponding member of the General Biology Department of the Russian Academy of Sciences and of the Siberian Department since December 1987, and academician since 1992. He has authored and co-authored 85 scientific works of which 12 are important monographs. He graduated from the Siberian Forestry Technology Institute in 1951. He was an aspirant, assistant, docent, and held the chair in Forest Culture at that institute. He was a senior researcher at the V. N. Sukachev Forestry and Timber Institute (in Krasnaiorsk) from 1960 to 1962. From 1962 to 1976, he was Deputy Director of that institute and from 1977 to 1983, he was Director of that institute. In 1983 he was named the Director of the Central Siberian Botanical Garden in Novosibirsk that was started in 1958 in order to exchange seeds and plants with other botanical gardens in Russia and abroad to enrich Siberian flora. He has been a professor at the Siberian Technological Institute since 1982 where he has guided the work of 13 aspirants for the candidate degree. He is Deputy Chairman of the Scientific Council on the environmental problems.

Koval'chuk, (Kovalchuk) Boris M., D. Tech. S. Born in 1940. Engineer. Specialist in the fields of electronics and electrotechnics and electrophysics. Corresponding member since December 1987, and an academician since 1992. He has authored 130 scientific works and is credited with 11 inventions. He graduated from the Tomsk Polytechnical Institute imeni S. M. Kirov in 1962 and worked at the Nuclear Physics Electronics, and Automation Institute in Tomsk from 1962 to 1970. In 1970 he became Head of a laboratory of the Department of high energy electrotechnics and in 1978, he was made Head of the Pulsed Power Laboratory of the High Currents Electronics Institute in Tomsk. He is on the Scientific Council on Pulsed Power.

Chairman of the section on the physical Technical Problems of controlling the sources of extra high power energy of micro and nano wave bands. He headed the base for the production of pulsed energy, including work on the synthesis of thermonuclear war heads on guided missiles, the study of the physics of powerful electronic and ionic rays, the generation of SVCh radiation, and research in laser technology. He has guided the research of two doctoral candidates and the work of five aspirants for the candidate degree. He was given the Laureate Lenin Komsomol Prize in 1968. He received the State Prize in 1981. He also has been awarded a medal in recognition of his work.

Kurlenia, Mikhail V., D. Tech. S. Born in 1931. Engineer. Specialist in mining mechanics. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department and of the Siberian Department since December 1987, and academician since 1990. He has written 24 scientific works and co-authored 105 others. He has 95 inventions and of his scientific writings, seven are major monographs--all on aspects of mining. He graduated from the Tomsk Polytechnical Institute Imeni S. M. Kirov in 1953 and worked there until 1960. In 1960, he joined the Mining Institute of the Siberian Department in Novosibirsk where, in turn, he was a senior researcher, Head of a laboratory and a Department, and in 1988, he was named Director of that institute. He became a member of the Presidium in that year. He has been a professor since 1986. He has supervised the work of two doctoral and 16 candidate aspirants. He edits a mining journal.

Kuznetsov, Fedor A., D. Chem. S. Born in 1932. Physical Chemist. Corresponding member since 1984, and academician of the Siberian Department since December 1987. He graduated from the Leningrad State University in 1955. He began work at the Inorganic Chemistry Institute of the Siberian Department in 1958, served as an aspirant, a junior researcher, and senior researcher in a major laboratory in that institute. From 1971 to 1983, he has acted as Head of the Epitaxial Layers Laboratory and of the Electronics Materials Laboratory of the Inorganic Chemistry Institute in Novosibirsk, being named its Director in 1983. The institute was established in 1957 in cooperation with the N. S. Kurnakov General and Inorganic Chemistry Institute for the purpose of studying complex compounds, splitting uranium and plutonium, and the extraction and investigation of rare earth metals. He has been a professor at the Novosibirsk University since 1976, holding the chair in inorganic chemistry since 1986. He is the Head editor of *Izvestiya* In 1988 he was named Chairman of the Scientific Council on Inorganic Chemistry. He is a member of the Electrochemical Society of the USA--since 1979. Recipient of the State Laureate Prize in 1981. (LDA 89-11378.)

Lavrent'ev, (Lavrentev) Mikhail M. Born in July 1932 in Moscow. Russian mathematician. He has been a corresponding member of the Mathematics Department of the academy since 1968 and an academician of that Department and of the Siberian Department since 1992. He worked in that Department from 1955 to 1957. He graduated from Moscow State University in 1955. He joined the Siberian Department in 1957. He has been a professor at the Novosibirsk State University since 1963, holding the chair in mathematical problems in geophysics. From 1980 to 1986, he was Director of the Computer Center of the Siberian Department. In 1986 he was named Director of the Mathematics Institute in Novosibirsk that was founded in 1957 to research theoretical and applied mathematics. He is the son of M. A. Lavrentiev. He was named to the Presidium of the Siberian Department in 1987. Since 1988 he has been Head editor of the Siberian Mathematics Journal. He is a member of the Society of Mathematical Geology. honored scientist of the Soviet Union. He received the Lenin Laureate Prize in 1962, the State prize in 1987. He has received a number of other medals and recognitions. (GSE 14, p. 302.)

Letnikov, Feliks A., D. GM. S. Born in 1934. Geologist. Specialist in the fields of geology, geochemistry and petrological processes forming the earth's crust.

Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department and of the Siberian Department since December 1987, and academician since 1992. He has authored and co-authored 230 works of which 15 are monographic in length and substance. He graduated from the All-Union Correspondence Polytechnical Institute in 1961. He served on geological expeditions from 1957 to 1965. In 1965, he headed a laboratory of experimental and theoretical petrology, and in 1980 he was named Deputy Director of the Earth's Crust Institute in Irkutsk. He has been a professor since 1978, holding the chair in mineralogy and petrology at the Irkutsk State University. He has directed the research of three doctoral students and 23 aspirants for the candidate degree. He is a member of the commission on experimental mineralogy and of the commission on metasomatism of the Department of Geology, Geophysics, Geochemistry and Mining Sciences of the Russian Academy of Sciences. He is a member of group participating in the program "Lithosphere" and "Cybernetic Geodynamics of the Earth's Crust." He is editor of the journal "Geology and Geophysics."

Logachev, Nikolai A., D. GM. S. Born in 1929. Geologist. Specialist in studies of the Geology of the Continental Shelf. Corresponding member since 1979, and academician of the Geology, Geophysics, and Geochemistry Department and of the Siberian Department since 1984. He joined the Presidium of the Siberian Department in 1980. He graduated from the Irkutsk State University in 1952. He began work upon graduation at the Eastern Siberian Branch Geology Institute that became the Earth's Crust Institute. In 1976 he was named Director of that institute that was established in 1949 and is subordinate to the academy's Siberian Department. Research at the institute includes geology, geophysics, and seismology. Since 1977, he has served as Chairman of the Irkutsk Scientific Center. He was named to the Presidium of the Siberian Branch of the Academy in 1980. He has been a member of the American Geophysical Society since 1984. He was a delegate to the 26th National Congress. Winner--with others--of the 1978 State Prize in Science and Technology for "The History of the Development of the Relief of Siberia and the Far East" 15 Vols. In 1988, he received the Soviet Ministerial Prize. He has also received other medals and recognitions for his work in scientific research. (1964-76).

Matrosov, Vladimir M., D. PM. S. Born in 1932. Corresponding member since 1976, and academician since 1987. Mathematician. Specialist in non-linear mechanics, applied mathematics, and the theory of management and informatics. He graduated from the Kazan Aviation Institute in 1956. He held a chair in that institute from 1968 to 1975. From 1975 to 1980, he was Director of the Siberian Energetics Institute. In 1980, he was named Director of the Irkutsk Computer Center. He has been a professor since 1970 holding a chair in applied mathematics at the Irkutsk State University. He is an Honored Scientist of the former Soviet Union. He received the State Laureate Prize in 1984. He holds other medals of merit.

Mel'nikov, (Melnikov) Pavel I., D. GM. S. Born in 1908. Corresponding member since 1968, and academician of the Oceanology, Atmospheric Physics, and Geography Department and of the Siberian Department since 1981. Geologist. Specialist in geochronology, engineering geology, and hydrogeology. He graduated from the Leningrad Mining Institute in 1935. From 1935 to 1956, he worked as a scientific researcher at the Permafrost Station in Siberia. In 1960, he was named Director of the Far Eastern Department's Permafrost Institute imeni V. A. Obruchev, that was established in 1956 to conduct glaciological and geocryological studies and expeditions. It is subordinate to the academy's Siberian Department. He served as its Director until 1988, when he received emeritus status. He has been a professor at the Yakutsk State University since 1963. He was a member of the branch office of the Oceanology, Atmospheric Physics and Geography Department of the AN SSSR

from 1971. He headed the Scientific Council on the Earth's Cryogenics from 1970. He is the recipient of numerous awards and medals.

Molin, Iurii N., D. Chem. S. Born in 1934. Specialist in chemical physics. Corresponding member since 1974, and academician of the General and Technical Chemistry Department of the Russian Academy of Sciences and of the Siberian Department since 1981. He graduated from the Moscow Physico-Technical Institute in 1957. He worked at the Chemical Physics Institute of the AN SSSR from 1957 to 1959. In 1959, he joined the staff of the Chemical Kinetics and Combustion Institute of the Siberian Department. In 1967, he headed a laboratory of that institute, and in 1971, he became its Director. The institute was organized in the 1960s to study chemical physics and electron and nuclear magnetic resonance. Since 1978, he has also acted as Head of the Fast Liquid Phase Reactions Laboratory of the Chemical Kinetics and Combustion Institute. He was named to the Presidium of the Siberian Branch in 1986. He has been a professor, holding the chair in chemical physics at the Novosibirsk University, since 1977. He was Head editor of The Journal of Structural Chemistry from 1977 to 1988. He is an Honored Scientist of the former Soviet Union. He received the Lenin Prize in 1986 and holds a number of other awards and medals.

Nakoriakov, Vladimir E., D. Tech. S. Born in 1935. Engineer. Specialist in the mechanics of heterological systems and solid state physics. Since 1981, he has been a corresponding member of the Problems of Machine Building and Control Processes Department of the Russian Academy of Sciences and an academician and Deputy Chairman of the Siberian Department since December 1989. He is author and co-author of 250 scientific works of which six are significant monographs and he is credited with eight inventions. He graduated from the Tomsk Polytechnical Institute in 1958 and from 1958 to 1964, he worked at the Transportation Energetics Institute. In 1965 he joined the staff of the Thermal Physics Institute. In 1974, he was named Head of the Two-Phase Laboratory of Thermal Physics Institute in Novosibirsk, becoming Deputy Director in 1986, and in 1988, the Director of that institute that was founded in 1959 to study heat transfer, thermal physics of ionized gases, and gas dynamics. He is responsible for experiments leading to the development of a theory which shows a greater velocity being achieved in filtration through heat exchange during condensation and a forced flow in various media. He has been a professor at the Novosibirsk University since 1976 and served as Prorector and rector of that university from 1983 to 1985. While serving at the university he guided the doctoral work of six students and the research of 40 aspirants for the candidate degree. He was named to the Siberian Department Presidium in 1983, becoming Deputy Chairman of the Siberian Department in 1985. He received the Government's Laureate Prize in 1983 and holds other medals and awards.

Nigmatulin, Robert I., D. PM. S. Born in 1940. Engineer. Corresponding member of the Machine Building, Mechanics, and Control Processes Department and of the Siberian Department since December 1987, and academician since 1990. He has written 40 scientific works of which four are significant monographs. He has 21 inventions and has co-authored another 130 scientific publications of which three are monographs. He graduated from the Moscow Technical Correspondence School imeni N. E. Bauman in 1963 and from the Moscow State University in 1965. He began working at the Bauman school. From 1963 to 1986, he worked at the Institute of Mechanics, as a junior and senior researcher, leader of a sector and Head of a laboratory. In 1986, he was named Deputy Director of the Problems of the North Institute in Tiumen. He was a professor at the Moscow State University from 1978 to 1986, and held a chair at the Tiumen State University from 1986. As a professor there he has guided the work of 10 doctoral students and 35 aspirants for the

candidate degree. He is on the national committee on theoretical and applied mechanics. He was an Honored Scientist of both the AN SSSR and of the GKNT.

Ovsiannikov, Lev V., D. PM. S. Born in 1919 in Gorkiy Oblast. Russian mathematician and engineer. Corresponding member of Problems of Machine Building, Mechanics and Control Processes Department of the AN SSSR from 1964, and academician of both Departments since December 1987. He graduated from Moscow State University in 1941 and the St. Petersburg Air Force Academy in 1945. In 1949, he began work at the Siberian Department of the AN SSSR. He joined the Hydrodynamics Institute in 1959, and he became assistant-Director of that institute 1970. He was appointed a professor at the University of Novosibirsk in 1963, holding the chair in hydrodynamics from 1966. He served as Dean of the Engineering Mathematics Faculty from 1967 to 1970. He joined the Presidium of the Siberian in 1976. From 1976 to 1989, he was Director of the M. A. Lavrentev Hydrodynamics Institute in Novosibirsk that researches the mechanics of fluids gases, and plasma. His work includes the theory of group properties of differential equations, transonic gas dynamics, and hydrodynamics of flows with free surfaces. He is on the national committee on theoretical and applied mechanics. He received the Lenin Prize in 1958, and the State Prize in 1987. (GSE 18, p. 612-3.)

Panin, Viktor E., D. PM. S. Born in 1930. Specialist in mechanics and solid state physics. Corresponding member since 1981, and academician since 1987--of the Machine Building and Control Processes Department. He graduated from the Tomsk State University in 1952. From 1955 to 1979, he was on the staff of the Siberian Physico-Technical Institute, heading the Department of the physics of metals of that institute from 1969 to 1979. In 1979, he joined the Department of solid state physics and materials and headed that Department from 1979 to 1980. He was named Deputy Director of the Atmospheric Optics Institute in 1981--that was established in 1969 and engages in research on spectroscopy, laser probing of the atmosphere and other electro-optical devices--and served in that capacity until 1984. In 1984, he became Director of the Physics of Strength of Materials Institute. He was named a Deputy Chairman of the Presidium of the Tomsk Scientific Center in 1983. He has been a professor at the Tomsk State University since 1970. He is an Honored Scientist of the AN SSSR and the GKNT of the Soviet Union. He is a member of the GKNT. He is also Chairman of the "special-purpose" program for powder metallurgy.

Pokrovskii, Nikolai N., D. Hist. S. Born in 1930. Historian. Specialist in research on the , source study, and the problems of feudalism. Corresponding member of the History Department and the Siberian Department since December 1987, and academician since 1992. He has authored and co-authored 150 scientific works of which six are major monographs. He graduated from Moscow State University in 1952. From 1964 to 1965, he worked as Head of a Department and Deputy Director of the Vladimir-. In 1966, he joined the staff of the History, Philology, and Philosophy Institute of the Siberian Department. In 1975, he headed the sector on the feudalism period, and on the archeography and source study of that institute. He has been a professor at the Novosibirsk State University since 1977, holding the chair in the history of the USSR. In that capacity he has guided the work of one doctoral student and 14 aspirants for the candidate degree. He is Chairman of the Archeography Commission of the AN SSSR (1970), and Head of the Siberian Department 's Archeography Commission. In 1991, he was named Deputy Director for scientific research for the History Institute of the Siberian Department of the RAS. He also serves on the board of two archaeological journals published by the Siberian Department.

Puzyrev, Nikolai N., D. GM. S. Born in 1914. Geophysicist. Specialist in seismology and of the seismic zones of the earth's crust. Corresponding member since 1966, and academician of the Geology, Geophysics, Geochemistry, and Mining Sciences

Department and of the Siberian Department since December 1984. He graduated from the Leningrad State University in 1941. He worked in the oil industry and in a geophysical organization in Kazakh, was a research worker at the Institute of Geophysical Methods. He joined the Geology and Geophysics Institute of the Siberian Department in 1959, heading a seismometry laboratory in the seismology Department. From 1966 to 1987, he was Deputy Director of the Geology and Geophysics Institute in Novosibirsk, that was begun in 1958 for the purpose of discovering and developing Siberia's mineral resources. Since 1969, he has also been Head of the Geophysics Division of that institute. In 1987, he was named Head of a laboratory on the problems of seismology. Since 1988, he has been Director of the Institute itself. He is a professor at the Novosibirsk State University. He received the O. Iurii Shmidt Prize in 1986, the State Prize in 1987, and holds a number of other recognitions and awards.

Reshetnev, Mikhail F., D. Tech. S. Born in 1924. Corresponding member since 1976, and academician since 1984. Engineer. Specialist in the mechanics of machine construction, especially in the engineering of the composition of computer materials and systems construction. He was instrumental in creating "Orbit" and "Ekran" of the Siberian Far East. He graduated from the Moscow Aviation Institute in 1950 and worked at an experimental construction design bureau. He is a member of the Department of the Problems of Machine Building, Mechanics and Control Processes Department. He was a delegate to the 25th and 27 congresses. He is an Honored Scientist of the former Soviet Union. He was awarded the Lenin Prize in 1980 and holds other awards and medals.

Reshetniak, Iurii G., D. PM. S. Born in 1929. Russian mathematician. Specialist in Differential Geometry. Corresponding member since 1981, and academician since December 1987--of the Mathematics Department of the Russian Academy of Sciences and of the Siberian Department. Since 1968, he has been a senior researcher and Head of the Geometry Department of the Mathematics Institute in Novosibirsk. He graduated from the Leningrad State University in 1961 and worked in the St. Petersburg Department of the Mathematics Institute imeni V. A. Steklov from 1954 to 1957. In 1957, he joined the Mathematics Institute in Siberia, becoming a Department Head (geometry) in 1960. He has been a professor at the Novosibirsk State University since 1962, holding the chair of mathematical analysis.

Riutov, Dmitrii D., D. PM. S. Born in 1940 in Moscow. Russian Physicist. Specialist in plasma and Theoretical Physics and in the physics of powerful rays from charged particles. Corresponding member of the General Physics and Astronomy Department and of the Siberian Department since 1976, and academician since 1992. He has authored or co-authored some 125 scientific works of which five are monographs. He has participated in the development of the theories of plasma phenomena, solid state electronics, ionic rays, and the physics of the development of thermonuclear power. He graduated from Moscow Physico-Technical Institute in 1962. He was a staff member of the Institute of Atomic Energy from 1962 to 1968 when he joined the Institute of Nuclear Physics of the Siberian Department of the AN SSSR. Since 1974, he has been Head of the Plasma Physics Laboratory of the Budker Nuclear Physics Institute at Akademgorodok-Novosibirsk, and he has served as the institute Deputy Director since 1981. In 1989, he was named the Head Scientific Secretary of the Budker Nuclear Physics Institute in Akademgorodok-Novosibirsk. Its scientists research controlled nuclear thermonuclear reactions, particularly magnetic confinement fusion, and accelerator technology. His works are in plasma physics, particle-beam heating of a plasma in open magnetic traps, high current electron beams, and thermal insulation of dense plasma. Since 1973, he has held the chair in plasma physics at the Novosibirsk State University. He is a member of the European Plasma Physics Society. He is on the editorial board of "Nuclear

Fusion,” “Plasma Physics and Controlled Fusion,” “Laser and Particle Beams,” and “Plasma Devices and Operation.” (GSE 30, p. 619.)

Rudenko, Iurii N., C. Tech. S. Born in 1931 in Donetsk Oblast. Engineer. Specialist in power engineering. Corresponding member since 1976, and academician since 1987. Following graduation from St. Petersburg Correspondence Industrial Institute in 1955, he held positions at the Orsk-Khalitovo Metallurgical Combine and later at the St. Petersburg Polytechnic Institute--until 1960. From 1960 to 1963, he was a group leader and the Head of the operational mode service of the Interconnected Dispatcher Control of the Siberian Integrated Power Grid. In 1963, he joined the faculty of the Siberian Power Engineering Institute of the Siberian Department of the AN SSSR, becoming its Director in 1973. Academician Secretary to the Physical Technical Problems of Power Engineering Department since 1988. He was on the national committee's working group on organizing a conference on the construction of large power engineering systems. In 1985 he served as Deputy Chairman of the Academy's Council on the problems of power engineering. He was a delegate to the 27th congress. He received the State Prize in 1986, and holds other orders and medals for his scientific contributions. (GSE 30, p. 621.)

Rzhanov, Anatolii V., D. PM. S. Born in 1925 in Ivanova. Russian physicist. Corresponding member of the General Physics and Astronomy Department of the national academy and of the Siberian Department since 1962, and an academician of the Information Science, Computer Technology, and Automation Department of the Russian Academy of Sciences and of the Siberian Department since 1984. He graduated from the St. Petersburg Polytechnic Institute in 1941. From 1944 to 1962, he worked at the Institute of Physics of the AN SSSR and since 1962, he has been Director of the Institute of Semiconductor Physics of the Siberian Department of the Russian Academy of Sciences. He joined the Presidium of the Siberian Department in 1976. The Institute of Semiconductor Physics was established in 1964 to research microelectronics with emphasis on the physics of semiconductors, lasers, non-linear optics, and the stability of semiconductor materials. He has taught at the University of Novosibirsk since 1963 becoming a professor there in 1966, holding the chair in semiconductor physics. His works are in the physics of dielectrics and semiconductors and in semiconductor electronics. He discovered and studied the piezoelectric effect in polarized barium titanate ceramics, and he produced and conducted research on samples of point-contact and fused germanium diodes and triodes. He chairs the commission on elements, and the committee's work on computer technology, and is on the specialist scientific committee for thin films and vacuums. He is Head editor of the journal Microelectronics. Recipient of the Laureate Prize of the Soviet Ministers in 1984. He holds a number of other awards and medals. (GSE 22, p. 528.)

Sakovich, Gennadii F., D. Chem. S. Born in 1931. Chemist. Specialist in general and technical chemistry. Corresponding member since 1981, and academician since 1992. He has authored 12 scientific works and co-authored 500 others of which five are monographs. He is also credited with 200 inventions. He graduated from the Tomsk State University in 1963 and from that date until 1966, he was an aspirant, and special assistant for the chair of inorganic chemistry of that university. Thereafter he worked at institutes and branches of the chemical profile that have the highest scientific ranking. He has been a professor since 1971. He has directed the work of three doctoral students and of 25 aspirants for the candidate degree. He is a leading member of the Academic and Natural Sciences Council. He is an Honored Scientist of the Soviet Union. He received the State Prize in 1970 and the Lenin prize in 1984. He also holds medals recognizing his work.

Salganik, Rudol'f I., D. Bio. S. Born in 1923. Biologist and molecular geneticist. Corresponding member since 1981, and academician since 1992. He has written or co-authored some 268 scientific works of which his monographs "Macromolecules in the Functioning Cell" (1978), "The Cell Nucleus" (1979) are well-known. He graduated from the Moscow State Medical Institute in 1944. Until 1957, he worked at the Kiev Medical Institute, and at the Nutrition Institute of the Ukraine Ministry of Health. In 1957, he joined the Cytology and Genetics Institute of the Siberian Department as Head of the Laboratory of Nucleonic Acids and, in 1961, he was named Deputy of the institute. From 1970 to 1975, he was the organizer Director of biologically active substances research. He has been a professor at the Novosibirsk State University since 1971, holding the chair in molecular genetics. In that capacity he has guided the work of 31 aspirants for the candidate degree. He is Chairman of the Novosibirsk Independent All-Union biochemical substances scientific circle. He is editor of the biochemistry series of the journal "Izvestia." He received the State Prize in 1979 and the Lenin Prize in 1990 and holds a number of other medals and recognitions for his accomplishments.

Sandakhchiev, Lev. S., D. Bio. S. Born in 1937. Biologist. Specialist in molecular biology and biotechnology. Corresponding member since 1981, and academician since 1992. He has authored and co-authored 103 scientific works. He graduated from the Moscow Chemico-Technological Institute imeni D. I. Mendeleev in 1959. From 1959 to 1974, he worked at the Novosibirsk Institute of Organic Chemistry, as a senior laboratory assistant, a junior researcher, a senior researcher, and Head of a laboratory. In 1974, he joined the All-Union Molecular Biology Institute of the Ministry of Medicine and Microbiology Industry of the SSSR, as a Department Head, and Deputy Director, becoming Director of that institute. In 1986, he became General Director of Scientific Production Organization "Vektor." He serves on the scientific council for the government's program on "Human Genomes", "New Methods of Bioengineering", and is member of the Council on the physico-chemical problems of biology and biotechnology. and of the priority authority group on "The Science of Life and Biotechnology." He received the State Prize in 1985.

Shokin, Iurii I., D. PM. S. Born in 1943. Mathematician. Specialist in computer and applied mathematics. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy of the AN SSSR from 1989; academician in 1992. He has authored 30 scientific works of which three are monographs and co-authored 120 publications of which three are significant monographs. He graduated from the Novosibirsk State University in 1966 and worked at the Computer Center of the Siberian Department from 1969 to 1975. From 1976 to 1983, he headed a laboratory of the Theoretical and Applied Mechanics Institute of the Siberian Department. In 1983, he was named Director of the Computer Center in Krasnoyarsk subordinate to the Siberian Department. Since 1983, he has been a professor at the Krasnoyarsk State University where he has held the chair of applied mathematics and mechanics and supervised the academic

research of 15 aspirants for the candidate degree. He is a commission member of the GKNT, and on the natural sciences committee for developing research methods into the dynamics of fluids, and a member of the working group of the natural sciences federation on information processes. In 1991, he was named the Director of the Computer Technology Institute of the Siberian Department of the RAS in Novosibirsk, and in 1992 he became Head Scientific Secretary for the Siberian Department of the RAS.

Shumnii, Vladimir K., D. Bio. S. Born in 1934. Biologist. Specialist in the field of experimental genetics. Corresponding member since 1979, and academician since 1992. He graduated from the Moscow State University in 1958 and joined the Institute of Cytology and Genetics of the Siberian Department upon graduation passing successively through positions as laboratory assistant, junior and senior researcher, and from 1970 to 1985, Deputy Director and in 1985, Director of that institute. He joined the Presidium of the Siberian Academy in 1980. He is Chairman of the Scientific Council on the Biological Sciences (1988). He has been on the national academy's Presidium since 1980. He has been a professor since 1979, holding the chair in cytology at the Novosibirsk State University. He is Chairman of the Siberian Department's V. I. Vavilov Genetics and Selection Society. The Altai International Center for Humanitarian and Biospheric Research, was established in 1991. The center will involve the collaboration of three major bodies: the United Institute of History, Philology and Philosophy in Akademgorodok-Novosibirsk, the Cytology and Genetics Institute in Akademgorodok-Novosibirsk, and the Gorno-Altai Republican Soviet in Gorno-Altai, Russia. As Director of the Institute of Cytology and Genetics of the Siberian Department located in Akademgorodok-Novosibirsk, Dr. Shumni will play a major role in the development of this international research institute.

Skrinskii, Aleksandr N., D. PM. S. Born in 1936 in Orenburg. Russian physicist. Corresponding member since 1968, and academician of the Nuclear Physics Department of the Russian Academy of Sciences and of the Siberian Department since 1970. He joined the Presidium of the Siberian Department in 1980. He graduated from Moscow State University in 1959. He joined the staff of the Institute of Nuclear Physics of the Siberian Department of the AN SSSR in 1959, becoming Deputy Director in 1972 and Director in 1977. He has been a professor at the University of Novosibirsk since 1969, holding the chair in nuclear physics. Since 1977, he has been Head of the Storage Rings Laboratory and Director of the Budker Nuclear Physics Institute in Novosibirsk that is subordinate to the academy's Siberian Department. The institute was created in 1957 and is the leading nuclear research facility in Siberia. It studies controlled thermonuclear reactions, particularly magnetic confinement fusion, and accelerator technology. The institute is located on the shores of Lake Ob in Akademgorodok that is 35 km south of Novosibirsk. There are 21 research institutes and the Novosibirsk University located in Akademgorodok. The institute employs approximately 3,000 scientific workers. His work includes high energy physics and physics and technology of charged-particle acceleration. In 1980, he was named to the Presidium of the Siberian Department of the Academy. Since 1988, he has served as Academician Secretary to the Nuclear Physics Department of the Russian Academy of Sciences. He developed, with others, a method of colliding beams. Lenin Prize, 1967. (GSE 23, p. 513.)

Sobolev, Nikolai V., D. GM. S. Born in 1935. Geologist. Specialist in Mineralogy and petrology. Corresponding member since 1981, and academician since 1992. He graduated from L'vovsk State University in 1958. He worked at the Mineralogical museum at the university. In 1960 he joined the Geology and Geophysics Institute of the Siberian Department, working as a junior and senior researchers and Head of the Laboratory of High Pressure Minerals (1973). In 1983, he became Deputy

Director of that institute. He has been a professor since 1985. He was Chairman the Scientific Council on the Natural Sciences for the Presidium of the Siberian Department for diamond deposits in 1983. He became Vice President of the Mineralogy Society in 1982 and a member of the Mineralogy Specialists Association in 1982. In 1986 he became a member of the American Geophysical Society. He received the Lenin Prize in 1976.

Surkov, Viktor S., D. GM. S. Born in 1926. Geologist. Geophysicist. Specialist in regional geology and geophysics. Corresponding member since 1979, and academician since December 1987--of the Geology, Geophysics and Chemistry Department of the Russian Academy of Sciences. He graduated from the Kazan State University imeni V. I. Ul'ianov-Lenin in 1950. From 1950 to 1962, he worked in the Sibero-physics Ministry of Geology of the USSR, and was the Head engineer on several scientific expeditions. In 1962, he joined the Siberian Scientific Research Institute of Geology, Geophysics and Mineral Raw Materials subordinate to the Geology Ministry of the SSSR, becoming Deputy Director in 1971, and Director in 1973. The institute researches petroleum and gas deposits in the Krasnoirsk region. It is under the Ministry of Geology. He became General Director of "Sibgeo" (NPO) in 1987. He is the scientific curator for the Geology Ministry of Russia for the regional geological and geophysical collections of Siberian and the Far East. He heads the section on regional geophysics of the national council for geophysical research. He holds several medals awarded for his scientific accomplishments.

Titov, Vladimir M., D. PM. S. Born in 1933. Specialist in the physics and the mechanics of impulses, and of their explosive processes. Corresponding member since 1979, and academician since 1992. He graduated from the Moscow Physico-Technical Institute in 1957. In 1960 he joined the Institute of Hydrodynamics of the Siberian Department. In 1974, he became Deputy Director, and in 1986 he was made Director of that institute. He is a professor, holding the chair in the physics of explosive processes at the Novosibirsk State University. He is on the nation Scientific Council on Theoretical and Applied Mechanics (1976) and Head editor of The Physics of Corrosion and Explosion--since 1981.

Trofimuk, Andrei A., D. GM. S. Born in 1911 in Brest Oblast. Russian petroleum geologist. Corresponding member, 1953, and since 1958, he has been an academician of the Geology, Geophysics, Geochemistry, and Mining Department of the National Academy and of the Siberian Department. He graduated from the University of Kazan' in 1933 and began work in the petroleum industry. In 1953, he became Deputy Director and in 1955, the Director of the All-Union Oil and Gas Scientific Research Institute. In 1957, he was made Director of the Geology and Geophysical Institute of the AN SSSR in Novosibirsk that was established in 1958 to conduct basic geological research in the discovery and development of the mineral wealth of Siberia. Since 1958, he has acted as Head of the Petroleum Geology Laboratory of the Geology and Geophysical Institute in Novosibirsk. In 1958, he was named to the Presidium of the Siberian Department. Since 1963, he has been on the Presidium of the National Academy. He has served as Deputy Chairman of the Siberian Department since 1965. In 1985, he became Chairman of the Scientific Council for the Siberia Program. In 1988, he was appointed advisor to the national academy's Presidium. His work is in prospecting and developing petroleum deposits. He took part in the discovery of the Volga-Urals Oil-Gas Region, and helped develop methods for exploiting those deposits. He was a Deputy to the 6th through the 8th convocations of the Supreme Soviet of the USSR State Prizes in 1946 and 1950. (GSE 26, p. 371.)

Voitsekhovskii, Bogdan V. Born in 1922 in Soroka, Virinitsa Oblast. Russian hydrodynamics specialist. Corresponding member of the Problems of Machine Building, Mechanics, and Control Processes Department of the Russian Academy of

Sciences and of the Siberian Department since 1964, and academician since 1990. He graduated from the Moscow Engineering Physics Institute in 1953. Since 1958, he has been Head of a division of the Hydrodynamics Institute of the Siberian Department of the Russian Academy of Sciences, and from 1965 to 1973, he served as its Deputy Director. In 1973 he was named Head of a laboratory at the Hydrodynamics Institute. The institute performs theoretical and experimental research in the mechanics of fluids, gases, and plasma. His works are in the detonation of gases, high-Head pulsed and continuous jets, pulse hydraulic drives and their uses in breaking rocks, percussion drilling, and metal-working. From 1963 to 1973, he was a professor holding the chair in explosive processes at the Novosibirsk State University. He has written 13 scientific works of which two are major monographs, co-authored another 72, and has 99 inventions to his credit. Lenin Prize, 1965. (GSE 5, p. 55.)

Vorob'ev, (Vorobev) Vladimir V., D. Geog. S. Born in 1929. Geographer. Specialist in the field of economic geography. Corresponding member since 1981, and academician since 1992. He graduated from the Moscow State University in 1952. From 1952 to 1955, he worked in the Eastern Branch of the AN SSSR. From 1955 to 1958, he was an aspirant there. In 1958 he began work at the Geography Institute of the Siberian Branch in the Far East as a junior and then a senior researcher, and eventually headed a sector of the institute. From 1967 to 1976, he was its Deputy Director and in 1977, he became Director of the institute. He has been a professor at the Irkutsk State University since 1977. He became editor of the journal *Geography and Natural Resources* in 1980. In 1981, he was named to Head the Scientific Council on the difficulties of the assimilation of the Taiga.

Voronkov, Mikhail G., D. Chem. S. Born in 1921 in Orel. Organic chemist. Corresponding member of the General and Technical Chemistry Department of the Russian Academy of Sciences and of the Siberian Department since 1970, and academician since 1989. He graduated from the University of Sverdlovsk in 1941. From 1944 to 1945 he worked at the Leningrad State University; from 1954 to 1961, at the Institute of Silicate Chemistry of the AN SSSR, and from 1961 to 1970, at the Institute of Organic Synthesis of the Latvian Academy of Sciences. Since 1970, he has been Director of the Organic Chemistry Institute at Irkutsk that was established in the 1950s to study polymer chemistry, synthetic fibers and silicon organic compounds. It is subordinate to the academy's Siberian Department. His work is in the areas of organosilicate compounds and organic sulphur compounds. From 1973 to 1983, he headed the Eastern Affiliate of the Siberian Department. He is General Director of "Chemistry." He is a professor at the Irkutsk Polytechnical Institute. He has guided the work of 16 doctorate students and 90 aspirants for the candidate degree. He heads the Scientific Council on the problems of "Chemistry and Technology of Organic Compounds." He has written 50 scientific works that included two significant monographs, and has co-authored another 1000 among which there are 20 major monographs. He is credited with some 400 inventions and holds 300 patents. He received an honorary doctorate from the Gdansk Polytechnical Institute in 1975. He received the State Prize in 1981. He was named an Honored Scientist in 1983, and holds several medals honoring his scientific accomplishments. (GSE 5, p. 600.)

Zamaraev, Kirill., C. PM. S. Born in 1939. Chemist. Specialist in the fields of Catalysis, Chemical Kinetics and Condensation Media, and Chemical Radiospectroscopy. Corresponding member since 1976, and academician of the Siberian Department since December 1987. He graduated from the Physico-Technical Institute in Moscow in 1963. From 1966 to 1977, he worked in the Chemical Physics Institute of the national academy as a senior researcher. In 1977, he joined the staff of the Catalysis Institute in Akademgorodok. In 1976, he was named a professor at the Novosibirsk State University in that city. Since 1986, he

has been Director of the Catalysis Institute in Novosibirsk. Since 1986, he has headed the government committee on Catalysis in Industrial Production. He was named to the Presidium of the Russian Academy of Sciences in 1988. He has been a member of GKNT (the State Committee for Science and Technology) since 1988. He is Head of the Scientific Council on Catalysis. He is President of the Physical Chemistry Society section on Theoretical and Applied chemistry. The institute was established in 1958 to study catalytic action and catalyst preparation, the mathematical simulation of chemical reactors, commercial and new catalysts. It is one of the largest such institutes in the world. Although established as early as 1971 as the Coordination Center for Development of New Industrial Catalysts and the Improvement of Catalysts used in Industry, the center has evolved over the years into an International Center for Catalysts Characterization and Testing as an integral part of the Institute itself. As Director of that institute, Dr. Zamarayev will continue to play an important role in its continued development as an international research center.

Zhukov, Mikhail F., D. PM. S. Born in 1917 in an Ore Oblast village. Russian scientist in aerodynamics and low temperature plasma. Corresponding member of the Physical Technical Problems of Power Engineering of the Russian Academy of Sciences and of the Siberian Department since 1968, and academician since 1992. He has produced 200 scientific works that include five textbooks and eight major monographs among which are “The Applied Dynamics of Thermochemical Plasma” (1975) and “The Thermochemical Cathode” (1985) and “The High Temperature Flow of Firing During the Processes of Machining Powdery Materials” (1990). He graduated from the Department of Mathematics and Mechanics of Moscow State University in 1941. From 1941 to 1946, he worked at the N. E. Zhukovskii Central Aerodynamic and Hydrodynamic Institute and from 1946 to 1959, at the Main Institute of Aviation Engine Construction. In 1959, he became Deputy Director of the Institute of Theoretical and Applied Mechanics of the AN SSSR, and in 1970, he became Deputy Director of the Institute of Thermal Physics of the Siberian Department of the Russian Academy of Sciences located in Novosibirsk and in 1988 he became Director of that institute that had been created in 1959 to study heat transfer, the physics of hydrodynamics and gas dynamics, and thermal physics of ionized gases. From 1976 to 1980, he served as Head Scientific Secretary for the AN SSSR and was on its Presidium. From 1960 to 1965 he was a professor at the Novosibirsk State University and from 1977 to 1988 he taught at the Novosibirsk Electro-Technical Institute where he guided the work of eight doctoral candidates and 40 aspirants for the candidate degree. He chairs the Scientific Council on New Materials for Technology. He received the State Prize in 1982, and holds several other medals for his scientific engineering contributions. (GSE 9, p. 648.)

Zuev, Vladimir E., D. PM. S. Born in 1927 in Malye Goly, Kachug Raion, Irkutsk Oblast. Russian physicist. Specialist in the fields of the dispersion of electromagnetic and optical wave bands in the atmosphere. He has been a corresponding member, 1970, and an academician since 1989--of the Oceanology, Atmospheric Physics, and Geography Department. He was originally elected to the General Physics and Astronomy Department. He joined the Presidium of the Siberian Department in 1971. Since 1979, he has been Chairman of the Presidium of the Tomsk Scientific Center, and he is Chairman of the Council for Research Coordination of the Tomsk Oblast Committee. He has authored 69 scientific works of which nine are monographs of importance; co-authored 238 works of which ten are significant monographs and eight are discoveries. He graduated from the University of Tomsk in 1951 and immediately began teaching there. From 1955 to 1969, he worked in the Siberian Physico-Technical Institute, becoming a professor in 1964. Since 1969, he has been Director of the Atmospheric Optics Institute in Tomsk and a member of the Siberian Department Presidium. The Atmospheric

Optics Institute was established in 1969 to study spectroscopy, the laser probing of the atmosphere, lasers, and other electro-optical devices. His main work is in atmospheric optics and physics. He has guided the academic work of 23 doctoral candidates and 67 aspirants for the candidate degree. He was a Deputy to the 8th Convocation of the Supreme Soviet of the USSR. He received a State Prize for his scientific work in 1985. He is the recipient of a number of other awards and medals. (GSE 9, p. 696.)

Corresponding Members

Bogdanov, Sergei V., D. PM. S. Born in 1921. Physicist. Specialist in acousto-electronics and acousto-optics. He graduated from Moscow Engineering Institute in 1947, and began working at the P. N. Lebedev Physics Institute of the national academy. In 1963, headed a laboratory at the Semiconductor Physics Institute of the Siberian Department of the national academy. He was a professor at Novosibirsk State University from 1973. He served as the coordinator for research in acousto-electronics and acousto-optics for the national academy from 1971 to 1975. He is an Honored Scientist of the former Soviet Union.

Boyko, Vladimir I., D. Econ. S. Born in 1926. Corresponding member of the Philosophy and Law Department of the Academy since 1987. Sociologist. Specialist in research on the sociological processes of the Far North, Siberia and the Far East, and studies of the effectiveness of socialist development in those areas. He graduated from the Novosibirsk Institute Water Transportation Engineering in 1949 and from the Academy of Social sciences in 1965. He worked at the Ministry of Transportation. From 1953 to 1962, he was a Communist Party Worker. In 1965, he joined the History, Philology and Philosophy Institute of the Siberian Department where he served as a senior researcher, Scientific Secretary, Head of the division, and Head of the Department of Philosophy and Sociology. In 1984, he was named Head of the entire institute. He has been a professor at the Novosibirsk Party School. He is Chairman of the regional interdepartmental commission on the coordination of the social-economic complex--medical-biological and linguistic research--and Head of the Council on the Siberian Department's Sociology Association. He is an Honored Scientist of the former Soviet Union. He is an Honored Scientist of the former RSFSR. (LDA 89-11378.)

Bugaev, Sergei P., C. Tech. S. Born in 1936. He has been a corresponding member of the Siberian Department and of the General Physics and Astronomy Department of the Academy since 1992. Specialist in electronics and electrophysics. He has authored and co-authored some 130 publications of which three monographs on electronics are well-known. He is also credited with nine discoveries or inventions. He graduated from the Tomsk Polytechnical Institute imeni S. M. Kirov in 1959. He worked at the Nuclear Physics Institute of the Tomsk Polytechnical University from 1966 to 1973, and headed a laboratory in atmospheric optics of the Physical Electronics Institute from 1973 to 1978. Since 1977, he has been the Head of the Electron Beams Laboratory of the Heavy-Current Electronics Institute in Tomsk and since 1986, he served as its Director. Institute scientists study the emission and formation of the intense fluxes of charged particles, the generation of heavy-current high voltage pulses and their influence on the condensed media, the study of the gas-discharge plasma, and technologic applications of heavy-current electronics. The institute does research on thermonuclear and accelerator physics and laser technology. The institute was created in 1977 to research thermonuclear and accelerator physics and laser technology. He has been a professor since 1984 holding a chair in the Tomsk Institute on automation of management systems in radio electronics, where he has guided the work of one doctoral student and six aspirants for the candidate degree. He is on the Scientific Council on Electronic Physics. He received a State Prize in 1986, and holds other medals for his scientific work.

Buyanov, Roman A., D. Chem. S. Born in 1927. Inorganic Chemist. Specialist in the problems of chemical technology, physical chemistry and catalysis. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1981. He graduated from the Moscow Chemical Technology Institute imeni D. I. Mendeleev in 1960. He began work at the Institute for Nuclear Research in Dubna. In 1961, he joined the Catalysis Institute in Akademgorodok, as the Deputy Director and Head of a dehydration laboratory. He became a professor in 1976. He served as Head of the coordination center of the nation-wide Council of the USSR on problems of the introduction of new industrial catalysts and the study of catalysis--its introduction and development. In 1988 he joined the editorial board of the chemical series journal "Izvestia of the Siberian Branch of Academy of Sciences of the USSR." Recipient of the Lenin Prize in 1960. He is an Honored Scientist of the former Soviet Union.

Didenko, Andrei N., D. Tech. S. Born in 1932. Specialist in Accelerator and Physics Electronics. Corresponding member of the General Physics and Astronomy Department of the Academy since 1984. He graduated from the Tomsk State University in 1955 and began working at the Tomsk Polytechnic Institute imeni C. M. Kirov in 1970 where he was designated a professor. He was given the chair in electron physics in 1977. From 1968 to 1987, he was the Director of the Scientific Research Institute of Nuclear Physics, and in 1988 he became Chairman of the Scientific Council on Electronics and Automation. He was a member of the Presidium's Commission on Atomic Energy and was designated an Honored Scientist of the Soviet Union. He was Deputy Chairman of a Scientific Council under the purview of the GKNT dealing with the processing of construction materials.

Dikanskii, Nikolai S., D. PM. S. Born in 1941. Physicist. Specialist in accelerator physics. Corresponding member of the Siberian Department and of the General Physics and Astronomy Department of the Academy in 1990. Since 1973, he has been one of the Deputy Directors of the Budker Nuclear Physics Institute in Akademgorodok-Novosibirsk, which was established in 1957 to conduct research on thermonuclear reactions, particularly on magnetic confinement fusion, and accelerator technology. This is the leading nuclear research facility in Siberia. He is author of 80 scientific publications and teaches nuclear physics at the Novosibirsk State University in Akademgorodok.

Dimov, Gennadii I., D. PM. S. Born in 1927. Physicist. Specialist in experimental physics. Corresponding member of the General Physics and Astronomy Department of the Academy since 1981. He graduated from the Tomsk Polytechnical Institute imeni S. M. Kirov in 1951 and began work at the Nuclear Physics, Electronics, and Automation Institute of the Tomsk Polytechnical Institute (1951-1960.) In 1961, he was made Head of a laboratory of the Budker Nuclear Physics Institute of the Siberian Department in Akademgorodok. He has been a professor holding the chair in General Physics at the Novosibirsk State University since 1970. He holds a medal in recognition of his scientific work.

Gold'in, (Goldin) Sergei V., D. PM, S. Born in 1936. Physicist, Head of a laboratory of the Geology and Geophysics Institute of the Siberian Department. Corresponding member Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1991. He is a specialist in theoretical geophysics and in the processing of geophysical data. Since 1975, he has headed the Mathematical Methods Laboratory of the Geophysics Division of the Geology and Geophysics Institute in Novosibirsk which was established in 1958 to discover and develop Siberian mineral resources. He has authored 100--19 from 1986 to 1991--scientific works of which two are important monographs. He introduced the analytical method for developing the algorithm for the extension of polar seismic waves and from this environmental visualization constructed the parameters for high

speed modeling. Under his leadership the cinematic interpretation procedures for measuring heterogeneous features of the environment from space was developed. He also led in the development of the theory of the spreading or dissemination of seismic waves. He is a professor at the Novosibirsk State University where he has guided the work of three aspirants for the candidate degree. His work has also produced methods for determining the existence of oil and gas reserves in Siberia.

Goriushkin, Leonid M., D. Hist. S. Born in 1927. Historian. Specialist in the Regional History of Russia and of the Soviet Period. He has been a corresponding member of the History Department of the Russian Academy of Sciences since 1990. He has written or co-authored 300 pieces of which 14 are book-length monographs. He is a professor at the Novosibirsk State University where he has guided the work of two doctoral students and supervised the work of 28 aspirants for the candidate degree. In 1986, he became Head of a Department of the Institute of History, Philology and Philosophy of the Siberian Department. He is on the editorial board of the historical series of the journal "Sibirsk" published in the USA. He serves as Head of the historical commission to celebrate the 100th year of the founding of Novosibirsk and is Deputy Chairman of the Soviet House of Scientists in Akademgorodok.

Grachev, Mikhail A., D. Biochem. S. Born in 1939. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds of the Academy since 1987. Biochemist. Specialist in bioorganic chemical fermentation and analytical chemistry. He graduated from the Moscow State University in 1961 and began working at the Natural Compounds Institute of the AN SSSR. From 1965 to 1984, he headed a laboratory of the Novosibirsk Institute of Organic Chemistry, heading also a Laboratory in Ultra-micro biochemistry at the Novosibirsk Institute of Bioorganic Chemistry from 1984 to 1987. In 1987, he became Director of the Limnological Institute of the Russian Academy of Sciences located in Irkutsk. He has authored and co-authored some 111 scientific works of which three are major monographs. He has supervised the work of ten aspirants for the candidate degree. He is on the Scientific Council on Analytical Chemistry. He received a State Prize in 1985. In December 1990, the Baikal International Center for Ecological Research was established under Grachev's direction at ceremonies attended by representatives from nine countries. He was made the Executive Director of BICER that is located at the Limnological Institute in Irkutsk, Russia.

Gritsko, Gennadii M., D. Tech. S. Born in 1930. Engineer. Specialist in research into pressures of pits in coal mines. Corresponding member since 1990. He is Director of the Coal Institute in Kemerovo. He is author of 20 scientific works and co-author of 121, of which eight were important monographs. He introduced the method for predicting pressures in coal mine pits and developed the technology to implement the method. He teaches at the Kuzbass Polytechnic Institute where he has guided the work of two doctoral and 42 aspirants for the candidate degree. He was on the Scientific Council on physical Technical Problems in the exploitation of useful minerals of the Geology, Geochemistry and Mining Sciences Department of the AN SSSR; on the Scientific-Technical Council a government ministry; on the Council on the mechanical and mathematical I, energetics and earth sciences of the Siberian Department of the academy. He is on the specialists' supervisory panel for dissertation defense and Chairman of the doctorate granting body of the Institute of Coal. He is editor of a scientific journal and Director of the Kemerovo Scientific Center of the Siberian Department. Under Dr. Gritsko's leadership, an International Center for Coal research is being organized in Kemerovo under the Kemerovo Scientific Center.

Ivanova, Ludmila N., D. Med. S. Born in 1929. Endocrinologist. Corresponding member of the Siberian Department and of the Academy since 1991. Head of the Laboratory of Physiological Genetics of the Institute of Cytology and Genetics of

the Siberian Department. She graduated from the Novosibirsk State Medical Institute in 1953. She began work at the institute in 1971, received her medical degree in 1973 and was named a professor in 1976. She has written some 136 scientific works and has supervised the dissertations of 12 aspirants for the candidate degree. She is on several important scientific councils.

Kabanov, Mikhail V., D. PM. S. Born in 1937. Physicist. Specialist in the field of atmospheric physics. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the AN SSSR from 1987. He graduated from the Tomsk State University in 1959, and began work as a researcher, was Head of a laboratory of the Siberian Physico-Technical Institute from 1961 to 1975, and Head of a laboratory and Deputy Director of the Atmospheric Optics Institute in Tomsk from 1975 to 1984. In 1984, he was made Director of the Siberian Physico-Technical Institute. He has been a professor at the Tomsk State University since 1981. Chairman of the Interdepartmental Commission on Radiation of the Geophysical Committee of the Presidium of the Russian Academy of Sciences. (Also see: LDA 89-11378.)

Kanygin, Aleksandr V., C. GM. S. Born in 1936. Micropaleontologist. Head of the Laboratory of Micropaleontology of the Institute of Geology and Geophysics of the Siberian Branch of the RAS. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Siberian Department since 1991. He graduated from Moscow State University in 1960 and went to work at the Geology and Geophysics Institute in 1962, where he was awarded the candidate degree in the geological sciences in 1965. In 1972, he became a senior researcher at that institute. His research included the biostratigraphy and paleobiogeography of the Asiatic portions of Russia. He is author and co-author of 60 scientific works including some statistical series--five of them with collectives--and he has edited about 12 monographs. He was on the Micropaleontology Commission of the Soviet Union, and Deputy Chairman of the Siberian Micropaleontology Commission of Siberia. He sat on the Scientific Council on doctoral dissertations, was on the Problems Council for the Department of General Biology for the AN SSSR. He was on the Coordination Council for the Sibir Program. He has been on the Presidium of both the Siberian Department and of the Russian Academy of Sciences.

Khol'kin, (Kholkin) Anatolii I., D. Chem. S. Born in 1937. Inorganic chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department and of the Siberian Department of the Academy since December 1987. He graduated from the Leningrad Polytechnic Institute in 1960. From 1962 to 1980, he researched in the Inorganic Chemistry Institute of the Siberian Department of the academy, moving from an aspirant, a junior and senior researcher. In 1980, he joined the Chemistry and Chemical Technology Institute of the Siberian Department, as its Deputy Director and in 1981, he became Director of that institute. Since 1982, he has been a professor at the Krasnoyarsk State University, holding the chair of inorganic and organic chemistry. He is a leading member of the of the Scientific Coordinating Council. He received the State Laureate Prize in 1986.

Konovvalov, Anatolii N., D. PM. S. Born in 1936. Mathematician. He is a specialist in mathematical modeling and computer experimentation. Corresponding member of the Mathematics Department of the Academy and of the Siberian Department in 1993. He heads the Laboratory of Numerical Decision-Making in Problems of the Theory of Elasticity, a laboratory of the computer center of the Siberian Department of the RAS. He has written 41 scientific works of which five are monographs. He is also credited with 34 inventions. He is a professor at the Novosibirsk State University in Akademgorodok where he has guided the academic work of 18 aspirants for the candidate degree. He was on the Scientific Council on the complex problems of mathematical modeling of the AN SSSR. He is also a member of the

Siberian Department's Scientific Council on mathematics and informatics and he is an honored consultant-specialist of the council. He received the State Prize in 1988.

Kotov, Vadim E., D. PM. S. Born in 1938. Mathematician/physicist. Specialist in Informatics and Computer Technology. Corresponding member of the Information Science, Computer Technology and Automation Department of the Academy and of the Siberian Department since 1990. He is the Director of the Institute for Informatics Systems of the Siberian Department in Novosibirsk. He is the author of 39 scientific works, and co-author of 67 of which two were monographs. Among his own books three are important: "Vvedenie v teoriu skhem programm" (1978)--"Introduction to Programming", "Seti Petri" (1984), and "Teoriia skhem programm"--"The Theory of Programming." (1984). He is a professor at Novosibirsk State University where he has guided the academic work of one doctoral and 20 aspirants for the candidate degree. He headed a working group on the theory of programming of the Department of Information Computer Technology, and Automation of the Academy.

Krugliakov, Eduard P., D. PM. S. Born in 1934. Russian physicist. Specialist in Plasma Physics and in the research problems associated with Thermonuclear Synthesis. Corresponding member of the General Physics and Astronomy Department of the Russian Academy of Sciences and of the Siberian Department since December 1987. He graduated from the Moscow Physico-Technical Institute in 1958. He began work in 1958 at the Budker Nuclear Physics Institute of the Siberian Department, and in 1976 he has headed the Plasma Physics Laboratory of the Budker Nuclear Physics Institute in Novosibirsk and has been Head of "Krugliakov's Department." The institute is the leading nuclear research facility in Siberia. He was one of the principal organizers of the physics and mathematics "school" at the University of Novosibirsk--for which students are carefully screened, tested, and selected from across all of the former Soviet Union for entrance. He is on the Scientific Council on Plasma Physics of the national academy, and a permanent member of the national standing commission on atomic energy of the national government. He received the State Prize in 1986.

Krylov, Sergei V., D. Geog. S. Born in 1931. Russian geographer. Specialist in geophysics, and in seismic methods of research on the earth's crust and the earth's mantle. Corresponding member of the Geology, Geophysics, Geochemistry and Mining Department and of the Siberian Department since December 1987. He graduated from the Leningrad Mining Institute in 1955 and began working at a geological prospecting organization. He joined the Geology and Geophysics Institute of the Siberian Department in 1961 and served in turn as a junior and senior researcher, and Head of the Laboratory of Deep Seismic Research. In 1987 he was named Head of the Department of Geophysics and shortly thereafter, Director of the institute itself. He has been a professor at the Novosibirsk University since 1979.

Krymskii, Germogen F., D. PM. S. Born in 1937. Physicist. Specialist in nuclear physics and the physics of cosmic rays. Corresponding member of the General Physics and Astronomy Department of the RAS since 1992. He has authored or co-authored 207 scientific works of which three are major monographs. He graduated from the Yakutsk State University in 1959. From 1959, he worked at the Laboratory for Cosmic Rays, of the Space Physics Research and Aeronomy Institute in Yakutsk as a laboratory assistant, a laboratory technician, a junior and senior researcher, and Head of a sector of the theoretical Department, and in May of 1988, he was named Director of the Space Physics Research and Aeronomy Institute in Irkutsk that had been established in 1962 and is a center for the study of cosmic rays. He became a member of the Siberian Department's Presidium in 1988. He is an Honored Scientist of the Soviet Union. He was named Chairman of the Yakutsk Scientific Center in April 1989. In 1990, the Siberian Department of the Russian Academy of Sciences established the Siberian Center of Solar-Terrestrial Physics in Siberia--a new

international research center that combined the work of scientists in two major institutes: the Terrestrial Magnetism, Ionosphere and Radio Wave Propagation Institute in Irkutsk and the Institute of Cosmophysical Research and Aeronomy in Yakutsk in the establishment of this new international thrust. As Director of the Siberian Institute of Cosmophysical Research and Aeronomy located in Yakutsk, Dr. Krimskii will play a major role in the development of this new scientific international research effort.

Kuleshov, Valerii V., D. Econ. S. Born in 1942. Economist. Specialist in forecast planning for multibranch complexes, the methodology and methods of economic-mathematical modeling for industrial development in the national economy and of the problems of the utilization of natural resources in Siberia. Corresponding member of the Economics Department and of the Siberian Department since 1987. He graduated from the Moscow Institute of the National Economy in 1965. From 1965 to 1966, he worked in the laboratory of economic and mathematical research of the Novosibirsk State University. In 1966, he joined the staff of the Economics and Organization of Industrial Production Institute of the Siberian Department. He was an aspirant, a junior and senior researcher, and Head of a sector, and of a Department on planning multibranch complexes. In 1986, he was named Director of that Institute. He has been a professor at Novosibirsk State University since 1985, holding the chair in planning and forecasting of the national economy. He edited the journal "Izvestia of the Siberian Department of the AN SSSR.--the series on economic and applied sociology."

Kuz'min, (Kuzmin) Mikhail I., D. GM. S. Born in 1938. Geochemist. Director of the Geochemistry Institute imeni A. V. Vinogradov. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy and of the Siberian Department since 1990. He is the author of 11 scientific works of which one is a monograph of importance. He has co-authored 140 pieces of which eight are lengthy monographs of which two bear mentioning: "New Global Tectonics, Magmatism and Metallogeny" (1976) and "The Tectonics of the Lithosphere's Plate in the Territory of the Soviet Union" (1990.) In his research he has conducted comparative studies of the geochemistry of magmatic ocean rocks. He has headed expeditions for collecting samples for study from the Atlantic, Indian, and Pacific Oceans. He is a member of a working group on "Paleoreconstruction." He is also on the Russian Committee on the "Lithosphere" program and the program on "Geodynamics," and others.

Larionov, Vladimir P., D. Tech. S. Born in 1938. Engineer. Specialist in machine building and construction. Corresponding Member of the Academy and of the Siberian Department in 1993. Since 1962, he has directed the work of the Physical Technical Problems of the North Institute in Yakutsk. He is a professor, recipient of the Prize of the Council of Ministers of the Soviet Union, Deputy Head for science of the Yakutsk ASSR, and was a Peoples' Deputy of the Soviet Union. He is author of 12 scientific works of which the monograph "Electrospark Welding Construction" stands out. He has co-authored another 169 publications. He is Deputy Chairman of a Scientific Council of the GKNT on machines and materials and the exploitation and introduction of foreign practices into production as well as on the Russian Academy of Sciences national committee on welding, a member of the Supreme Soviet for science. In 1991, a new International research Center for Northern Territories Development in Siberia was established that links together the work of scientists of three Siberian Department Institutes: the Institute of Cryosphere of Earth in Tiumen, the Institute of Physico-Engineering Problems of the North in Yakutsk, and the Institute of Philology in Akademgorodok-Novosibirsk. As Director of the Institute of Physico-Engineering Problems of the North in Yakutsk, Dr. Larionov will play a major role in the development of this new international research institute.

Leonov, Sergei B., D. Tech. S. Born in 1931. Mining Engineer. Corresponding member of the Academy and of the Siberian Department in 1993. He joined the Irkutsk Mining-Metallurgical Institute in 1955, obtaining his candidate degree in 1959 and his doctorate in 1979. Corresponding member since 1991. He is Rector of the Irkutsk Polytechnical Institute. He has published 552 scientific works of which eight were monographs. His fundamental research has dealt with the theoretical aspects of the synthesis and utilization of new effective reagents for changing the superficial qualities of minerals using the flotation of sulphides and other ore oxides under the application of high energy. He is one of the Head designers of a flotation pneumatic high pressure water or geyser machine for achieving these purposes safely and in an ecologically sound technological manner. As a professor he has guided the research of four doctoral students and the work of 50 aspirants for the candidate degree.

Mel'nikov, (Melnikov) Vladimir P., D GM. S. Born in 1940. Geologist. Specialist in geocriology, geophysical methods of researching the earth's crust. Corresponding member of the Oceanography, Atmospheric Physics and Geography Department and of the Siberian Department since December 1987. He graduated from Moscow Geological Prospecting Institute imeni Sergei Ordzhonikidze in 1962. He worked at there as an engineering student, a participant in geological expeditions, a junior and senior researcher. From 1970 to 1984, he worked at the Permafrost Institute in Yakutsk where he was a senior researcher and headed (from 1984 to 1985) the Department of engineering, geocriology and Deputy Director of the Geology and Geophysics Institute of the Siberian Department. In 1985 he was named Director of Problems of the North Institute in Tiumen--now called the Cryosphere of Earth Institute. He heads the national committee on permafrost, and is a leading member of the Science Coordination Council of the Soviet Union. In 1991, a new International research Center for Northern Territories Development in Siberia was established that links together the work of scientists of three Siberian Department Institutes: the Institute of Cryosphere of Earth in Tiumen, the Institute of Physico-Engineering Problems of the North in Yakutsk, and the Institute of Philology in Akademgorodok-Novosibirsk. As Director of the Institute of Cryosphere Earth, Mel'nikov will collaborate with the Directors of the other two institutes in the development of this new international research center.

Merenkov, Anatolii P., D. PM. S. Born in 1936. Mathematician. Specialist in mathematical modeling, optimization and systems research in energetics. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy and of the Siberian Department since 1990. He is the Director of the Siberian Energetics Institute of the Siberian Department of the RAS located in Irkutsk. He is the author of 10 scientific works of which one is a major monograph on linear programming methodology. He has co-authored another 80 works of which six were monographic in nature. He has advanced the theory and method for estimating and optimizing the synthesis of the hydraulic chain. His work is in the direction of the decisive development or evolution of a synthesis of scientific-technical disciplines of a universal mathematical and automated system of research, planning, and remote control, for the functioning of heat, water, oil and gas supplies and other hydraulic systems. He is a leader in the development of mathematical modeling that has had practical applications in the economy. As a professor at the Irkutsk State University he has guided the work of 112 aspirants for the candidate degree. He is on the scientific Council of the RAS on complex problems of energetics, on the scientific councils for mathematics, informatics, and for the mechanics, energetics and mining sciences of the Siberian Department of the RAS. He is on the review board for the doctorate of science degree for the Siberian Energetics Institute and for the Irkutsk Computer Center and is on the Presidium of the Irkutsk Scientific Center.

Meshkov, Igor' N., D. PM. S. Born in 1936. Distinguished research fellow of the Budker Nuclear Physics Institute in Akademgorodok-Novosibirsk. Physicist. Specialist in the field of the physics of charged particles and accelerator techniques. Corresponding member the General Physics and Astronomy Department and the Siberian Department of the Academy since 1991. He has authored more than 60 scientific works and collaborated in the production of ten others. He has been very active in scientific conferences. He has written one major monograph. His research has concentrated on the physical processes of electron acceleration and the development of methods of cooling heavy particles of electrons. He has studied electron optics. He has pioneered in nuclear atomic physics and in a better understanding of elementary particles. He is on the dissertation committee of the Institute of Nuclear Physics. As a professor he has supervised the dissertations of three candidate-degree students. He holds the chair of General Physics at the Novosibirsk State University in Akademgorodok-Novosibirsk.

Mironov, Valerii L., D. Pm. S. Born in 1938. Atmospheric physicist. He is a specialist in the field of widespread electromagnetic waves in a heterogeneous environment. Corresponding member of the Academy and of the Siberian Department since 1991. He is author and co-author of 126 scientific works of which 9 were discoveries and six were extensive monographs--including major works on the characteristics of radio waves. He graduated from the Tomsk State University in 1961 and from 1961 to 1970, he was an aspirant and a senior researcher at that university. From 1970 to 1980 and from 1982 to 1986 he was a senior researchers, head of a laboratory, and Deputy Director of the Institute of Atmospheric Optics of the Siberian Department of the AN SSSR. He was named a professor in 1981 at the Tomsk State University, and from 1986 to 1990, he was a professor, and held a chair while serving as rector of the Altai State University. During this period he also collaborated with the Institute of Water and Ecological Problems of the Siberian Department. He has been a member of the Scientific Council on the problems on environmental surroundings of the Russian Academy of Sciences Presidium. From 1986 to 1990, he organized research on monitoring the environment and developed the collaborative effort between the Institute of Water and Ecological Problems and the Altai University scientists. As a professor, he has guided the work of one doctoral candidate and supervised the work of 12 aspirants for the candidate degree. He has lectured in electrodynamics, molecular physics, statistical methods in radio physics, and similar fields.

Mikhailov, Gennadii A., D. PM. S. Born in 1934. Mathematician. Specialist in methods of statistical modeling, computer mathematics and mathematical systems. Corresponding member of the Siberian Department and of the Academy(1984) and the Mathematics Department of the Academy and of the Siberian Department since 1990. He graduated from the Leningrad State University in 1956. He worked on business development. In 1965 he joined the Computer Center of the Siberian Department in Akademgorodok where he successively worked as a senior researcher, Head of the Monte Carlo Laboratory (1966), and Head of the Department of statistical modeling in physics in 1986. He has been a professor since 1974 , holding the chair in computer mathematics at the Novosibirsk State University. He has guided the work of four doctoral students and 21 aspirants for the candidate degree. He received the Lenin Prize in 1962, and the State Prize in 1979.

Molodin, Viacheslav I., D. Hist. S. Born in 1948. Historian and Archaeologist. Specialist in the archeology and in the prehistoric and ancient history of Siberia. Corresponding member of the History Department and of the Siberian Department since December 1987. He graduated for the Novosibirsk State University in 1971 and was Deputy Director of its middle school. In 1973, he joined the History, Philology and Philosophy Institute of the Siberian Department, and in 1983, he was

Head of the sector of that institute studying the archaeology of the bronze and ages. He has been a professor, holding the chair of history at the Novosibirsk State University since 1985. (LDA-11378.)

Monakhov, Valentin I., D. PM. S. Born in 1932. Mathematician. Specialist in differential equations and in their application to the mechanics of continuous media. Corresponding member of the Mathematics Department of the Academy and of the Siberian Department since 1991. As a result of his fundamental research, he has produced 70 scientific works of which five are extensive monographs. He is Head of a laboratory in the Institute of Hydrodynamics of the Siberian Department in Akademgorodok. He has developed mathematical algorithms for application in studies in mechanics. He has done work on finite numbers, on approximation theory, on methods of developing linear graphics, and on mathematical modeling applications to hydrodynamics. He holds the chair in theoretical mechanics at the Novosibirsk State University where he has guided the work of 20 aspirants for the candidate degree and three doctoral students.

Neizvestnii, I. G., D. PM. S. Born in 1931. Physicist. Specialist in semiconductor physics. Corresponding member of the General Physics and Astronomy Department of the Academy and of the Siberian Department since 1990. Deputy Director of the Semiconductor Physics Institute in Novosibirsk. Co-author of some 92 scientific works, of which "The Characteristic Structure of Metal-dielectric Semiconductors (transistors)" published in 1976 was most significant. He has taught in the Novosibirsk Electro-Technical Institute guiding the work of three doctoral candidates and 10 aspirants for the candidate degree. He is on the Scientific Council on the physics, chemistry and mechanics of Surface Tension and for problems of the physics and chemistry of semiconductors.

Nesterov, Ivan I., D. GM. S. Born in 1932 in Paratkul, Dalmatovo Raion, Kurgan Oblast. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Siberian Department since 1976--reconfirmed in 1992. He joined the Presidium of the Siberian Department in 1980. He has authored and co-authored some 400 scientific works, of which 30 are monographs. He graduated from the Sverdlovsk Mining Institute in 1954. From 1957 to 1961, he worked at the Siberian Scientific Research Institute Geology, Geophysics and Mineralogy as a senior geologist, a senior researcher, and leader of a sector of the Tiumen branch of the Siberian Department. In 1964, he joined the Western Siberian Geological Oil Exploration Scientific Research Institute of the Ministry of Geology of the Ministry of Geology of the RSFSR located in Tiumen. In 1971, he became Director that institute. His studies of the geology of western Siberian are of scientific significance. He has developed theoretical principles for predicting the presence of oil and gas in large regions and local areas. He is a professor, holding the chairs at the Tiumen State University and at the Tiumen Industrial Institute. He was named to the Presidium of the Siberian Department in 1980. He heads the Scientific Council on the problems of Oil and Gas in Western Siberia. He received the Lenin Prize, 1970, and the I. M. Gubkin Prize in 1980. (GSE 30, p. 566.)

Parmon, Valentin N., D. Chem. S. Born in 1948. Chemist. Specialist in general chemistry kinetics and catalysis photo- and radiation chemistry and chemistry radiospectroscopy. He has been a corresponding member of the Academy and of the Siberian Department since 1990. He is the author of seven scientific works, co-author of 175 publications of which nine are inventions or discoveries and three are monographs. He is Deputy Director of the Catalysis Institute of the Siberian Department in Akademgorodok-Vladivostok. As a professor he has guided the work of ten aspirants for the candidate degree.

Pinneker, Evgenii V., D. GM. S. Born in 1926. Geologist. Specialist in the fields of geochemistry, metamorphism, hydrogeochemistry and hydrogeology.

Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy and of the Siberian Department since 1990--reconfirmed in 1992. Author of 105 scientific works of which six were major monographs; co-author of another 160 publications of which 14 were monographs. He is Deputy Director of the Earth's Crust Institute in Irkutsk and a recipient of the State Prize. He is a professor at the Irkutsk State University where he has guided the research of three doctoral students and 18 aspirants for the candidate degree. He was on the Scientific Council for engineering geology and hydrogeology of the AN SSSR. He is on the Siberian Department's commission for research into subterranean waters in Siberia and in the Far East, and a member of the Hydrogeology Association.

Plotnikov, Pavel I., D. PM. S. Born in 1947. Mathematician. Specialist in differential equations and their application of the study of wave motion in liquids. Corresponding member of the Mathematics Department of the Academy and of the Siberian Department since 1990. Outstanding scientific researcher of the Institute of Hydrodynamics of the Siberian Department of the RAS. His reputation rests primarily upon his work on the motion of liquids in various states.

Poliakov, Glev V., D. GM. S. Born in 1931. Geologist. Specialist in petrography and petrology, and in the magmatic formations of Siberia. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the AN SSSR from 1981--reconfirmed in 1992. He graduated from the Tomsk Polytechnical Institute imeni S. M. Kirov in 1953 and upon graduation continued to work there. He is the author of 163 scientific publications of which five are monographs. In 1960, he joined the Institute of Geology and Geophysics of the Siberian Department, serving as a scientific researcher, both junior and senior, and Head of the laboratory studying magmatic formation(1976), becoming Deputy Director of the institute in 1978, and Head of the Department of metallurgy, petrography, geochemistry and mining deposits of that institute in 1985. In 1982, he was made Head of the Council on doctoral dissertations for the Department of Geology, Geophysics, Geochemistry and Mining Sciences of the Siberian Department. As a professor, he has guided the work of ten aspirants for the candidate degree. In 1984, he was Deputy Chairman of the Siberian Petrographic Scientific Council. He is Head editor of the journal Geology and Geophysics. He received the State Prize in 1983.

Rautian, Sergei G., D. PM. S. Born in 1928. Physicist. Specialist in laser physics, quantum electronics, and spectroscopy. Corresponding member of the Siberian Department and of the General Physics and Astronomy Department of the AN SSSR from 1979--reconfirmed in 1992. He has authored and co-authored 216 scientific works of which three are significant monographs on nonlinear spectroscopy resonance etc. He graduated from the Moscow State University in 1952 and began work at the P. N. Lebedev Physics Institute. From 1965 to 1977, he headed a laboratory at the Semiconductor Physics Institute of the Siberian Department. In 1977, he became Deputy Director of the Institute of Automation and Electrometry of the Siberian Department --founded in 1971 to develop automated control systems theory and to apply it to solving problems for regional industry and agriculture. He has been a professor at the Novosibirsk State University since 1978, holding a chair in quantum optics. As a professor, he has overseen the doctoral work of ten persons and the research of 24 aspirants for the candidate degree. He is on the Scientific Council on the problems of the spectroscopy of atoms and molecules and of the Council on laser physics. He received the Laureate Prize imeni D. S. Pozhdestvensk in 1986.

Rebrov, Aleksei K., D. PM. S. Born in 1933. Physicist. Specialist in thermal physics and gas dynamics. Corresponding member since 1990. He is author of 17 and co-author of 191 scientific works. He is Head of a laboratory at the Institute of Thermal

Physics in Novosibirsk. He has taught at the Novosibirsk State University for 16 years directing the work of six doctoral students and 29 candidate degree aspirants. He is Deputy Director of the Siberian Scientific Council on thermal physics and thermal energy; Chairman of the Novosibirsk section of the Scientific Technical Organization "Priborproi" and a member of the Scientists Consulting Panel, and Head editor of the journal "Applied Mechanics and Technical Physics" and the "Russian Journal of Engineering Thermophysics."

Romanov, Vladimir G., D. PM. S. Born in 1938. Mathematician. Specialist in mathematical physics and differential equations. Corresponding member of the Mathematics Department of the AN SSSR from December 1987. He graduated from the Moscow State University in 1961 and worked from 1961 to 1965 at the Mathematics Institute of the Siberian Department. From 1965 to 1987, he worked at the Computer Center of the Siberian Department, as a junior and senior researcher and as Head of a laboratory. In 1987, he was Head of a laboratory and Deputy Director of the Mathematics Institute. He has been a professor at the Novosibirsk State University since 1974, holding the chair in mathematical methods in geophysics. He is an Honored Scientist of the former Soviet Union. He received the Laureate State Prize in 1987.

Romodanovskiaia (aya), Elena K., D. Philological S. Born in 1937, she graduated from the Leningrad State University in 1959. She has been a corresponding member of the Language and Literature Department of the Academy and of the AN SSSR from 1991. From 1962 to 1967, she was an aspirant at the Institute of Russian Literature located at Pushkin House. In 1968 she completed her candidate dissertation, and in 1975 she became a leading senior scientific researcher there. In 1988, she completed her doctoral degree. She is a specialist in the literature of the 17th-century Siberian Territory. She has participated in a number of scientific conferences, and is an editor of a number of publications.

Sagdeev, Renad Z., D. Chem. S. Born in 1941. Physical Chemist. One of the developers of new ideas in physical kinetics. Corresponding member of the General and Technical Chemistry Department of the AN SSSR from December 1987--reconfirmed in 1992. He has authored and co-authored 250 scientific works of which two were discoveries and two were extensive monographs: "The Magnetic and Spin Effect of Chemical Reactions" (1978) and "Spin Polarization and Magnetic Effect in Radical Reactions" (1984.) He graduated from the Novosibirsk State University in 1965, and began working at the Chemical Kinetics and Combustion Institute of the Siberian Department as a scientific researcher, both junior and senior, and scientific secretary, and Head of a Laboratory of Magnetic Phenomena, and in 1983, he was named Deputy Director of that institute. In 1979 he was elected a member of the Natural Sciences Photochemical Society. He received the Lenin Prize in 1986. In 1989, the Presidium of the Siberian Department established the Siberian Tomography Center that is under the direction of Dr. Sagdeev who is also Director of the Institute of Chemical Kinetics and Combustion.

Saliaev, Rurik K., D. Bio. S. Born in 1931. Biologist and physiologist. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the AN SSSR from 1984. He graduated from the Leningrad Forest Technical Academy imeni S. M. Kirov in 1966. From 1956 to 1958, he as an aspirant of the chair of plant physiology of that academy. From 1958 to 1963, he worked as a junior researcher a Laboratory of Plant Physiology of the Forestry Institute of the Karelian branch of the AN SSSR. From 1963 to 1971, he was Deputy Director of the Siberian Institute of Plant Physiology and Biochemistry of the Siberian Department in Irkutsk. From 1971 to 1974 and in 1983, he was Deputy Chairman of the Eastern Siberian Branch--now the Irkutsk Scientific Center. From 1974 to 1976, he was the Director of the Soil Biology Institute of the Far Eastern Scientific Center and Deputy Chairman of that center. In 1977, he became

Director of the Siberian Department's Institute of Plant Physiology and Biochemistry.

Shabanov, Vasilii F., D. PM. S. Born in 1940. Physicist. Specialist in the fields of optico-electronics and molecular spectroscopy. Corresponding member General Physics and Astronomy Department of the Academy and of the Siberian Department since 1990. In 1988, he was named a member of the Presidium of the Krasnoyarsk Scientific Center of the Siberian Department of the RAS. He is Head of a laboratory of the Kirenskii Physics Institute in Krasnoyarsk. He has co-authored 165 scientific works of which three are monographs. His work has contributed greatly to an expansion of knowledge of the physical characteristics of molecular microelectronics. He is a professor at the Irkutsk State University where he has overseen the work of ten aspirants for the candidate degree. He is a consulting specialist to the Technical Construction Bureau "Nauka" of the Siberian Department, heads the Council on automation of scientific research in the Krasnoyarsk Scientific Center, and is on the Scientific Council of the RAS on problems of the Spectroscopy of Atoms and Molecules.

Shalagin, Anatolii F., D. PM. S. Born in 1943. Experimental Physicist. Specialist in nonlinear spectroscopy. Corresponding member of the General Physics and Mathematics Department of the Academy and of the Siberian Department since 1990. He has written eight major scientific works and co-authored another 108, of which two are monographs. He is Head of a laboratory of the Automatic and Electrometry Institute of the Siberian Department in Novosibirsk. He has assisted in the development of the kinetic theory of nonlinear resonance, and in his research has experimentally found a method for polarizing nonlinear resonance with spectroscopy. He has discovered and researched a new class of incandescent phenomena in a laser radiation field. He is a professor at the Novosibirsk State University where he has overseen the doctoral research of two persons and the research of four aspirants for the candidate degree. He was on the Scientific Council on Spectroscopy, and a consultant to the Institute of Automation and Electrometry of the Siberian Department. He is an editor of the journal, "Autometry."

Sidorov, Veniamin A., D. PM. S. Born in 1930 in Vladimir Oblast. Russian physicist. Corresponding member of the Nuclear Physics Department of the Academy and of the Siberian Department since 1968. He graduated from Moscow State University in 1953 and joined the staff of the Institute of Atomic Energy. In 1962, he affiliated with the Institute of Nuclear Physics of the Siberian Department of the AN SSSR. Since 1970, he has been Head of the Particle Physics Laboratory and of "Sidorov's Department" and since 1977, he has been Deputy Director of the Budker Nuclear Physics Institute in Novosibirsk established in 1957. He helped to develop the colliding beam technique. He has investigated quantum electrodynamics, fast-neutron spectrometry, vector mesons, multihadron annihilation, and colliding beams of electrons and positrons. He is an Honored Scientist of the former Soviet Union, and member of an editorial board of a scientific journal. Lenin Prize, 1967. (GSE 23, p. 437.)

Soktoev, Aleksandr B., D. Philological S. Born in 1931. Specialist in literature and folklore. Corresponding member of the Philosophy and Law Department of the Academy and of the Siberian Department since 1990. Head of a sector of the History, Philology and Philosophy Institute of the Siberian Department in Novosibirsk-Akademgorodok. He has authored 119 scientific works, of which two monographs have particular significance, and he is the co-author of 10 publications of which two are monographs, of which "The History of Buriat Soviet Literature" is one (1967). He teaches at the Buriat State Pedagogical Institute imeni Dorzhi Banzarova where he has guided the work of three aspirants for the candidate degree. He was on the Scientific Council on folklore of the AN SSSR and a member of the coordination council for the comparative study of the Soviet and American cultures.

In 1991, a new International research Center for Northern Territories Development in Siberia was established that links together the work of scientists of three Siberian Department Institutes: the Institute of Cryosphere of Earth in Tiumen, the Institute of Physico-Engineering Problems of the North in Yakutsk, and the Institute of Philology in Akademgorodok-Novosibirsk. As Director of the Institute of Philology in Akademgorodok-Novosibirsk, Dr. Soktojev will play a major role in the development of this new international research center.

Solomonov, Nikita G., D. Bio. S. Born in 1929. Biologist. Specialist in ecology and ecologicaplant physiology. Corresponding member of the General Biology Department of the Academy and of the Siberian Department since 1990--and reconfirmed in 1992. He has authored 64 scientific works of which four monographs published from 1973 to 1980 are considered to be scientifically significant. He is the Director of the Yakutsk Biology Institute. He has studied pollution ecology and the ecology of plants and has established an original school for research and study in these fields. For 18 years he has held the chair of zoology at the Yakutsk State University where he has directed the work of 12 aspirants for the candidate degree. He was a member of the ecological section of the Scientific Council of the AN SSSR on problems of the fundamental control of the environment and the reconstruction of animal world; a member of the Research Committee on the biological sciences of the Siberian Department ; Head of the Yakutsk Department for All-Union territorial society, and on the editorial boards of "Ecology", "Cryobiology", and "Izvestia" of the Siberian Department of the AN. SSSR. He was also on the Presidium of the Yakutsk Scientific Center of the Siberian Department of the RAS.

Svitashev, Konstantin K., D. PM. S. Born in 1936. Physicist. Specialist in the elements of the bases in information systems, and diagnostics of semiconductor structures. Corresponding member of the Information Science, Computer Technology, and Automation Department and of the AN SSSR from December 1987 and reconfirmed in 1992. He has authored and co-authored 104 scientific works of which two are major monographs. He graduated from the Leningrad State University in 1959. He worked as an engineer at the State Optics Institute imeni S. I. Vavilov from 1959 to 1962. In 1962, he began working at the Semiconductor Physics Institute of the Siberian Department, in 1975 becoming its Deputy Director. In 1980, he was made Head of SKTB as a specialist in the electronics and the analytics of instrument making. He has been a professor at the Novosibirsk State University since 1985 and, as a professor has supervised the research of two doctoral students and of 11 aspirants for the candidate degree. He is editor of the journal Microelectronics. He received the Laureate Prize of the Soviet Ministers of the SSSR in 1984.

Trofimov, Boris A., D. Chem. S. Born in 1938. Chemist. Specialist in general chemistry and in hetero-atomic substances--such as acetylene. Corresponding member of the Academy since 1990. Deputy Director of the Organic Chemistry Institute in Irkutsk. He has authored and co-authored some 397 scientific works. Four of his six monographs are considered to be important contributions. He has directed the postgraduate work of four doctoral students and of 45 aspirants for the candidate degree. He was on the Scientific Council on chemistry and technology of organic substances for the GKNT; on the coordinating committee of the Radio Industry Ministry of the SSSR; on the Scientific Council on the chemical sciences for the Siberian Department ; an inspector on the Committee for Dissertations for the candidate of science degree for the Irkutsk Institute of Organic Chemistry, and on the editorial boards of several major journals: "Sulphur Reports," "Sulphur Letters," and the Organic Chemistry Journal of the Russian Academy of Sciences.

Tsvetkov, Iurii D., D. Chem. S. Born in 1933. Chemical physicist. Corresponding member of the General and Technical Chemistry Department of the AN SSSR from

1984--and reconfirmed in 1992. He graduated from the Moscow Physico-Technical Institute in 1957 and worked at the Institute of Chemical Physics from 1957 to 1959. In 1959, he joined the Institute of Chemical Kinetics and Combustion Institute of the Siberian Department, as a junior researcher, a Scientific Secretary, a senior researcher, and Head of a laboratory studying the chemistry and physics of free radicals (1968), and Deputy Director of that institute from 1968 to 1971. In 1983 he was Head Scientific Secretary of the Siberian Department of the AN SSSR, and in 1992 he was reconfirmed as the Head Scientific Secretary of the Siberian Department of the Russian Academy of Sciences. He has been on the Presidium of the Siberian Department since 1985. Since 1973, he has been a professor at the Novosibirsk State University holding a chair in physical chemistry, and as a professor has guided the research of three doctoral and of 15 aspirants for the candidate degree. He received the State Prize in 1988.

Urzhumtsev, Iurii S., D. Tech. S. Born in 1929. Since 1973, corresponding member of the Physical and Technical Sciences department of the Latvian Academy of Sciences. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes Department of the AN SSSR from 1981. From 1979 to 1986, he was the Director of the Institute of Physical-Technical Problems of the Northern Yakutsk Branch of the Siberian Department. In 1986, he began working in the Latvian SSR. He is among the top ranks of scientists from the Siberian Department of the national academy.

Vaganov, Evgenii A., D. Bio. S. Born in 1948. Biophysicist. Specialist in ecological biology, forest ecology and dendrochronology. Corresponding member of the General Biology Department of the Academy and of the Siberian Department since 1990. He has written or co-authored 52 scientific works of which three are major monographs. He graduated from the Krasnoyarsk State University and went to work at the Physics Institute imeni Kirenskii in 1971 as an engineer and a senior engineer. In 1974, he became a scientific collaborator and in 1979 a senior scientific collaborator. In 1981, he joined the Biophysics Institute of the Siberian Department, organizing the base for the Department of biophysics of the Institute of Physics of the Siberian Department --as a senior scientific worker. In 1986 he headed a sector and in 1987 he headed one of its laboratories. In 1988, he was named to the post as Head of a Laboratory on the Physics of Woodpulp. In 1990, he became Head of a Laboratory for Dendrochronology of the Forestry and Timber Institute imeni V. N. Sukachev.

Vas'kov, (Vaskov) Semen T., D. Tech. S. Born in 1934. Engineer. Specialist in the automation of scientific research. Corresponding member of the RAS and of the Siberian Department since 1992. He has authored and co-authored 72 scientific works of which one was of monograph length and consequence. In 1990, he was named Deputy Director and in 1992, he became General Director of the "Informatika"--the special scientific construction bureau of the Siberian Department of the ANR. He is on the Scientific Council of the academy for the automation of scientific research. He is a professor at both the Novosibirsk State University and the Kishenev Polytechnical Institute. His major work is in developing a system of digital cartography. As a professor, he has directed the work of seven aspirants for the candidate degree. He is a member of the Scientific Council on the "Sibir" program. He also serves on the UNESCO program on regional statistics. He has been a consulting specialist on the telecommunications project for the Siberian region.

Vlasov, Valentin V., D. Chem. S. Born in 1947. Bioorganic chemist. Corresponding member of the Academy and of the Siberian Department since 1990. Deputy Director of the Novosibirsk Institute of Bioorganic Chemistry. He has authored three and co-authored 103 scientific works. Of his own books, this "Affinity Modification of Biopolymers" published in 1988 is the most significant. He is a professor at

Novosibirsk State University where he has guided the work of seven aspirants for the candidate degree. He is on the Scientific Council on physiologically active substances. He is on the editorial board of the American journal "Antisense Research and Development."

Iakovlev, Viktor L., D. Tech. S. Born in 1934. Mining Engineer. Specialist in mining. Corresponding member of the Academy and of the Siberian Department since 1990. From 1982 to 1984 he taught at the Sverdlovsk Mining Institute imeni V. V. Vazhrushev, and since 1987 he has taught at the Yakutsk State University where he has guided the research of nine aspirants for the candidate degree. He has written 27 studies of which one is a significant monograph and he has co-authored 79 publications of which four are major monographs. He is Chairman of the Russian Group on International Mining in the Arctic of the USA Committee, on the Scientific Council of the Siberian Department for the Mechanics, Energetics, and Mining Sciences, and he is Chairman of the Yakutsk Scientific Center of the Siberian Department of the Russian National Academy.

Zakharov, Iurii A., D. Chem. S. Born in 1938. Chemist. Specialist in the chemistry of solid bodies, and research into the physical and physico-chemical structure of inorganic crystals. Corresponding member of the Academy of the AN SSSR from 1982. For 30 years he has worked with a large group (about 200 workers of whom five hold the doctorate and 40 the candidate degree) studying bipolymers and the fundamentals of the chemistry of solid bodies. Corresponding member since 1992. He has been rector of the Kemerovsk State University since 1978. He has directed the work of some 26 aspirants for the candidate degree and supervised the writing of three doctoral dissertations. He is on three major scientific councils of the Russian Academy of Sciences and of the Siberian Department. He supervises the scientific work of the Solid Bodies Spectroscopy Laboratory of the Kemerovsk State University.

Zherebtsov, Gellii A., D. PM. S. Born in 1938. Atmospheric Physicist. Specialist in atmospheric physics, solar-terrestrial radiation physics. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy and of the Siberian Department since 1990. Author of eight scientific works and co-author of 130. Director of the Terrestrial Magnetism, Ionosphere, and Radio Wave Propagation Institute in Irkutsk. He was on the Scientific Council on widespread radiation and "Sun--Earth" of the Academy; Head of the Scientific Council on Cosmic-physical Research of the Siberian Department of the Academy, and on the Coordinating Committee of the Ministry of the Radio Industry of the Soviet Union. In 1990, the Siberian Department of the Russian Academy of Sciences established the Siberian Center of Solar-Terrestrial Physics in Siberia--a new international research center that combined the work of scientists in two major institutes: the Terrestrial Magnetism, Ionosphere and Radio Wave Propagation Institute in Irkutsk and the Institute of Cosmophysical Research and Aeronomy in Yakutsk in the establishment of this new international thrust. As Director of the Siberian Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation, Dr. Zherebetsov will play a large role in the development of this new international research center. He is also the Chairman of the Irkutsk Scientific Center which was established in 1992 upon the former Irkutsk Eastern Siberian Branch of the Siberian Department of the Academy. The total personnel of the center was 5254 persons of whom 1696 were research scientists and of whom 129 held the doctorate and 845 the candidate degree. Three academicians and nine corresponding members of the Russian Academy of Sciences worked in institutes of the center. The Center has under its jurisdiction 13 major scientific units including independent research institutes, one Department of a Novosibirsk institute, and a widespread Pilot Plant for the collection of scientific information at astrophysical observatories, geographic stations, and seismic stations. Institute scientists work closely with the higher educational

institution, the industrial scientific research centers, and the design institutes in the region. Zherebtsov also heads the Solar Physics Institute in Irkutsk which was established in 1960 on the site of the magnetic observatory. In 1992, the personnel of the institute numbered 762 of whom 220 were research workers and of whom 16 held the doctorate and 93 the candidate degree. Three corresponding members of the RAS are on the staff.



Members of the Siberian Department serving elsewhere:

Aganbегian, Abel G. Born in 1932 in Tbilisi. Russian economist. Corresponding member of the Siberian Department since 1964, and academician of the Economics Department of the Russian Academy of Sciences and of the Siberian Department since 1974. He joined the Presidium of the Siberian Department in 1966. He was named Academician Secretary of the Economics Department of the AN SSSR in 1986. He graduated from Moscow State University in 1955. From 1955 to 1961 he worked for the State Committee of the Council of Ministers of the USSR on problems of labor and wages. In 1961, he became Head of a laboratory of the Institute of Economics and Organization of Industrial Production of the Siberian Division of the AN SSSR. He was named its Director in 1966. From 1966 to 1985, he was the Director of the Economics and Organization of Industrial Production Institute at Novosibirsk. His principal works are on labor productivity, wages, standard of living, and in developing models for future economic planning. He served on the Presidium of the Siberian Department from 1966 to 1985. He joined the Presidium of the AN SSSR in 1986 serving as the Academic Secretary for the Department of Economics of the AN SSSR. In 1988, he was identified as one of the economics advisers to Mikhail Gorbachev. (GSE 1, p. 130.)

Aleksandrov, Aleksandr D. Born in July 1912 in Volyn' in the Riazan Province. Russian mathematician. He has been a corresponding member since 1946 and an academician of the Mathematics Department since 1964. He has also been an academician of the Foreign Relations Department of the Siberian Department since 1964. He graduated from Leningrad State University in 1933 and began working there upon graduation. He served as the rector of Leningrad State University from 1952 to 1964. He has been at the Siberian Division (Department) since 1964. Aleksandrov's major contributions are in the field of geometry. He discovered methods for studying the metric properties of figures that opened a new field of research, the "irregular metric multiformalities." The works of his "school" have produced solutions to several classical problems of the theory of surfaces and found a significant application in the theory of differential equations and the theory of elastic films. He has also done important work in the theory of relativity. From 1964 to 1986, he headed the Mathematics Institute of the Siberian Department, moving in 1986 to the V. A. Steklov Mathematics Institute in St. Petersburg. Recipient of the State Prize, 1942; the international Lobachevskii Prize, 1951. (GSE vol. 1, p. 222; vol.16, p.635; vol. 20, p. 652, and vol. 22, p. 178.)

Beliaev, Spartak T., D. PM. S. Born in 1923 in Moscow. Russian physicist. Corresponding member since 1964, and academician of the Nuclear Physics Department of the AN SSSR from 1968. Since 1968, academician of the Foreign Relations Department of the Siberian Department of the AN SSSR. He graduated from Moscow State University in 1952. From 1952 to 1962, he worked at the I. V. Kurchatov Institute of Atomic Energy. After 1962, he worked at the Institute of Nuclear physics of the Siberian Department of the AN SSSR, and since 1965, he has served as rector of Novosibirsk University. Since 1969, he has been Head of

the Theory Laboratory of the Budker Nuclear Physics Institute in Novosibirsk. From 1967 to 1978 he was a member of the Presidium of the Siberian Department. Since 1983, he has served as Head of the General and Nuclear Physics Division of the I. V. Kurchatov Atomic Energy Institute in Moscow. He has worked on relativistic plasma, the quantum theory of many particles, and the theory of the atomic nucleus. (GSE 3, p. 141.)

Borkuklaev, Chermen B. --serving in Khabarovsk. Corresponding Member.

Yanshin, Aleksandr L. --serving in Dubna, Moscow region. Academician.

Marchuk, Gurii I., D. PM. S. Born in 1925 in Petro-Khersonets, Grachevka Raion, Orenburg Oblast. Russian mathematician. He has been a corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the AN SSSR from 1962, and an academician of both Departments since 1968. Since 1980, he has been Deputy Chairman of the USSR Council of Ministers. Since 1981 he has been a full member of the Central Committee of the CPSU. From 1980 to 1986, he served as Chairman of the GKNT (the State Committee for Science and Technology) that develops and monitors a unified state policy for science and technology. Since October 1986, he has been President of the Academy of Sciences of the USSR. He was originally elected to the Earth Sciences Department. He graduated from Leningrad State University in 1949. From 1953 to 1962 he worked at the Physics and Energetics Institute in Obninsk; from 1962-64 he was assigned to the Institute of Mathematics of the Siberian Department of the AN SSSR. In 1969, he was made Deputy Chairman of the Presidium of the Siberian division. His principal works lie in computer science and applied mathematics. He constructed an algorithm for the numerical solution of the equations of neutron transport that has become the foundation for calculating the critical parameters of nuclear reactors. He has also conducted theoretical studies on the methods of short-term weather forecasting and the dynamics of the atmosphere and the ocean. He is presently working on solving problems of automated control systems. Since 1980, he has been Director of the Computational Mathematics Department in Moscow, that was established in 1980 and that conducts research in applied mathematics, long-range forecasting, the formulation of mathematical models of atmospheric and immunological systems, and the development of computation methodology. In 1980, he was Chairman for the exhibition of the Achievements of the National Economy. Since 1982, he has served as Deputy Chairman of the Interdepartmental Council to Study Innovations in Socialist Countries. Since 1983, he has been Chairman of the Committee for Cooperation in Scientific and Technical Research in CEMA. Lenin Prize, 1961; Recipient of the State Prize, 1979--with others for a cycle of works on the development and application of statistical modeling methods for the solution of multidimensional tasks of radiation transfer. (GSE 15, p. 456.)

Mesiats, Gennadii A., C. GM. S. Born in 1936. Corresponding member since 1979, and an academician of the General Physics and Astronomy Department and of the Siberian Department since 1984. He is also a member of the Urals Department. He is a specialist in the fields of electronics and electrophysics. He received the Lenin Komsomol Prize in 1968, and the Laureate State Prize in 1978. Since 1986, as Chairman of the Urals Department, he has served as a member of the Presidium of the Academy of Sciences of the USSR. In 1988 he was named Vice President of the Russian Academy of Sciences for the Urals Department. From 1977 to 1986, he served as Director of the High Current Electronics Institute in Tomsk, subordinate to the Urals Department. The institute researches thermonuclear and accelerator physics and laser technology and was created in 1977 from the High Current Electronics Laboratory of the Atmospheric Optics Institute. Since 1986, he has been Chairman of the Urals Department, and since November of 1986, he has served as the Director of the Electrophysics Institute in Ekaterinburg (Sverdlovsk) () that was established in 1986.

Nesterikhin, Iurii E., D. PM. S. Born in October 1930 in Ivanovo. Russian physicist. He has been a corresponding member of the General Physics and Astronomy Department of the academy and of the Siberian Department since 1970 and an academician of both Departments since 1981. He graduated from Moscow State University in 1953, worked at the Atomic Energy Institute from 1954 to 1961 and at the Budker Nuclear Physics Institute of the Siberian Department from 1961 to 1967. From 1968 to 1987, he served as Director of the Automation and Electrometry Institute in Novosibirsk. The institute develops model problem-oriented systems based on computer aided measurement, automation, and control standards. It was founded in 1957. His major work is in measuring the parameters of a plasma by using lasers and optical interferometry of image converters. He also has developed equipment for measuring the density, temperature and other characteristics of a plasma. He was on the Presidium of the Siberian Department from 1976 to 1987. He is editor in Chief of *Avtometriia* that is published by the Siberian Department. (GSE 17, p. 474.)

Sagdeev, Roald Z., D. PM. S. Born in December 1932 in Moscow. Russian physicist. He has been a corresponding member since 1964 and an academician since 1968 of the General Physics and Astronomy Department of the Russian Academy of Sciences and of the Siberian Department. He graduated from Moscow State University in 1955, worked at the Atomic Energy Institute from 1956 to 1961, and from 1961 to 1970 he was Head of a laboratory at the Institute of Nuclear Physics of the Siberian Department, that was created in 1957 to research controlled nuclear reactions, particularly magnetic confinement fusion and to study accelerator technology. From 1970 to 1973, he was at the Institute of High Temperature Physics of the AN SSSR that was founded in 1962 to study thermophysical and electrophysical properties of matter at high temperatures. From 1973 to 1988, he was Director of the Space Research Institute in Moscow, subordinate to the academy's General Physics and Astronomy Department. The Space Research Institute was established in 1965 to centralize and coordinate Soviet civilian space programs and is the principal research facility for such studies. Sagdeev's main researches are in plasma physics. He has studied fluctuations and instabilities in plasma and has discovered the existence of so-called collisionless shock waves. He has developed the theory of transfer processes in Tokamaks. In 1986 he was the Director organizer of the Systems Research Institute of the AN SSSR. Lenin Prize, 1984--with others for helping to create high temperature plasma physics. (GSE 22, p. 548.)

Shemiakin, Evgenii I., D. Tech. S. Born in 1929 in Novosibirsk. Russian scientist specializing in the mechanics of rocks. Since 1976, corresponding member of the Mechanics and Control Processing Department, and academician since 1984. He graduated from Leningrad State University in 1952. From 1955 to 1960, he was a researcher at the Institute of Chemical Physics of the AN SSSR. From 1960 to 1971, he was Head of a laboratory of the Institute of Theoretical and Applied Mechanics of the Siberian Department of the AN SSSR. Since 1965, he has been a professor at the University of Novosibirsk. From 1971 to 1987, he served as Director of the Mining Institute of the Siberian Department at Novosibirsk that was established in 1944 to work in mineral exploration, develop mining machinery development, improve ore processing, develop environmental protection against mine wastes, and solve problems of cold region mining. From 1980 to 1988, he was Deputy Chairman of the Siberian Department. In 1987, he became Head of the Examination Board for the Council of Ministers of the USSR. His works are on the study of rocks, the effects of blasting and shock on rocks, and the deformation mechanics of solids. (GSE 29, p. 577.)

Shirkov, Dmitrii V., D. PM. S. Born in 1928 in Moscow. Physicist. Corresponding member of the Nuclear Physics Department of the AN SSSR from 1960. He

graduated from Moscow State University in 1949. From 1950 to 1960, he worked at the V. A. Steklov Institute of Mathematics of the AN SSSR and at the Joint Institute for Nuclear Research in Dubna. From 1960 to 1969, he worked at the Siberian Department of the AN SSSR. In 1961, he was designated a professor at the University of Novosibirsk. Also member of the Siberian Department. Recipient of USSR State Prize in Science and Technology in 1984 for co-authorship of papers entitled, "The Renormalization Group Method in Field Theory." His work is on the theory of elementary particles, the theory of superconductivity, and the theory of neutron transport and moderation. Lenin Prize, 1958. He received the State Prize in 1984. (GSE 29, p. 602.)

Sokolov, Boris S., D. GM. S. Born in 1914 in Vyshnii Volochek, in what is now Kalinin Oblast. Russian geologist and paleontologist. Corresponding member since 1958 of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Siberian Department, and academician since 1968. He has been Academician Secretary of the geology, geophysics and geochemistry section of the AN SSSR from 1975. He graduated from Leningrad State University in 1937 and taught there from 1937 to 1945 and from 1945 to 1958. In 1958, he started working at the Institute of Geology and

Geophysics of the Siberian Department of the AN SSSR. He has been on the Novosibirsk University faculty from 1960, becoming a professor there in 1964. Since 1960, he has been Head of the Stratigraphy of Precambrian and Paleozoic Laboratory of the Geology and Geophysics Institute in Novosibirsk that was established in 1958. In 1972, he was made Vice President of the International Paleontological Union. His work is in the Paleozoic corals, Proterozoic and Cambrian Organisms, the history of the development of the organic world during the Precambrian, and the biostratigraphy during the first half of the Paleozoic. He identified the Wend complex. In 1974, he was elected President of the All-Union Paleontological Society of the AN SSSR. In 1975, he became a member of the Presidium of the Russian Academy of Sciences. Since 1968, he has been an honorary member of the Geological Society of Sweden, and since 1963, a member of the Geological Society of France. Lenin Prize, 1967. (GSE 24, p. 280.)

Zaslavskaja (aya), Tat'iana I., D. Sociological S. Born in 1927. Sociologist and economist. Corresponding member since 1968, and academician since 1981. Specialist in economic sociology, the economics of the rural Khohoze and the sociology of the village. From 1963 to 1988, she worked at the Economic and Industrial Development and Production Institute of the Siberian Department. In 1967, she was Deputy Director of the Social Problems Institute, and from 1968 she was the Director of the All Union Center for the scientific study of social-economic development. In 1986 she became President of the Soviet Sociology Association.





Akademgorodok in the Autumn

The Siberian Department:



Laventriev Avenue--a street of scientific establishments

Research Institutes: Following the establishment of the Siberian Branch of the AN SSSR in 1957, the Presidium of the new entity moved in 1958 to organize itself initially into six subject-matter areas. The Physical-Mathematical, and Technical Sciences which from 1958 until 1976 were under the guidance of academician M. A. Lavrent'ev, from 1976 until 1980 under Iurii I. Marchuk, and from 1980 under S. L. Sobolev. The Chemical Sciences from 1958 until 1964 were under corresponding member A. V. Nikolaev, and from 1963 under corresponding member G. K. Boreskov. The Biological Sciences from 1958 to 1959 were under corresponding member N. P. Dubinin, from 1959 to 1979 under A. B. Zhukov, D. Chem. S., and from 1979 under academician D. K. Beliaev. The Earth Sciences from 1960 until 1969 were administered from Moscow becoming a part of the Siberian Branch in 1969 under the guidance of Academician A. A. Trofimuk. The History, Philological and Philosophical Sciences from 1963 until 1981 were under A. P. Okladnikov, D. Hist. S. The Economic Sciences from 1959 to 1966 were under corresponding member G. A. Prudenskii, and from 1966, under A. G. Aganbegian. As the list of research institutes given below indicates, the growth of scientific research in the Siberian Department and in its many centers, branches, and affiliates has been remarkable. In addition to "academician secretaries"--that is, learned secretaries--in each institute, there are academician secretaries for the various fields of learning and for the scientific centers away from Akademgorodok-Novosibirsk. For example, for Mathematics and Information Sciences Liudmila A. Kotel'nikova, serves as the academician secretary; for the Earth Sciences, Sergei V. Esin, C. GM. S; for the Chemical Sciences, Nadiya K. Kashtanova, C. Chem. S.; for the Economic Sciences, Vladimir I. Klistorin, C. Econ. S.; for the Physical and Technological

Sciences, N. Glazkov, C. Tech. S.; for the Mechanical, Energy, and Mining Sciences, Liudmila A. Kotel'nikova; for the Biological Sciences, Inna E. Vlasova, C. Bio. S.; and for the Scientific Council for the "Sibir" research program, Vasilii M. Zadorozhnii, C. GM. S. The scientific research institutes subordinate to the Siberian Department of the Academy of Sciences of the USSR are listed below, but not listed necessarily in the order of their establishment (the forming of "compound institutes" is a recent development in the Siberian Department):



The Computer Center in Akademgorodok, Novosibirsk



Akademgorodok 630090

I. Compound Institute of Automation and Electrometry in Akademgorodok is under the General Director Petr. E. Tversokhlev.

Address of IA&E
Institute of Automation and Electrometry
Universitetsky Pr., 1
Novosibirsk-90, 630090
RUSSIA
E-mail: Adviser@iae.nsk.su
Phone: (3832) 35-45-50
URL: <http://www.iae.nsk.su/>
FAX: (3832) 35-48-51



**1. Institute of Automation and Electrometry Russian Academy of Sciences
Siberian Branch**

(1997 update) The Institute of Automation and Electrometry (IA&E) of Siberian Branch of the Russian Academy of Sciences was founded in June of 1957 as a physical-technical institute.

IA&E is a head organisation of Joint Institute of Automation and Electrometry, which includes also Technological Design Institute of Scientific Instrument-Making ("KTI NP") and Technological Design Institute of Data Processing Equipment ("KTI VT"). Russian Academy of Sciences Siberian Branch

Many of new scientific results of the Institute You will find in a journal "Avtometriya", issued at the Institute.

A cover-to-cover translation of the journal "Avtometriya" is published by Allerton Press, Inc. (USA) as "Optoelectronics, Instrumentation and Data Processing".

The IA&E is a base institute for two Chairs of Novosibirsk State University:

Automation of Physico-Technical Researches

Quantum Optics

Students from Novosibirsk State University and Novosibirsk State Technical University work in the laboratories of IA&E taking part in the researches and making their B.Ss. and M.Sc. theses.

(1997 update)

Institute of Automation and Electrometry of SB RAS

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pr. University, 1

IAE SB RAS

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WWW: <http://www.iae.nsk.su/>

(older material)

Retrospect: Founded in 1957. It studies the physics of nonlinear phenomena; computerization of scientific research on the basis of the typical main computer system, fundamentals of optical memory, optical techniques for data processing and the development of physical principles for measurements and measuring instruments. It develops and builds model problem-oriented systems based on computer-aided measurement, automation, and control standards. In the field of the mechanics of liquids, gas and plasma the collective effects at the RF heating of plasma and wave collapse in plasma have been investigated in detail and new results have been obtained in the study of a laminar flow transition to the turbulent flow (exemplified by the Couette flow). A holographic storage device of up to 100 megabytes has been developed in the institute. A set of hard and software has been developed for automatic processing of images which is the basis of the Shared Data Processing Center established for the solution of scientific problems in physics, astronomy, molecular biology, medicine, the national economy and the inventory of the Earth's mineral, forest, and ice cover resources. The institute is a scientific supervisor of the Scientific Instrument Design office and is the organizer and a scientific

coordinator of the Scientific Technical Association "Avtomatika" of the Siberian Department of the Russian Academy. Dr. Sergei G. Rautian, corresponding member of the Russian Academy is a staff member of this institute. Iurii E. Nesterikhin, D. PM. S. has been the Director of the institute since 1967. From 1957 to 1967, corresponding member K. B. Karandeev was the Director. Konstantin M. Sobolevskii, C. Tech. S. is the Academician Secretary. In 1989, personnel included: Director Petr E. Tversokhlev, C. Chem. S., since '87; Deputy Directors: V. Grigoriev, since '85; Voldemar P. Koronkevich, C. Tech. S., since '75; V. K. Malinovskii, since '88; Sergei G. Rautian, D. PM. S., since '77; and, K. M. Sobolevskii, since '77;

Coherent Optics Laboratory: Head Voldemar P. Koronkevich, C. Tech. S., since '68;

Laser Doppler Velocimetry Laboratory: Head Viktor S. Sobolev, since '77;

Optical Information Processing Laboratory: Head Petr E. Tversokhlev, since '75;

Optical Memories Department: Head Igor S. Gibin, D. PM. S., since '75;
Senior Researcher Nezhevenko, E. S., since '73;

Quantum Electronics Laboratory: Head Iurii V. Troitskii, since '75.

(1997 update) From the history of the Institute...

The Institute of Automation and Electrometry was founded in 1957 among the very first institutions of Siberian Branch of the Academy of Sciences of the USSR (now Russian Academy of Sciences, RAS). Konstantin B. Karandeev, Corresponding member of Academy of Sciences of USSR, was the first director of the Institute.

During the first years, the Institutes developed and constructed devices and systems for automatic measurement, intended for data acquisition and processing. Further on the Institute concentrated its efforts on the tasks for automatization based on the new physical methods and means--laser and optoelectronics. During the second and third decades the Institute imbedded several dozen of big developed products in industry and in scientific experiments. This has been done in collaboration with Special Design Bureau of Scientific Instrument-Making (now Technological Design Institute of Scientific Instrument-Making).

The last years development field includes laser and non-linear optics, new information technologies, based on the new physical principles, and problem-oriented computer systems.

Directors of the Institute:

1957-1967 Konstantin B. Karandeev, Corr.-memb of AS USSR

1967-1987 Yuri E. Nesterikhin, Academician

1987-1993 Pyotr E. Tverdokhlebov, Prof.

from 1997 Semyon T. Vas'kov, Corr.-memb. of RAS

Institute Leading Scientists

Awarded with:

**Sergey Rautian, Corr.-memb. of RAS
Rozhdestvensky Premium**

D.S.

**A.M. Shalagin, Corr.- memb. of RAS
Golden Medal**

P.N. Lebedev

Yuri N. Zolotukhin, Corr.-memb. of RAS

Ministry Award

Aristarkh Kovalyov, D.Sc.

Yuri Gagarin Medal

RAS is Russian Academy of Sciences ("RAN")

RATeS is Russian Academy of the Technical Sciences ("RATN")

(1997 update) Departments and Laboratories:

Departments of IA&E

Laboratories

Laser Physics	S.G. Rautian, Corr. Mem. of RAS, Prof.
Nonlinear Spectroscopy of Gases	A. M. Shalagin, Corr. Mem. of RAS, Prof.
Nonlinear Physics	K. P. Komarov, PhD
Physical Electronics	V. K. Malinovsky, DSc, Prof.
Laser Optics	Yu.V. Troitsky, DSc, Prof.
Optical Computing Systems	P. E. Tverdohleb, DSc, Prof., Corr. Mem. of ATSRF
Optical Erasable Memory	V. S. Sobolev, PhD
Laser Technologies	P. Koronkevich, PhD
Laser Graphics	V. P. Bessmel'tsev, PhD
Thin-Film Segnetoelectrical Structures	E. G. Kostsov, PhD
Optoelectronic Specialized Processors	E. S. Nezhevenko, PhD
Bus-Based Modular Computer Systems	Yu. N. Zolotukhin, DSc, Corr. Mem. of AESRF
Digital Methods of Image Processing	V.S. Kirichuk, DSc
High-Performance Real-Time Systems	I. I. Korshever , PhD
Professional Computer Systems	A.N. Kasperovich, DSc, Prof.
Information Processes Research	V.M. Efimov, PhD

Methods

Computer Graphics Program Systems	I.V. Belago
Synthesizing Visualization Systems	B.S. Dolgovesov, PhD
Machine Vision	O.I. Potaturkin, DSc

Groups

Solid-state Lasers	K.G. Folin, PhD
Physics of Magnetic Phenomena	E.V. Podivilov, PhD
Nonlinear Spectroscopy and Biophysics	S.Yu. Novozhylov, PhD
Tunable UV Lasers	A.A. Apolonsky, PhD
Experimental Hydrodynamics	S.N. Lukashchuk
Applied Expert Systems	R.D. Baglay, DSc
Computer-Aided Design of VLSI	
Problems of Virtual Reality	A.M. Kovalev, DSc, Corr. Mem. of AESRF
MG Computer Graphics	A.S. Tokarev
MIL Powerful Ion Lasers	V.I. Donin, DSc
IPM Informatics and Applied Mathematics	O.E. Trofimov, DSc, Prof.



2. Technological Design Institute of Scientific Instrument-Making of SB RAS

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E-mail: chugui@tdi.nsk.su

The Technical Construction Institute of Scientific Instrument Making in Novosibirsk 53 Ulitsa Russkaia (aya), 41.(63005V) was founded in 1972 to develop and manufacture experimental specimens of the equipment and automation means for research studies and technological and production processes. It is under the direction of Iurii V. Chugui, C. Tech. S.

Administration

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3. Design Technological Institute of Digital Techniques SB RAS

**630090, Novosibirsk-90, Russia
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Phone: +7(383-2) 35-33-61, 35-30-61
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E-mail: sgm@ivtz.nsk.su**

**KTI VT's activities extended into:
research and industry automation including Automated Process Control
Systems for power engineering;**

scientific instrument-making;

medical information,

digital image processing.

**Administration
Director of the Institute
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History of Institute

KTI VT SB RAS (Design Technological Institute of Digital Techniques, Siberian Branch of the Russian Academy of Sciences) was established in 1981 as SKB VT SO AN USSR (Special Design Bureau of Digital Techniques, Siberian Branch of the Academy of Sciences of the USSR) on the basis of SKB of Applied Geophysys.

In 1986, the Section of Electronic Instrument Engineering was organized in SKB VT to develop a scientific instrument engineering and automation facilities for research works.

In 1990, the Department of Medical Informatics and Electronics was organized in SKB VT to devise medical information systems and to create elements for the multipurpose automatized diagnostic center in SO AN USSR.

SKB VT was renamed to KTI VT and included in Joint Institute of Computing Mathematics and Informatics in November, 1990, according to the Enactment of Presidium of SO AN USSR.

In September, 1995, KTI VT SB RAS was transferred to Joint Institute of Automation and Electrometry.



4. The Bioorganic Chemistry Institute in Akademgorodok.

Knorre, Dmitrii G., D. Chem S. Born in 1926. Chemist, Biochemist, specialist in chemical kinetics of complex reactions, bioorganic chemistry, and molecular biology. Corresponding member since 1968, and academician since 1981. Principal membership in the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical Chemistry and Biology Department) of the AN SSSR from 1981. He graduated from the D. I. Mendeleev Moscow Chemico-Technological Institute in 1947. He worked at the Chemical Physics Institute from 1947 to 1960 when he joined the Siberian Department in a laboratory studying natural polymers and joined the Department of biochemistry of the Novosibirsk Institute of Organic Chemistry. In 1962, he acted as head of the Natural Polymers Laboratory of the Organic Chemistry Institute in Novosibirsk that was established in 1958 and whose basic work is in the study of aromatic and heterocyclic chemistry and in natural products. He was named Director-organizer of the Novosibirsk Bioorganic Chemistry. He was named to the Presidium of the

Siberian Branch in 1988. From 1967 to 1983, he was a professor on the faculty of natural sciences holding the chair in molecular biology from 1979. He is an honored scientist of the former Soviet Union. He received the Laureate Prize of the Soviet Ministry in 1987, and the M. M. Shemiakin AN SSSR Prize in 1988. He holds other recognitions and awards for his work. (GSE 12, p. 554.)

(1997 update)

Administration Novosibirsk Institute of Bioorganic Chemistry of SB RAS

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Established in 1984. Built upon personnel from the Novosibirsk Organic Chemistry Institute's Department of Biochemistry. It studies the chemical influence on the biopolymers on the molecular and cell levels; the development of theoretical fundamentals of, and techniques for, the ultra microanalysis of biological systems including those for the chromatographic microanalysis to support research in physico-chemical biology and medicine. Director: Dmitrii G. Knorre, D. Chem. S. Academician of the Russian academy. The Academician Secretary of the institute is Svetlana D. Mizina, C. Chem. S.



II. Compound Institute of Applied Mathematics and Informatics in Akademgorodok under General Director Anatolii S. Alekseev.

Alekseev, Anatolii S., D. PM. S. Born in 1928 in Pskov Oblast. Russian geophysicist. He was elected a corresponding member of the academy in 1972 and an academician in 1984. Since 1984, he has been an academician of the Information Sciences, Computer Technology and Automation Department of the National Academy and also of the Siberian Department. He graduated from Leningrad State University in 1952. From 1955 to 1963, he was on the staff of the St. Petersburg Division of the V. A. Steklov Institute of Mathematics of the AN SSSR and the RAN. In 1963, he joined the Computer Center of the Siberian Department,

becoming Deputy Director of the center in 1980. He joined the Presidium of the Siberian Department in 1980. In 1964, he taught at the University of Novosibirsk, becoming a professor in 1970. Since 1980, he has been on the Presidium of the Siberian Department. He Developed principles for geological data gathering from vibration sounding of the earth's interior. His major work has been in seismology. He has headed the Scientific Society for the Mechanical Mathematical Sciences in Energetics, the Coordination of the Soviet Scientific Committee on the Earth's Vibration Processes, the Soviet Committee for Methods of Distance Finding, the Committee for Computing Technology, and the regional section of Siberia and the Far Eastern Scientific Service for Modeling Complex Mathematical Problems. Since 1976, he has been a member of the American Mathematical Society, and since 1981 a member of the American Photogrammetry Association, and since 1983 he has been a specialist (consultant) on sources of seismic control. In 1982, he received a State Prize and is the holder of a number of other medals recognizing his achievements. (Sib. Unpub. MSS., 1989) (GSE 30, p. 9.)

The Complex Institute produces studies in algebra, mathematical analysis, applied mathematics, numerical methods for solving problems of mechanics of continuous media, and information systems for local Omsk industrial enterprises. The Compound Institute maintains a laboratory and a Department in Omsk and Barnaul. Conducts research on applied mathematics, long-range weather forecasting, formulation of mathematical models, and development of computational methods. The institute maintains a laboratory in Barnaul that deals with the creation of automated systems for the control of industrial enterprises and their adaptation to local enterprises in the Altai territory. The center has established a Complex Department of the Computing Center in Omsk on the site of the Siberian Department's laboratories of the Mathematics Institute, the Hydrodynamics Institute, and the Computing Center--all of which have been operating as laboratories in Omsk since 1978.



6. Computer Center in Akademgorodok. Established in 1963. Its founder and first Director was G. I. Marchuk (1963 to 1980), who later became Head of GKNT and President of the Russian Academy of Sciences until 1990. Since 1980, the Director of the Computer Center has been Anatolii S. Alekseev, D. PM. S., academician of the RAS. Structure of the Computer Center Deputy Directors for the Sciences included: Mikhail I. Nechepurenko, D. PM. S.; Vladimir V. Penenko, D. PM. S.; Vadim E. Kotov, D. PM. S.; Iosif I. Geitsi, C. PM. S.; Vaerii A. Shaptsev, C. PM. S. (Omsk); Head Engineer--Ivan P. Bondarenko, and Academician Secretary Sergei V. Kuznetsov, C. PM. S.

(update 1997)

Computing Center of the Russian Academy of Sciences Siberian Branch
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Russia. [+] Tel. (3832) 35-56-50 [+] Fax (3832) 32-42-59 E-mail
aleks@comcen.nsk.su

Founded in 1964, the Computing Center of SB RAS has been engaged in research on computational and applied mathematics in such areas as the modelling of processes in the atmosphere and ocean, environmental protection problems, methods of mathematical modelling in geophysics, geophysical informatics, simulation of informatics systems, telecommunication systems, software for supercomputers.

The Computing Center consists of 11 Departments which are subdivided into more than 30 laboratories and groups. The personnel of the Institute is 395 workers including 195 scientists. There are 31 Professors and 110 Phd among them.

In 1996 the investigations of the Computing Center of SB RAS were supported by the Russian Foundation of Basic Research (RFBR)- 35 grants, 2 grants of RFBR-INTAS

Research is supported by the state scientific programs "Perspective Information Technologies", "Informatization of Russia", "Global Changes of Environment and Climate" and "World Ocean".

The Computing Center is the base institution for the Chair on Numerical Mathematics, the Chair on Mathematical Methods of Geophysics, the Chair on Computing Systems at the Novosibirsk State University; the Chair on Parallel Computing Technologies, the Chair on Networks Information Technology at the Novosibirsk State Technical University, the Chair on Image Processing at the Siberian State Academy of Geodesy.

I.) The Department of Geophysical Mathematical Problems under Academician A. S. Alekseev has five laboratories under its administration:

- (1.) **the Laboratory of Mathematical Seismology Problems** under A. S. Alekseev;
- (2.) **the Laboratory of Numerical Methods for Solutions to Noncorrectable Problems** under V. A. Tsetsokho, D. PM.S.
- (3.) **the Laboratory for Seismic Vibration Research** under V. I. Dobrinskii, C. PM. S.
- (4.) **the Laboratory for Mathematical Modeling of Seismic Fields** under Boris. G. Mikhailenko, D. PM. S.
- (5.) **the Laboratory for the Mathematical Modeling of Sound Waves** under Vicheslav K. Gusiakov, C. PM. S.

II.) The Department of Applied Geophysics under Boris M. Glinskii, D. Tech. S. Its three laboratories are:

- (1.) **the Laboratory of the Geophysical Calculating Complex** under B. M. Glinskii, D. Tech. S.
- (2.) **the Laboratory for Seismic Research** under B. M. Punoiy, C. Tech. S.
- (3.) **Scientific Research Branch Seismic Laboratory** under M. S. Khairtdinov, C. Tech. S.

III.) The Department for Numerical Methods for Geological Prospecting under Iurii A. Voronin, D. PM. S.

IV.) The Department for Securing Mathematical Processing Images under V. P. Pyatkin, D. Tech. S.

V.) The Department of Statistical Modeling in Physics under corresponding member of the RAS Gennadii A. Mikhailov. Laboratories include:

- (1.) **the Monte Carlo Method Laboratory** under Gennadii A. Mikhailov.

- (2.) **the Laboratory of Optics Dispersion in Media** under Boris A. Kargin, D. PM. S.
- (3.) **the Laboratory of Stochastic Problems in Mathematical Physics** under KarK. Sabel'fel'd, D. PM. S.

VI.) The Department of Mathematical Problems in Physics and Chemistry under Valerii. P. Il'in, D. PM. S. The three laboratories under this Department include:

- (1.) **the Laboratory for the Automatic Construction of Algorithms** under Valerii P. Il'in, D. PM. S.
- (2.) **the Laboratory for Mathematical Problems in Chemistry** under Valerii I. Drob'shevich, C. PM. S.
- (3.) **the Laboratory of Numerical Methods and the Theory of Division** under Vladimir V. Smelov, D. PM. S.

VII The Department for Mathematical Modeling for the Oblast, Atmospheric Physics, the Oceans and their Outlying Regions under Viktor I. Kuzin, D. PM. S. There are four laboratories under this Department:

- (1.) **the Oceanographic Laboratory** under Viktor I. Kuzin, D. PM. S.
- (2.) **the Planetary Boundary Strata Laboratory** whose members include: Vladimir A. Sukhorukov; Nikolai L. Tauchev; Nikolai V. Dmitrev; Sergei M. Likhuchev; Aleksandr A. Konyakhina; Vladimir N. Alekseenko; Larisa S. Nazarenko, and, Galina I. Elepova.
- (3.) **Scientific Research Group--Dynamic Atmosphere** under Vladimir N. Krupchatnikov, C. PM. S.
- (4.) **Scientific Research Group on the Systematic Modeling of Ecological Processes and Climatic Systems** under Iurii I Kuznetsov, C. PM. S.

VIII. The Department of Mathematical Modeling of Hydrodynamic Processes in the Natural Environment under Vladimir V. Remenko, D. PM. S. Laboratories include:

- (1.) **the Laboratory of Hydrodynamic Problems of the Border Regions** under V. V. Remenko.
- (2.) **Scientific Research Group on Mathematical Modeling of Global Natural Processes in Climatic Systems** under A. V. Protasov, C. PM. S.

IX. The Department of Automation Projects and Machine Graphics under Aleksandr M. Matsokin, D. PM. S. Laboratories include:

- (1.) **the Machine Graphics Laboratory** under A. M. Matsokin.
- (2.) **the Laboratory of Practical Numerical Analysis** under Vladimir A Vasilenko, D. PM. S. .

X. The Department for Mathematical Modeling of Complex Systems under Mikhail I. Nechepurenko, D. PM. S. Laboratories under the Department include:

- (1.) **the Laboratory for Systems Modeling** under M. I. Nechepurenko. (2.) **the Laboratory of Numerical Decision-Making in Problems of the Theory of Elasticity** under Anatolii N. Konovalov, D. PM. S.
- (3.) **the Laboratory for Mathematical Modeling of Information Networks** under Vladimir K. Popkov, D. PM. S.

(4.) the Laboratory for the Optimization of Complex Programs under Gerard I. Zabiniako, C. Tech. S.

XI The Department of Mathematical Security of Computer Systems under Nikolai N Mirenkov, D. PM. S. Laboratories include:

- (1.) the Laboratory of Parallel Algorithms and Structures** under N. N. Mirenkov. .
- (2.) the Laboratory for the Systematic and Technological Provision of PPP** under Mayia M. Bezhanova, C. PM. S.
- (3.) Scientific research group for parallel program synthesis** under Viktor E. Malishkin, C. PM. S. Others include: Sergei A. Pankratov.
- (4.) Scientific research group for the processing of seismological data** under Valerii D. Elinov, C. PM. S.

XII The Department of Systematics under A. A. Anistratgenko, C. PM. S. Laboratories include:

- (1.) Practical Systems laboratory** under Sergei V. Bedikhin, C. Tech. S.
- (2.) the Laboratory of Problem Orientation in Modeling Systems** under Vitalii S. Nikel'tsev, C. Tech. S.

XIII Department of Territorial Information Systems under Iosif I. Geitsi, C. PM. S. Laboratories include:

- (1.) the Laboratory for Automation and Management of Scientific Research** under I. I. Geitsi, C. PM. S.
- (2.) the Laboratory for the ASU Territory** under G. I. Karpachev, C. Tech. S.

XIV. [See Below] The Institute of Systematic Informatics under V. E. Kotov, D. PM. S. Laboratories include:

- (1.) the Laboratory of Theoretical Programming** under V. E. Kotov, D. PM. S.;
- (2.) the Laboratory of the Automation of Projections and Architecture** under Aleksandr G. Marchuk, D. PM. S.
- (3.) the Laboratory of Artificial Intelligence** under Aleksandr S. Nariniani.
- (4.) the Laboratory of Parallel Systems** under Iurii L. Vishnevskii, C. Tech. S.
- (5.) the Laboratory of Experimental Information** under Andrei A. Bers.
- (6.) the Laboratory of Systematic Programming** under Igor V. Pottosin;
- (7.) the Laboratory of Informational Computing Systems** under Iurii V. Metliaev.
- (8.) the Laboratory of Programming and Technical Complexes** under Evgenii P. Kuznesov.
- (9.) the Scientific Research Group on Programming Without Data** under Aleksandr V. Zamulin.
- (10.) the Scientific Research Group on the Theory and Methods of Transmission** under Viktor N. Kas'ianov.
- (11.) the Design Office of Experimental Elaborations** under Albert F. Puzanov.
- (12.) VNKT "School"** under Natalia S. Vodopianova.

XV. The Department of Information and Innovation of Scientific Research under Anatolii L. Urvantsev, C. PM. S.

Academician Secretary of the Computer Center is Aleksandr V. Shcherbakov, C. PM. S.

(Information provided in a visit with Academician Anatolii S. Alekseev in September 1992.) (Also see: LDA 89-11378.)



(1997 update)

7. A. P. Ershov Institute of Informatics Systems in Akademgorodok.

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Director: Professor Igor V. Pottosin;

Deputy Directors:

Professor Aleksandr G. Marchuk (for science) and

Dr. Sergei V. Kuznetsov (for management)

Scientific Secretary: Dr. Vladimir I. Konstantinov

The A.P. Ershov Memorial Library's Information

Distribution Service may be reached at: cher@iis.nsk.su

The A. P. Ershov Institute of Informatics Systems, located in Akademgorodok is part of the Siberian Division of the Russian Academy of Sciences. Academic City is about 25 kilometers south from Novosibirsk, the capital of Siberia. The institute itself was formally inaugurated in 1990, though it first began operating in 1958 when a Department of Programming was organized at the Institute of Mathematics under the late Academician Andrei P. Ershov was made its first Director. Its first project was the design and implementation of the Algol-like "algorithmic" language, Alpha. In 1964, the Department was transferred to the newly organized Computing Center headed by Academician Iurii I. Marchuk, a former Head of the GKNT Committee and former President of the Academy of Sciences. During the 1960s and 1970s the Department developed rapidly, extending its research areas from complex design to the broader aspects of systems programming, theoretical computer science, artificial intelligence, and experimental computer architecture--all of which led to the establishment of the School of System and Theoretical Programming in which research in many research areas is presently occurring. In the 1980s, experimental and application projects aimed at the validation and implementation of previously developed theoretical concepts and methods were initiated to modern problems of concurrent programming languages, program verification and synthesis, program optimization, new computer structures, and VLSI design. Work in the institute today covers the fundamental problems of informatics; models of program construction and the development of supporting software tools; AI and applied programming systems; and computer architecture, telecommunication systems, and embedded systems.

The institute is comprised of seven research laboratories, two research groups, a number of supporting divisions, and the information service with the A. P. Ershov Memorial Library.

The laboratories are listed below:

1. Laboratory of Theoretical Programming: under Dr. V. A. Nepomniaschy (Nepomniaschii). Personnel in the laboratory number 15 researchers among whom

are: V. E. Kotov, Full Professor and Corresponding Member of the RAS and former Head of the laboratory, and who, at present also holds a long-term contract with the Hewlett-Packard Company; Dr. I. B. Virbitskaite, Dr. A. A. Sulimov, and Dr. N. V. Shilov. The main research thrust of the laboratory is the development of fundamental methods for describing semantics, the specification and verification of parallel computer systems and programs.

- 2, VLSI CAD Laboratory:** under Professor A. G. Marchuk. Personnel in the laboratory number some 23 researchers, including Dr. Z. V. Apanovich, research scientist D. N. Kuznetsov, Dr. A. E. Nedozya, and research scientist E. V. Tarasov. Activities in the laboratory have included work on CAD/CAM microelectronics and mechanical engineering. Basic representations and models of mechanical objects and graphic interfaces have been developed. These experiments have been done on the construction and application of data base systems based on CLIENT/SERVER architecture--a daunting problem requiring deep thought and attention. The laboratory has also investigated the portable compiler construction and the architecture of extensible object-oriented environments (OO) has been done in the VLSI CD laboratory.
- 3. Artificial Intelligence Laboratory:** under Dr. T. M. Yakhno. Personnel in the laboratory number 14 researchers, including the former Head of the laboratory Dr. A. S. Narin'ani (Aleksandr S. Nariniani); Dr. I. E. Schvetsov, Dr. Iurii A. Zagorulko, Dr. V. V. Telerman, and Dr. C. Ia. Greenberg. The laboratory has developed knowledge representation means for knowledge bases of intelligent systems, and developed the technology for designing intelligent systems. Laboratory scientists have studied frames, semantic networks, production systems, and sub definite computation models and they have proved that frame systems may be transformed into production systems thereby providing semantic networks. They have designed and developed prototypes of technological systems for artificial intelligence which use object-oriented means of representation, production systems, and computation models. Expert systems developed in the laboratory are in use in complex technological processes at industrial plants in the Novosibirsk region.
- 4. Parallel Systems Laboratory:** under Dr. M. N. Doroyevets (Doroievets). Personnel in the laboratory number 11 researchers, including Dr. Iurii L. Vishnevsky (skii) (Vishnevskii). The laboratory develops and evaluates advanced processor architecture; a network node station for using open distributed communication systems; and they have proposed a new approach referred to as Multithreaded decoupled architecture for exploiting fine and middle-grain parallelisms in superscalar processors.
- 5. Laboratory of Experimental Informatics:** under Dr. A. A. Baehrs. The personnel of the laboratory number seven researchers. Scientists in the laboratory have taken a new approach to modeling multiactivity on multiprocessor systems of the interactive heterogeneous computing facilities which is an object-constructed high-level operation environment--CHLOE--a conceptual model which allows one to cover the up-to-date level of the problem of developing new informatics platforms. It is a basis for the efficient implementation of the platforms. The laboratory has also been researching the techniques and methodologies for publishing texts using the MRAMOR-FA workstation.
- 6. Systems Programming Laboratory:** under Professor I. V. Pottosin. Personnel of the laboratory number 18 researchers, including Professor A. V. Zamulin, Dr. G. G. Stepanov, Dr. S. B. Pokrovsky (Pokrovskii), and Dr. V. I. Shelekhov. The laboratory scientists program languages and develop compilation techniques; develop models of software in an advanced programming environment, and develop methods and tools for environmental support. They develop software for embedded computer systems.

7. Laboratory for Program Construction and Optimization: under Professor V. N. Kasyanov (Kasianov). The personnel in the laboratory numbers 15 researchers including Professor V. A. Evstigneev, Dr. V. K. Sabelfeld, Dr. L. V. Gorodaia (aya)ia, and Dr. N. A. Kalinina. Research efforts include have been aimed towards producing methods and tools for improving software quality, increasing the efficiency and reliability of using transformational approaches and program annotations. They have studied the basis of transformational programming extending it on the synthesis of programs and advanced architecture, and the experimental and applied projects in the laboratory have been implemented on the basis of their theoretical concepts and methods. They have focused on the text-graphic interface, text macrogenerator, syntactically controlled procedure generator for text parsing and output, adaptable memory systems, and other parts of the standard component set for constructing education informatics systems.

GROUPS:

The Research Group for Software/Hardware Complexes: Under V. F. Pogrebnyak (Pogrebniak). This group is made up of five researchers who have addressed the issue of the construction and development of telecommunication environments for providing telecommunication and information services, including a regional computer network which is to be organized to connect local networks of the Urals main pipelines.

The Research Group for Mixed Computations: Under Dr. A. A. Bulyonkova (Bulionkova). The group is comprised of five researchers who conduct research in the area of database applications in CASE technology and real-time systems. In particular, the design in object-oriented environments for embedded systems based on Algol 68 has been completed. The database programming system has been implemented.

External Activities of the A. P. Ershov Institute of Informatics Systems. In maintaining broad international contacts, several members of the institute are also members of foreign scientific societies: I. V. Pottosin, S. B. Pokrovsky (skii) , A. G. Marchuk, S. B. Rudnev are all members of the Association for Computing Machinery (ACM) for instance; and V. N. Kasyanov is a member of the American Mathematical Society (AMS) and the European Association for Theoretical Computer Science (EATCS). Dr. A. G. Marchuk is a member of the ACM National Subcommittee for CAD. The Institute is one of three Russian sites for the story of all publications of the Association for Computing Machinery (ACM) and has been appointed an organizer of the ACM Russian Chapter on Programming Languages. In 1993, the Institute became a collective member of the Gesellschaft fur informatik. The institute publishes an annual volume series with Nauka (Science) "System Information" which contain monographs of a survey and tutorial nature on current problems of computer science.

The Institute also carries on an extensive educational program in cooperation with Novosibirsk State University which is a major source of young students and researchers for the Institute.

(Updated material provided by Professor Aleksandr G. Marchuk, Deputy Director A. P. Ershov Institute of Informatics Systems tel.: +7 3832 355652 fax : +7 3832 323494)



7. Technological Construction Institute for Computer Technology in Akademgorodok under corresponding member of the RAS Semen T. Vas'kov (Vaskov)

Vas'kov (Vaskov), Semen T., D. Tech. S. Born in 1934. Engineer. Specialist in the automation of scientific research. Corresponding member of the RAN and of the Siberian Department since 1992. He has authored and co-authored 72 scientific works of which one was of monograph length and consequence. In 1990, he was named Deputy Director and in 1992, he became general Director of the "Informatika"--the special scientific construction bureau of the Siberian Department of the ANR. He is on the Scientific Council of the academy for the automation of scientific research. He is a professor at both the Novosibirsk State University and the Kishenev Polytechnical Institute. His major work is in developing a system of digital cartography. As a professor, he has directed the work of seven aspirants for the candidate degree. He is a member of the Scientific Council on the "Sibir" program. He also serves on the UNESCO program on regional statistics. He has been a consulting specialist on the telecommunications project for the Siberian region.



8. Computer Technology Institute in Akademgorodok under Iurii I. Shokin. Academician Secretary to the institute is Valerii V. Kobkov, C. PM. S.

Shokin, Iurii I., D. PM. S. Born in 1943. Mathematician. Specialist in computer and applied mathematics. Corresponding member of the Information Sciences, Computer Technology and Automation Department of the Academy since 1989; academician in 1992. He has authored 30 scientific works of which three are monographs and co-authored 120 publications of which three are significant monographs. He graduated from the Novosibirsk State University in 1966 and worked at the Computer Center of the Siberian Department from 1969 to 1975. From 1976 to 1983, he headed a laboratory of the Theoretical and Applied Mechanics Institute of the Siberian Department. In 1983, he was named director of the Computer Center in Krasnoyarsk subordinate to the Siberian Department. Since 1983, he has been a professor at the Krasnoyarsk State University where he has held the chair of applied mathematics and mechanics and supervised the academic research of 15 aspirants for the candidate degree. He is a commission member of the GKNT, and on the natural sciences committee for developing research methods into the dynamics of fluids, and on the working group of the natural sciences federation on information processes. In 1991, he was named the Director of the Computer Technology Institute of the Siberian Department of the RAN in Novosibirsk, and in 1992 he became head scientific secretary for the Siberian Department of the RAN.



III. Compound Geology, Geophysics and Mineralogy Institute in Akademgorodok.

Dobretsov, Nikolai L., D. GM. S. Born in 1936. Corresponding member since 1984, and academician of the Geology, Geophysics, Geochemistry, and Mining Sciences

Department of the RAN and of the Siberian Department since December 1987. He graduated from the G. V. Plekhanov Mining Institute in St. Petersburg in 1957. He worked in the geological field party on the Altai Geological Expedition of 1957-1960. He joined the Geology and Geophysics Institute of the Siberian Department in 1960, working in the Metamorphic Formation Laboratory from 1972 to 1980. From 1971-72 he worked in the chemistry laboratory of the Tectonics and Geophysics Institute of the National Academy. From 1980 to 1988, he served as Director of the Geology Institute of the Buriat Scientific Center in Ulan Ude that was established in 1973. Since 1988, he has been the chairman of the Ulan Ude Scientific Center. In 1988, he was named Director of the Institute of Geology and Geophysics of the Siberian Branch of the National Academy. He has been designated a professor since 1972. He has chaired the commission on metamorphosis and metamorphogeny of mineral deposits and head of the Petrography Committee of the national academy.

Established in 1957. Originally denominated the Geology and Geophysics Institute and initially under A. A. Trofimuk. Conducts basic geological work in the discovery and development of Siberian mineral resources. It studies the oil-gas capacity of the paleozoic stratum in Western and Eastern Siberia, proposes methods for accelerating the mining of oil and gas in Siberia, and is working on the natural gases found in a solid state in the Earth's crust. Some of the collaborative programs in which institute scientists participate include: "Oil and Gas of Western Siberia", "Oil and Gas of Eastern Siberia", "Gold Ore of Siberia", "Noble and Rare Metals, Copper and Nickel of Krasnoyarsk Territory", "Copper Ores of Udokan", "Iron Ores of Siberia", "Rare Metals of Siberia", "Redistribution of Water Resources of Siberia", and "Program of Economical Development of the Baikal-Amur Railway Zone." This institute is the largest complex geological research center in Siberia and the Far East, and one of the largest in Russia. The institute staff includes one Academician and three corresponding members of the Russian academy. The institute maintains an experimental geophysical research department in Tomsk. It has provided a base for the establishment of the Tuva Complex Department in Kysyl for the study of the geology and metallogenics of the Tuva territory, of methods of chemical treatment and enrichment of the most important mineral raw materials in the area.

The combined institute has an **Analytical Center** (under Gennadii N. Anoshin) with some seven laboratories administratively located under the Director of the combined institute:

- (1.) **the Geochemical Analytical Laboratory** under Gennadi N. Anoshin, C. GM. S. who is leading a study on the development and improvement of methods of analytical geochemistry connected with researches in the geochemistry of noble, rare and toxic metals;
- (2.) **the Geochemistry of Rare Elements Laboratory** under Fedor V. Sukhorukov, C. GM. S.;
- (3.) **the Physical Properties Divisional Laboratory** under Talgat S. Iusupov, D. Tech. S. who is leading a study of the theory and practice of the improvement of processes for the separation of minerals and technological mineralogy using processes of grinding for mineral separation;
- (4.) **the Spectral Methods Analysis Laboratory** under Iurii G. Lavrent'ev, D. Tech. S. who is heading a study of the development of spectral methods of analysis of minerals and rocks;

- (5.) **the X-ray and Molecular Spectroscopy Laboratory** under Diana K. Arkhipenko, D. PM. S. who is heading a study of the real structure of minerals with the use of the method of Xerography (X-rays);
- (6.) **the Isotope Research and Geochronology Laboratory** under Viktor A. Ponomarchuk, C. GM. S.--V. N. Melenevskii, C. PM S. of the laboratory is heading studies of the methods of geochronology and isotope geochemistry, and
- (7.) **the Chemical Analytical Methods Analysis Laboratory** under Aleksei B. Ptitsin, C. GM. S.

The institute also has a Geologic Museum, and a special Aero-cosmic Monitoring Laboratory under Valerii S. Iudin, C. GM. S. There is a Department of Experimental Geophysical Research located in Tomsk under Innokentii S. Chichinin, C. Tech. S. The General Director of the combined institute is Academician Nikolai L. Dobretsov. (**See: Institute of Geology and Geophysics. Akademgorodok-Novosibirsk: Siberian Branch of the AN SSSR, 1986. 80 PP.**)



9. Geology Institute in Akademgorodok is under Academician Nikolai L. Dobretsov. The institute is organized into two departments:

the Stratigraphy, Tectonics, Lithology, and Fossilized Sedimentary Minerals Department--with 17 laboratories, and

the Petrology, Geochemistry and the Location of Mineral deposits Department--with 12 laboratories.

I.) The Stratigraphy, Tectonics, Lithology, and Fossilized Sedimentary Minerals Department, under academician A. E. Kontorovich has under it the following laboratories:

Kontorovich, Aleksei E., D. GM. S. Born in 1934. Geologist. Specialist in general geology and the geochemistry of oil and gas. Academician since 1990. Deputy Director of the Institute of Geology and Geophysics of the Siberian Department in Akademgorodok-Novosibirsk. He is the author of 26 research works and co-author of 360 publications. His monographs "The Geology of Oil and Gas of the Siberian Platform," (1976) and "Prognosis of Oil and Gas Reserves" (1981) are thought to be most significant. He is a professor at the Novosibirsk State University where he has directed the doctorate work of eight students and the postgraduate work of 55 aspirants for the candidate degree. He is on the Scientific Council on problems of the geology and geochemistry of oil and gas of the Russian Academy, of the Lithology Committee, and is coordinator of the studies on Oil and Gas in the Vostok Region of the Scientific Council for the "Sibir" program of the Siberian Department. He is head of the Novosibirsk Oblast Scientific Technical Oil and Gas Development Department imeni Academician I. M. Gubkina. In 1974, he received the I. M. Gubkin Prize named after the renowned petroleum geologist and engineer, sharing it with A. A. Trofimuk and V. S. Vishemirskii.

- (1.) **the Tectonics Laboratory** under Vladimir A. Solov'ev, D. GM. S.;
- (2.) **the Tectonics Modeling Laboratory** under Boris M. Chikov, D. GM. S.;
- (3.) **the Precambrian Laboratory** under Vsevolod V. Khomentovskii, D. GM. S.

- (4.) **the Paleontology and Stratigraphy of the Lower Paleozoic Laboratory** under Iurii I. Tesakiov, D. GM. S.;
- (5.) **the Micropaleontology Laboratory** under corresponding member Aleksandr V. Kanigin;
- (6.) **The Paleontology and Stratigraphy of the Late Paleozoic Laboratory** under Evgenii A. Elkin, D. GM. S.;
- (7.) **the Paleontology and Stratigraphy of the Juraissic and Chalk Laboratory** under Viktor A. Zakharov, D. GM. S.;
- (8.) **the Palynology of Carpology Laboratory** under Valentina S. Volkova, D. GM. S.;
- (9.) **the Quaternary Geology Laboratory** under Stanislav A. Arkhipov, D. GM. S.;
- (10.) **the Geomorphology and Hydrogeology Laboratory** under Valerii S. Kuskovskii, C. GM. S.;
- (11.) **the Formation of Sedimentary Rocks Laboratory** under Evgenii M. Khabarov, C. GM. S.;
- (12.) **the Sedimentary Rock Ore Deposits Laboratory** under Iurii N. Zanin, D. GM. S.;
- (13.) **the Lithology Laboratory** under Iurii P. Kazanskii, D. GM. S.;
- (14.) **the Geology of Oil and Gas Laboratory** under Nikolai P. Zapivalov, D. GM. S.;
- (15.) **the Geological Mathematical Research Laboratory** under Sergei A. Afanas'ev;
- (16.) **the Geochemistry of Fossilized Minerals Laboratory** under Academician Aleksei E. Kontorovich, and
- (17.) **the Hydrogeochemical Laboratory** under Sergei L. Shvartsev, D. GM. S.

II.) **The Petrology, Geochemistry and Location of Mineral deposits Department** under corresponding member G. V. Poliakov has the following laboratories under its direction:

Poliakov, Glev V., D. GM. S. Born in 1931. Geologist. Specialist in petrography and petrology, and in the magmatic formations of Siberia. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the AN SSSR from 1981--reconfirmed in 1992. He graduated from the Tomsk Polytechnical Institute imeni S. M. Kirov in 1953 and upon graduation continued to work there. He is the author of 163 scientific publications of which five are monographs. In 1960, he joined the Institute of Geology and Geophysics of the Siberian Department, serving as a scientific researcher, both junior and senior, and head of the laboratory studying magmatic formation(1976), becoming Deputy Director of the institute in 1978, and head of the Department of metallurgy, petrography, geochemistry and mining deposits of that institute in 1985. In 1982, he was made head of the council on doctoral dissertations for the Department of Geology, Geophysics, Geochemistry and Mining Sciences of the Siberian Department. As a professor, he has guided the work of ten aspirants for the candidate degree. In 1984, he was deputy chairman of the Siberian Petrographic Scientific Council. He is head editor of the journal Geology and Geophysics. He received the State Prize in 1983.

- (1.) **the Magmatic Formation Laboratory** under corresponding member Glev V. Poliakov, is leading research on the magmatic formations of unstable zones, their petrology and the evolution of the composition of economic minerals;
- (2.) **the Petrology and the Formation of Granite Deposits Laboratory** under Emil' P. Izokh, D. GM. S. is heading a program of petrologic and formational analysis of granite in association in the magmatic structures in the central areas as a

basis for discovering the mechanism for the creation of granite and forecasting deposits;

- (3.) **the Magmatic Platform Laboratory** under Valerii V. Zolotukhin, D. GM. S. who is heading studies of permo-triassic magmatic formations of the Siberian Platform, their natural regularity, specific composition, genesis and depositions;
- (4.) **the Petrology of Magmatic Rocks Laboratory** under Vadim V. Belinskii, D. GM. S. who heads a program studying the formation of Alpinic and other rocks;
- (5.) **the Origin of Ore-bearing Formations Laboratory** under Elimir G. Distanov, D. GM. S. who heads a group developing a geological and genetic model of the formation of polymetals and pyrite polymetal deposits with the objective of finding the regularity of their occurrence and the specifics of their evolutionary development;
- (6.) **the Ore-magmatic System Laboratory** under Vitalii I. Sotnikov, D. GM. S. who is leading on the dynamics of ore magmatic systems of the earth's mantel and core and the type of ore concentrations and formation therein;
- (7.) **the Dynamics of Ore-bearing Formation Processes Laboratory** under Viktor N. Sharapov who is researching the indigenou systems and the development of the theory of their evolution;
- (8.) **the Hydrothermal Ore-bearing Laboratory** under Aleksandr A. Obolenskii, D. GM. S. who is guiding a study on the genetic models of ore formation and ore creating systems, and the hydrothermal deposits of structures of tectonic-magmatic activation;
- (9.) **the Geochemistry of Noble Metals Laboratory** under M. P. Mazurov, D. Geo. M. S., of this laboratory is conducting studies on the development of the mineralogical basis for singling out and classifying the ore creation systems of different degrees of productivity and defining the conditions of their creation and evolution;
- (10.) **the Geochemistry Research Laboratory** under Iurii G. Shcherbakov, D. Geo. M. S. is heading the study of the geochemistry of elements and isotopes in the processes of the concentration of noble metals;
- (11.) **the Geochemistry of Rare and Radioactive Elements Laboratory** under Viktor P. Kovalev, D. GM. S. who is leading a group in the study of radioactive, rare earth, and rare elements as indicators of indigenou rock-creating systems and their ore depositions, and F. V. Sukhorukov of this laboratory is also studying the geochemistry of rare elements in processes of the creation of granite and wind erosion, and
- (12.) **the Geological Correlation Laboratory** under Academician Nikolai L. Dobretsov--V. M. Gavshin of this laboratory is studying the geochemistry of lithogenesis in the greatest sedimentary basins in Siberia. The academician secretary to the institute is Aleksei A. Puzyrev, C. GM. S.



10. Mineralogy and Petrography Institute in Akademgorodok is under Academician Nikolai V. Sobolev.

Sobolev, Nikolai V., D. GM. S. Born in 1935. Geologist. Specialist in Mineralogy and petrology. Corresponding member of The Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1981, and academician since 1992. He graduated from L'vovsk State University in 1958. He worked at the Mineralogical museum at the university. In 1960 he joined the Geology and Geophysics Institute of the Siberian Department, working as a junior and senior researchers and head of the Laboratory of High Pressure Minerals

(1973). In 1983, he became Deputy Director of that institute. He has been a professor since 1985. He was chairman the Scientific Council on the Natural Sciences for the Presidium of the Siberian Department for diamond deposits in 1983. He became Vice President of the Mineralogy Society in 1982 and a member of the Mineralogy Specialists Association in 1982. In 1986 he became a member of the American Geophysical Society. He received the Lenin Prize in 1976.

The institute has 15 laboratories:

- (1.) **the High Pressure Minerals Laboratory** under Academician Nikolai V. Sobolev who is also leading the program on the specifics of the creation of minerals and studies of the deep zones of the Lithosphere;
- (2.) **the Processes of Diamond Formation Laboratory** under Nikolai P. Pokhilenko, D. GM. S. who is leading research on the reconstruction of geologic-mineralogical processes in the formation of diamond deposits and for a basis for improving methods for forecasting their occurrence;
- (3.) **the Diamond Experimental Mineralogy Laboratory** under Anatolii I. Chepurov, D. GM. S. who is leading a study on the crystallization, dissolving, and stability of diamonds and how to improve their cutting and polishing;
- (4.) **the Experimental Petrology Laboratory** under Igor' Iurii Malinovskii, C. GM. S. who is leading in the experimental modeling of minerals and the conditions of the creation of rock formations of the Earth's mantle;
- (5.) **the Metamorphism and Metasomatism Laboratory** under Vladimir V. Reverdatto, D. GM. S. who is leading in research on the dynamics and kinetics of metamorphism, the analysis of specific metamorphic formations, and the development of metals;
- (6.) **the Metamorphology of Ore-bearing Rocks Laboratory** under Gennadii G. Lepezin, D. GM. S. who is leading in the study of mineral groups, new raw material resources for the production of aluminum and fireproof materials;
- (7.) **the Thermal-Geochemical Laboratory** under Anatolii A. Tomilenko, C. GM. S. who is leading work on; thermobarometric geochemical research of magmatic and metamorphic processes;
- (8.) **the Physical and Chemical Modeling Laboratory** under Anatolii G. Kirdiashkin, D. Tech. S. who is leading work on modeling hydrodynamic thermophysical and chemical processes in the creation of minerals and the dynamics of geologic systems;
- (9.) **the Experimental Modeling of Ore Systems Laboratory** under R. R. Kolonin, D. Geo. M. S. who is heading a group studying the physico-chemical evolution and characteristics of sulphidic systems in colored and rare metals;
- (10.) **the Kinetics of Mineralization Laboratory** under Dmitrii V. Kalinin, D. GM. S. whose group is studying nitrogen in deep geological processes, research on high temperature processes, the interaction of nitrogen with silicate and oxides in the Earth's crust, the synthesis of nitrogen contained in inorganic compounds and making them using new materials;
- (11.) **the Alumina-silicate System with Volatile Components Laboratory** under Gennadii Iurii Shvedenkov, C. GM. S. who is leading in the study of the kinetics and dynamics of the processes of the creation of minerals in aluminum silicate systems and the reaction of fluids S N O;
- (12.) **the Mass Production of Crystals Laboratory** under Lev Sh. Bazarov, D. Tech. S. Professor V. A. Kirkinskii, D. PM. S. of the laboratory is heading work on phases of conversion, and the characteristics of minerals, phases in conditions of high pressures and temperatures for the modeling of mineral balances and processes in the deepest parts of the earth;
- (13.) **the Crystal Growing Laboratory** under Vladimir V. Gurov, C. GM. S. Professor I. A. Belitskii, C. Geo. M S is heading up experimental crystal

chemistry, the structural conversions of minerals and rocks and their physical-chemical characteristics;

(14.) the Metamorphosis of Solids and Minerals Laboratory under Boris A. Fursenko, C. GM. S. Researcher L. M. Krivoputskaya (aya) is researching the genetic potential of crystal structures of natural and artificial minerals, and,

(15.) the Physics of Minerals Laboratory under Aleksandr P. Eliseev, C. PM. S. The Academician Secretary to the institute is **Valerii M. Galkin**, C. GM. S.



11. Geophysics Institute in Akademgorodok is under corresponding member Sergei V. Krilov.

Krylov (Krilov), Sergei V., D. Geog. S. Born in 1931. Russian geographer. Specialist in geophysics, and in seismic methods of research on the earth's crust and the earth's mantle. Corresponding member of the Geology, Geophysics, Geochemistry and Mining Department and of the Siberian Department since December 1987. He graduated from the Leningrad Mining Institute in 1955 and began working at a geological prospecting organization. He joined the Geology and Geophysics Institute of the Siberian Department in 1961 and served in turn as a junior and senior researcher, and head of the Laboratory of Deep Seismic Research. In 1987 he was named head of the Department of Geophysics and shortly thereafter, Director of the institute itself. He has been a professor at the Novosibirsk University since 1979. **(LDA 89-11378.)**

The institute has 13 laboratories:

- (1.) the Deep Seismic Research Laboratory** under corresponding member Sergei V. Krilov who is also heading a study of the development of scientific bases and methods of regional multiwave earth research for improving the forecasting of geological upheavals of the lithosphere;
- (2.) the Polar Experimental Laboratory** under Iurii N. Antonov, D. Tech. S. who also is heading studies on physical and mathematical modeling, methods and technical means for electromagnetic research of the earth's crust and exploring for minerals, the paleomagnetism of the Mesozoic and Cenozoic formations of Siberia and Kazakhstan;
- (3.) the Multiwave Seismic Laboratory** under Konstantin A. Lebedev, C. Tech. S. who is leading a group studying the theory and methods of multiwave seismic prospecting, and the physical foundations for direct detection of mineral deposits;
- (4.) the Seismic Modeling Laboratory** under Leonid D. Gik, D. Tech. S. R. D. Ushakov, C. Tech. S. and L. D. Gik, D. Tech. S., of the laboratory are leading a study of the modeling of the structural problems of seismology;
- (5.) the Seismic Firing Problems Laboratory** under Georgii M. Mitrofanov, C. PM. S.; S. V. Gol'din, D. PM. S. is heading a team on theory and algorithms of solving the direct and ensuing problems of seismic prospecting;
- (6.) the Natural Geophysical Poles Laboratory** under Al'bert (Albert) D. Duchkov, C. Tech. S. who is also heading a study of spatial and time variations of geophysical fields of the regions of Siberia;
- (7.) the Regional Geodynamics Laboratory** under Sergei A. Tichkov, C. GM. S. who is heading work on mechanisms of the formation of the tectonic of the lithosphere of Siberia;
- (8.) the Dynamics of the Problem of Seismology Laboratory** under Gennadii M. Tsibul'chik, D. PM. S.--K. D. Klem-Musatov, D. PM. S. and G. M. Tsibul'chii, D. PM. S. are leading the studies of the development of a dynamic

- theory of the spreading and diffraction of seismic waves, and are following dynamic problems and the mechanics of the forces at the center of earthquakes;
- (9.) **the Geoacoustics of Natural Boreholes Laboratory** under Valerii Z. Koksharov, C. GM. S.--E. :M. Averko, D. PM. S and V. Z. Koksharov, C. PM. S. are studying the multiwave geoacoustics of bore holes;
- (10.) **the Vibration Methods of Seismological Research Laboratory** under Viacheslav I. Iushin, D. Tech. S., who is also leading work on treating of vibrational sources and equipment for deep seismic probing of the earth's crust, and investigations of the sedimentary cover and vibro-seismic monitoring;
- (11.) **the Regional Seismology Laboratory** under Nikolai D. Zhalkovskii, C. PM. S. has as its program the development of methods for improving seismic investigations of the sedimentary cover by using vibrational sources and creating more powerful vibrations;
- (12.) **the Geophysical Group Complex** under Vladimir V. Kuznetsov, D. Tech. S. is leading a study of the showing of the sun's activity and earth's dynamics in geophysical processes using the monitoring of cosmic rays, magnetic fields, electric fields, the ionosphere and other factors--N. D. Shalkovskii, C PM. S. of this complex is studying the conditions of the beginnings of earthquakes and the seismic regions of Altai and Sayan (Saia (ayan))--O. L. Shishimov, C. PM. S. is studying correlations of geophysical fields, their dynamics and methods for developing physical models of them;
- (13.) **and the Computer Center** under Anatolii I. Bochanov, C. Tech. S. has a program for the improvement of computer systems of the institute and the development of programmatic and technical means for networking institute computers. V. E. Soloboeia, C. PM. S. is working on the development of computer geotechnologies and creating a geo-informational systems of fundamental geophysics.

The Academician Secretary to the institute is Mikhail I. Epov, C. PM. S.



- 12. The Monocrystal Technological Construction Institute in Akademgorodok** was created in 1978 to develop technologies for growing and processing monocrystals for use in scientific studies and industrial production, to develop and manufacture experimental specimens of equipment and apparatuses for the synthesizing and purification of source materials and for the growing, processing and quality control of monocrystals. It is under Gennadii V. Bukin, C. GM. S.



- 13. The Laser Physics Institute in Akademgorodok** is under Academician Veniamin P. Chebotaev. Academician Secretary is Nikolai G. Nikulin, C. PM. S.
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IV. The Compound Hydrodynamics Institute in Akademgorodok is under
General Director Academician Vladimir M. Titov.

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Titov, Vladimir M., D. PM. S. Born in 1933. Specialist in the physics and the mechanics of impulses, and of their explosive processes. Corresponding member of the Problems of Machine Building and Control Processes Department of the Academy since 1979, and academician since 1992. He graduated from the Moscow Physico-Technical Institute in 1957. In 1960 he joined the Institute of Hydrodynamics of the Siberian Department. In 1974, he became Deputy Director, and in 1986 he was made Director of that institute. He is a professor, holding the chair in the physics of explosive processes at the Novosibirsk State University. He is on the nation Scientific Council on Theoretical and Applied Mechanics (1976) and head editor of The Physics of Corrosion and Explosion--since 1981.



14. Lavrentiev Institute of Hydrodynamics of SB RAS

Administration

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Established in 1957 to do theoretical and experimental research in the mechanics of fluids, gases, and plasma; continuum mechanics; physics and mechanics of explosive processes, and mechanics of deformable solid bodies. It was the first institute established in the Siberian Division. Its initial head was M. A. Lavrentiev. Dr. Oleg F. Vasiliev, Dr. Bogdan V. Voitsekhovskii, and Dr. Lev V. Ovsianikov--all corresponding members of the Russian Academy of Sciences--are staff members of this institute. Scientists of note whose work has received wide recognition include: P. Ia. Kochina, I. N. Vekua, and Iurii N. Rabotnov. Scientists in the institute research the mathematical problems of continuum mechanics, fluid mechanics, the physics and mechanics of explosive processes, and the mechanics of deformable solid bodies. Explosive welding was discovered in this institute. The institute has pioneered in the development of explosive production of new materials. Vladimir

M. Titov, D. PM. S., has been the Director of the institute since 1989. The Academician Secretary is Aleksandr P. Chupakhin, C. PM. S.



15. The Technological Construction Institute for Hydrodynamic Technology in Akademgorodok is under Valerii Pinakov.

(1997 update) Technological Design Institute of Hydro-Pulse Techniques of SB RAS

Administration

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V. Compound History, Philology, and Philosophy Institute in Akademgorodok

Derevianko, Anatolii P., D. Hist. S. Born in 1943. Archeologist. Specialist in the fields of archeology and of the ancient history of Siberia and the Far East. Corresponding member of the History Department of the Academy since 1979, and academician since December 1989. He graduated from the Blagoveshchenskii Pedagogical Institute in 1963 and from graduation until 1976 he worked as an aspirant in the Department of the Humanities Research Institute studying the economics and industrial development of Siberia in the Museum of History and Culture. In 1983 he became Director of the History, Philology, and Philosophy Institute of the Siberian Branch in Akademgorodok. He was active in Komsomol organizational activities in the late 70s. He joined the Presidium of the Siberian Department in 1980. From 1980 to 1982, he was rector of the Novosibirsk State University. He is author of 120 scientific works of which 15 are major monographs; he has co-authored 105 scientific works of which six are important monographs. His "History of Science and Culture of Mankind" and "History of the Peoples of Central Asia" both published by UNESCO are major contributions to the literature. He received his doctorate from the German Archeology Institute in the GDR in 1987. In 1991, an agreement was signed between the Siberian Department of the RAN and the Gorni Altai Republican Soviet that established an open international non-governmental organization for international research: The Altai International Center for Humanitarian and Biospheric Research. The center will involve the collaboration of three major bodies: the United Institute of History, Philology and Philosophy in Akademgorodok-Novosibirsk, the Cytology and Genetics Institute in Akademgorodok-Novosibirsk, and the Gorno-Altai Republican Soviet in Gorno-Altai, Russia. As head of the United Institute of History, Philology and Philosophy, Derevianko will play a major role in the development of this international research center's development.

The original Institute was founded in 1967 from the Department for Research in the Humanities of the Institute of Economics and Organization of Industrial Production Institute. Its first Director was A. P. Okladnikov (1967-81), and from 1981, until the selection of General Director Academician Anatolii P. Derevianko, it was headed by R. S. Vasil'evskii, D. Hist. S. Structure of the institute: The institute is organized into six departments: archeology and ethnography; history before 1917; history of Soviet society; philology; philosophical and sociological research, and philosophical departments. The staff is comprised of 191 researchers, of whom 36 hold the doctoral degree and 101 the candidate degree. One academician and three corresponding members of the Russian Academy of Sciences are on the staff. Under V. I. Boiko, the institute is studying the interaction between scientific-technical and social progress--from a humanitarian point of view; the historical development of Siberia under A. P. Derevianko; the cultural legacy of the peoples of Siberia and the Russian people under V. I. Molodin, and the interaction among national cultures and the relationships between different nationalities. The institute is headquarters to and publishes the results of archeological research in Mongolia; works with the Cuban Academy of Sciences on Cuban archeological monuments, and works with a number of universities and museums in Japan, Canada and the United States on the cave monuments in Altai. Institute scholars have participated in digs in Japan and Canada. The library holds special book collections of historians and philologists from the 18th and 19th centuries and from the time of Soviet rule. Its archives include some 728 manuscripts, 236 printed books and 51 hectographic editions dating from the 1440s to the 20th century. In 1991, the institute joined with the Institute of Cytology and Genetics and the Republican Soviet of People's Deputies of Gorno-Altai in establishing the Altai International Center for Humanitarian and Biospheric Research, a new international research center.



16. The History Institute in Akademgorodok is under corresponding member of the RAS Leonid M. Goriushkin. Academician Secretary is Galina A. Bochanova, C. Hist. S.

Goriushkin, Leonid M., D. Hist. S. Born in 1927. Historian. Specialist in the Regional History of Russia and of the Soviet Period. He has been a corresponding member of the History Department of the Russian Academy of Sciences since 1990. He has written or co-authored 300 pieces of which 14 are book-length monographs. He is a professor at the Novosibirsk State University where he has guided the work of two doctoral students and supervised the work of 28 aspirants for the candidate degree. In 1986, he became head of a Department of the Institute of History, Philology and Philosophy of the Siberian Department. He is on the editorial board of the historical series of the journal "Sibirsk" published in the USA. He serves as head of the historical commission to celebrate the 100th year of the founding of Novosibirsk and is deputy chairman of the House of Scientists in Akademgorodok.

(1997 update) Administration Institute of History of SB RAS

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It was established in 1990 from the Institute of History, Philology and Philosophy of the Siberian Department. The staff of the institute totals 80 persons, of whom 17 hold the doctorate and 25 the candidate degree. Academicians N. N. Pokrovskii, D. Hist. S., N. Ia. Gushchin, D. Hist. S., and V. L. Soskin are members of the institute. Scientists in the institute research the historical development of the social-demographics, economics, and political and cultural growth of Siberia; the evolutionary development of Siberia and of Russia, and the history of the development of contacts between them; study the economic, political and cultural contacts with China, the USA, Japan, and other countries with Siberia; research methodological problems, historiography, and archeology.



17. Institute of Archeology and Ethnography of SB RAS in Akademgorodok is under Academician Anatolii P. Derevianko, Chairman of the Russian Archeology Society.

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V. I. Molodin is Deputy Director for Scientific Work. Academician Secretary is Aleksei N. Sagaidachnii, C. Hist. S. It was established in December 1990 from the former Institute of History, Philology, and Philosophy. The staff is composed of 15 doctors of science, 50 candidate degree holders, and an additional 150 scientific workers. Scientists research the historical l-cultural processes of the development of the Siberian territory and the ethnosocial background of societal development of the bronze and iron ages of Central Asia; the ethnogenesis and ethnicity of tribal histories in Siberia and the history of the development of the first classes in Siberia and the Far East, and the connection between the culture of Northern Siberia and the oceanic regions; research into the traditional culture and ideology of the aboriginal races of Siberia and the Far East; the traditional material and spiritual culture of the Russian Siberian tribes; and the restoration of the memorable history and culture of Siberia.

(1997 update) Administration
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**professor Vasilevsky Ruslan Sergeevitch
professors Gemuev Izmail Nuhovitch and
Kurbatov Anatoly Ivanovitch**

**The scientific Secretary
doctor Sagaidachny Alexey Nikolaevitch**

**The assistants of the Director:
On international communications Pazelsky Valery Vladimirovitch
On commercial questions Baulo Arkady Victorovitch**

**The chief accountant
Tarasov Yury Mironovitch**

Departments

The Sector of Paleolite

The Sector of Neolite

The Sector of Bronze and Iron

The Sector of Archaeology and History Foreign East

The Sector of Archaeological theory and computer science

The Sector of Ethnography of Siberia

The Museum

(1997 update) The Institute is a scientific research institution with many scientific trends.

The Institute of Archaeology and Ethnography was established 33 years ago from a tiny department in the Siberian branch of the Russian Academy. The Institute currently has a staff of 350 research workers including 2 members of the Russian Academy of Science, 1 member of the Russian Academy of Natural Science, 1 member of the Russian Academy of Education, 25 professors and over 80 candidates of science. The Institute headquarters are located in Novosibirsk Akademgorodok, Siberia, with established laboratories in the cities of Khabarovsk (Far East), Irkutsk, Krasnoyarsk, Omsk and Barnaul.

The range of studies of the Institute is very wide: from the time of man's origin - until the early stage of development of Siberia by Russian Settlers. The Institute carries out joint research projects together with scientific centers of the USA, Canada, Switzerland, Belgium, France, Japan, Korea, Mongolia and China. International conferences and symposiums are often held here. The Institute's scientific production runs to hundreds of monographs and collective works.

Unique collection of relics accumulated for the period of the last thirty years constitute a large-scale mobile Exhibition "Archaeology and Ethnography of North Asia". More than 700 paleontological, archaeological and ethnographical exhibits have been demonstrated in Korea, Australia, Finland, Yugoslavia and already three times in Japan. Paleontological section includes skeletons of mammoth and ancient bison.

Mummies of a sable and a glutton, well-preserved bodies of which were found by scholars after 20 thousand years in Nizhneudinskaya cave are also presented at the Exhibition. Archaeological relics constitute a significant part of the collection. To them refer: stone implements of primitive men, polished stone discs, spearheads, bone harpoons, figurines of women and birds carved of mammoth tusk. Excavations in Gomyi Altai have resulted in surprising finds relating to the Scythian Epoch. Thanks to a number of geological and climatic factors fragments of ancient felt carpets, male and female woolen cloths, unique leather, wooden and golden subjects, decoration of horse harness in form of mythological birds, saddles with depiction of fishes and wolves, ritual wooden shields, bronze mirrors.

The center of the exposition is beyond doubt a reconstruction of a noble Scysian woman burial place. The mummified body in a bright garment, the hands decorated with tattoos in the form of mythological animals leave a deep impression on the visitors of the Exhibition.

There are also tools, armory, pieces of art created by people of the Bronze and Iron Age, and Early Middle Ages.

The section of ethnography dedicated to the history of development of more than 30 small nationalities includes shaman costumes, crowns, sables and tambourines of Altaian, Khakass, Touva and Evenki peoples, sacred blankets of Ugrian, clothes sewed offish skin of the Far East peoples. The visitors of the Exhibition can see a unique reconstruction of ancient sanctuary of Mansi People.

A great amount of festive and evryday costumes, Siberian icons, reconstruction of a furniture of a peasant house, birch bark recipricals reproduce the history of Setting at Siberia of Russian people. The Institute has a great experience of organizing various Exhibitions: "Russian Icon", "Religious believes of Siberian peoples", "Russian Festive costume", "Siberian Shamans", etc.

The visitors can buy copies of the most interesting exhibits. Another trend of the Institute's commercial activities is organizing international scientific tourism in Gomyi Altai. The Institute is the owner of a tourist hotel in Gomyi Altai consisting of separate comfortable cottages with all conveniences. A Cosy restaurant with a bar, Russian bath house and fishing in a mountain river are at your service. Two weeks programme includes several helicopter excursions to the most interesting places and historical memorials of Altai.

Tourists will get acquainted with the excavations of burial moulds of the bronze Age and Early Middle Ages, will see the rock paintings of primitive men. During their trip in Altai tourists will spend several days at the Plateau Ukok and on the bank of the Teletskoe lake. We hope you will never forget your date with magnificent beauty of Altai nature and monuments of ancient cultures. If you have questions regarding organizing exhibishions, please, feel free to contact us.



18. Institute of Philosophy and Law in Akademgorodok is under corresponding member of the RAS Vladimir I. Boyko. Academician Secretary is El'vira R. Barbashina, C. Phil. S.

Boyko, Vladimir I., D. Econ. S. Born in 1926. Corresponding member of the Philosophy and Law Department of the Academy since 1987. Sociologist. Specialist in research on the sociological processes of the Far North, Siberia and the Far East, and studies of the effectiveness of socialist development in those areas. He graduated from the Novosibirsk Institute Water Transportation Engineering in 1949 and from the Academy of Social Sciences in 1965. He worked at the Ministry of Transportation. From 1953 to 1962, he was a Communist Party Worker. In 1965, he joined the History, Philology and Philosophy Institute of the Siberian Department where he served as a senior researcher, scientific secretary, head of the division, and head of the Department of Philosophy and Sociology. In 1984, he was named head of the entire institute. He has been a professor at the Novosibirsk Party School. He is chairman of the regional interdepartmental commission on the coordination of the social-economic complex--medical-biological and linguistic research--and head of the Council on the Siberian Department's Sociology Association. He is an honored scientist of the former Soviet Union. He is an honored scientist of the former RSFSR. (LDA 89-11378.)

(1997 update) Administration Institute of Philosophy and Law of SB RAS

Director of the Institute
Corr.-member of RAS
Boiko Vladimir Ivanovich
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In 1990, the institute was separated from the History, Philology and Philosophy Institute of the Siberian Department. Its staff includes a total of 93 persons, of whom one corresponding member of the RAS, one academician of the Academy of Pedagogical Sciences, 12 doctoral degree holders and 35 candidate of science degree scientists. The balance of the staff are scientific workers. The institute is comprised of three departments: the Department of Philosophy and Sociology and the Department of Philosophy of Science, and the Department of Law. Under each of these departments are sectors that include: the philosophical problems of social development under V. P. Fofanov, D. Phil. S.; the methodology and organization of legal research under A. K. Chernenko, D. Phil. S.; regional and national social problems under A. A. Gordienko, C. Phil. S.; ethnosociology under Iurii V. Popkov, C. Phil. S.; the theory of ethno- and cultural anthropological research under V. V. Markhinin, C. Phil. S.; social information processes; the logic and theory of knowledge under V. V. Tselishchev, D. Phil. S.; and the sector on scientific methodology under O. S. Razumovskii, D. Phil. S.



19. Institute of Philology in Akademgorodok is under the Directorship of corresponding member of the RAS Aleksandr B. Soktoev. The Deputy Director Academician Secretary is Dr. Nikolai A. Aleksev, D. Hist. S. Natalia B. Koshkareva, C. Philological S. is the Secretary to the Institute.

Soktoev, Aleksandr B., D. Philological S. Born in 1931. Specialist in literature and folklore. Corresponding member of the Philosophy and Law Department of the Academy and of the Siberian Department since 1990. head of a sector of the History, Philology and Philosophy Institute of the Siberian Department in Novosibirsk-Akademgorodok. He has authored 119 scientific works, of which two

monographs have particular significance, and he is the co-author of 10 publications of which two are monographs, of which "The History of Buriat Soviet Literature" is one (1967). He teaches at the Buriat State Pedagogical Institute imeni Dorzhi Banzarova where he has guided the work of three aspirants for the candidate degree. He was on the Scientific Council on folklore of the AN SSSR and a member of the coordination council for the comparative study of the Russian and American cultures. In 1991, a new International Research Center for Northern Territories Development in Siberia was established that links together the work of scientists of three Siberian Department Institutes: the Institute of Cryosphere of Earth in Tiumen, the Institute of Physico-Engineering Problems of the North in Yakutsk, and the Institute of Philology in Akademgorodok-Novosibirsk. As Director of the Institute of Philology in Akademgorodok-Novosibirsk, Dr. Soktoev will play a major role in the development of this new international research center.

(1997 update) Administration Institute of Philology of SB RAS

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The Institute was organized in 1991 from the former Institute of History, Philology, and Philosophy. In the 1990s, the institute joined with the Institute of the Physico-Engineering Problems of the North under corresponding member Larionov, and with the Cryology of the Earth Institute under corresponding member Melnikov in Tiumen to form a new International research Center for Northern Territories Development in Siberia. The center will use organizations of the Yakutsk and the Tiumen Scientific Centers in new collaborative research efforts on problems of Northern Siberia. Its research thrusts include: the typological study of phonetics, grammar and syntactical analysis of the linguistics in the Urals region. Some persons involved in these studies include V. A. Avrorin, V. M. Nadeliaev, E. I. Ubriatova, and M. I. Cheremisina. The institute is involved in a heavy publishing program.



20. The Boreskov Institute of Catalysis in Akademgorodok.

Established in 1958. From 1958 to 1986, the Director of the institute was corresponding member of the AN SSSR G. K. Boreskov. Since 1986, the Director has been Kirill I. Zamaraev, C. PM. S.

Brief Review of the Boreskov Institute of Catalysis

The Boreskov Institute of Catalysis of the Siberian Branch of Russian Academy of Sciences is a largest in the world specialized institute working in this field. The Institute carries out fundamental and applied studies practically in all field of catalysis: structural and mechanistic characterization at the molecular level of various catalysts and catalytic reactions, chemistry of catalyst preparation, kinetic studies of catalytic processes, mathematical modeling and engineering of catalytic

reactors and processes, development and commercialization of new industrial catalysts and processes. Sophisticated instrumentation for in situ analytical control of catalyst state and reaction mixture composition, including instrumentation for adsorption, kinetic, structural and spectral studies are available at the Institute. All this allows to obtain within short time intervals unique combination of data about the structure of active centers, detailed reaction kinetics and mechanism, and to use these data for purposeful design of new catalysts and catalytic technologies.

The list of personnel of the Institute inscribes 1000 people, among them 434 researchers including one full member and two corresponding members of the Russian Academy of Sciences, about 40 doctors of sciences and 200 candidates of sciences. The Omsk Branch of the Institute guided by Prof. V. K. Duplyakin unites about 50 researchers. The pilot plant of the Institute for manufacturing adsorbents and catalysts is situated there as well. The scientists of the Institute work in 34 research laboratories and 17 research groups in Omsk. Service, Managing and Engineering Departments of the Institute support and promote its research activity.

The Institute of Catalysis of Siberian Branch of Academy of Sciences was founded in 1958 and now it is one of major research institutions in catalytic chemistry in the world. Initiator of the Institute and its permanent director up to 1984 was academician Georgii K. Boreskov (1907-1984), an outstanding specialist in chemistry and catalysis with international recognition, a significant manager of research. In 1992, his name was assigned to the Institute. G. Boreskov contributed remarkably to generation of scientific traditions and style, research trends and activities. Over several last decades fundamental and applied catalysis became a separate trend in chemistry and chemical engineering encompassing various fields of physics, mathematics, biology and engineering. Boreskov Institute of Catalysis has played a key role in this breakthrough.

The Scientific Council of the Institute is its brain center. Besides the heads of Laboratories and Departments, leading researchers are the members of the Council as well. The director of the Institute from 1986 until the 1990s was Kirill I. Zamaraev.

[Zamaraev, Kirill I., C. PM. S. Born in 1939. Chemist. Specialist in the fields of Catalysis, Chemical Kinetics and Condensation Media, and Chemical Radiospectroscopy. Corresponding member of the General and Technical Chemistry Department of the Academy since 1976, and academician since December 1987. He is also an academician of the Siberian Department. He graduated from the Physico-Technical Institute in Moscow in 1963. From 1966 to 1977, he worked in the Chemical Physics Institute of the national academy as a senior researcher. In 1977, he joined the staff of the Catalysis Institute in Akademgorodok. In 1976, he was named a professor at the Novosibirsk State University in that city. Since 1986, he has been Director of the Catalysis Institute in Novosibirsk. Since 1986, he has headed the government committee on Catalysis in Industrial Production. He was named to the Presidium of the Russian Academy of Sciences in 1988. He has been a member of GKNT Board since 1988. He is head of the Scientific Council on Catalysis. He is President of the Physical Chemistry Society section on Theoretical and Applied chemistry. The institute was established in 1958 to study catalytic action and catalyst preparation, the mathematical simulation of chemical reactors, commercial and new catalysts. It is one of the largest such institutes in the world. Although established as early as 1971 as the Coordination Center for Development of New Industrial Catalysts and the Improvement of Catalysts used in Industry, the center has evolved over the years into an International Center for Catalysts Characterization and Testing as an integral

part of the Institute itself. As Director of that institute, Dr. Zamarayev will continue to play an important role in its continued development as an international research center. He is presently a deputy to the Academician Secretary of the Department of General and Technical Chemistry in Moscow.]

The present director of the Institute is:

[PARMON Valentin Nikolaevich, Associated Members of RAS (1991)
doctor of sciences (1984), Professor (1991)

Head of the Laboratory of Catalytic Methods of Solar Energy Conversion
Director of the Boreskov Institute of Catalysis.

Prof. Valentin N. Parmon has developed and studied a large amount of catalysts and photocatalysts for dihydrogen production from water, thermocatalytic systems and devices for the direct conversion of concentrated solar energy and ionizing radiation energy, a new family of materials for chemical accumulation of low-potential heat, systems for CO₂ fixation under mild conditions. Prof. Parmon carried out the fundamental study on the design of catalysts for water conversion to dioxygen and elucidated the mechanism of this action, unusual adsorption and catalytic properties of high-temperature superconductors, gas phase electrocatalytic reactions of CO₂ reaction and oxidation of light hydrocarbons under mild conditions. Among his recent works one should mention papers concerning a possible impact of photocatalysis of tropospheric aerosols on the global chemistry of the Earth atmosphere, conceptual basis of application of renewable and nontraditional energetics in Siberia, the role of chemistry and catalysis in the sustainable development of future energetics as well as design of new catalysts and catalytic technologies for the biomass conversion to valuable fuels.]

In 1982, the staff of the institute numbered 900 persons of whom more than 120 held advanced degrees in the chemical sciences. The institute studies the theoretical and experimental aspects of catalytic action and catalyst preparation, develops the mathematical simulation of chemical reactors, and produces new commercial catalytic processes and catalysts. Catalysts are analyzed by atomic-adsorption spectrophotometry and various physico-chemical and chemical methods. Adsorption methods are used in studying the geometric and pore structure of catalysts involving electron microscopy, X-ray, mercury porosimetry, adsorption and capillary condensation methods. Spectral techniques using vibrational and Y-resonance spectroscopy and electron spectroscopy in the ultraviolet and visible spectral regions. Electron spin resonance and nuclear magnetic resonance are tools used to investigate the phase composition and the electronic structure of catalysts. Radio-chemical methods of analysis of various heterogeneous reactions involving radioactive isotopes and ionizing radiation are used to study the kinetics and mechanisms of reactions. Photoelectron spectrometers provide material for the study of adsorption and mechanisms of catalytic reactions. Synchrotron radiation using high energy electron and positron beams provide strong UV and X-ray radiation provides new possibilities of studying catalytic properties such as the charge state of active components, radii of coordination spheres, the coordination number of atoms, surface composition of atoms, etc. The study of the unsteady state regimes of the catalytic process performance is particularly promising, institute scientists have found. The institute has produced more than 60 catalysts that are in stages of licensed for production. The institute heads the joint scientific and technological complex "Katalizator". The institute also maintains a department in Omsk since 1978 that creates catalysts for the conversion of the hydrocarbon raw

materials, for oil refining technologies, and for catalytic methods of fuel burning, and joins in work at other chemistry research laboratories in Tomsk, Irkutsk, Kemerovo, Krasnoyarsk, and Ulan Ude. Catalysts that have been produced in the institute have been applied in oxidation processes converting methanol to formaldehyde, the low temperature conversion of carbon monoxide, the two-step oxidation of propane to acrylic acid and oxidative ammonolysis of propane and propane to acrylonitrile. They are in use in petrochemical and oil refining processes, in the production of sulfur compounds, and in the production of synthetic fuels. The Director since 1986 has been Kirill Zamaraev, C. PM. S. The Academician Secretary is Olga I. Goncharova, C. Chem. S.

(older material)

Structure and Scientific Personnel: Deputy Directors: Roman A. Buyanov, D. Chem. S., since '64; and Ermakov, Iurii I., D. Chem. S., since '74;

Heterogeneous Catalysis Division: Head Georgii K. Boreskov, D. Chem. S., since '77;

Automated Catalyst Test Laboratory: Head Nikolai N. Bobrov, since '77;

Catalyst Preparation Laboratory: Head Vera A. Dzisko, D. Chem. S., since '67;

Catalytic Conversions of Sulphur Compounds Laboratory: Head Anna V. Mashkina, D. Chem. S., since '67;

Dehydrogenation Laboratory: Head Roman A. Buyanov, D. Chem. S., since '73;

High Temperature Processes Laboratory: Head V. V. Popovskii, since '76;

Metallic Catalysts Laboratory: Head A. V. Khasin, C. Chem. S., since '73; Senior Researcher Rachovskii, E. E., since '73; Savchenko's Department: Valeri I. Savchenko, C. Chem. S., since '74;

Oxidation Laboratory: Head Georgii K. Boreskov, D. Chem. S., since '73; Senior Researcher Panov, Gennadi I., since '77;

Semiconductor Catalysis Laboratory: Head Nadezhda P. Keer, C. Chem. S., since '73;

Zeolites Laboratory: Head Kazimira G. Ione, C. Chem. S., since '73;

Homogeneous and Coordination Catalysis Division: Head Iurii I. Ermakov, D. Chem. S., since '77;

Catalytic Polymerization Laboratory: Head Iurii I. Ermakov, D. Chem. S., since '68;

Metal Complexes Catalysis Laboratory: Head Klavdi I. Matveev, D. Chem. S., since '68;

Organic Synthesis Laboratory

Organometallic Catalysts Laboratory: Head Iurii I. Ermakov, D. Chem. S., since '73;

Physical Chemical Study of Complex Compounds Laboratory

Industrial Catalysts Division

Industrial Catalysts Laboratory: Head N. M. Zaidman, C. Chem. S., since '73;

Scientific Bases of Catalyst Technology Laboratory: Head A. A. Samakhov, C. Tech. S., since '73;

Scientific and Technical Information and Standardization Laboratory

Synthesis of Catalyst Supports Laboratory: Head E. A. Levitskii, since '73;

Kinetics and Simulation Division

Computer Laboratory: Head Vladimir B. Skomorokhov, C. Tech. S., since '73;

Analog Computer System GVS 100 Department;

Automated Experiments Department;

Mathematical Safeguards Department;

Minsk Computer Department;

Fluidized Bed Simulation Laboratory: Head Valentin S. Sheplev, since '76;

Kinetics of Catalytic Reactions Laboratory: Head Vsevolod I. Timoshenko, C. Chem. S., since '73;
Phase Conversion Simulation Laboratory: Head A. S. Shmelev, C. Chem. S., since '73;
Catalytic Processes Simulation Laboratory: Head (Unknown); Senior Researcher Ivanov, E. A., since '75;
Complex Processes Department;
Liquid Phase Processes Department;
Mathematics Department;
Nonstationary Processes and Stability Department;

Physical Investigation Methods Division: Head Kirill. Zamaraev, C. PM. S., since '77;

Adsorption Laboratory: Head Anatoli P. Karnaukhov, D. Chem. S., since '73;
Analytical Laboratory: Head V. V. Malakhov, C. Chem. S., since '73;
Low Energy Electron Diffraction Laboratory: Head N. B. Baiutin, since '77;
Optical Spectroscopy Laboratory: Head L. G. Karakchiyev, C. Chem. S., since '73;
Quantitative Chemical Methods Laboratory:
Radiochemistry Laboratory: Head Leonid A. Sazonov, C. Chem. S., since '64;
Radiospectroscopy Laboratory: Head Viacheslav M. Mastikhin, C. Chem. S., since '73;
Structural Investigation Methods Laboratory: Head V. N. Kolomiychuk, C. PM. S., since '73;
X-Ray Spectroscopy Laboratory: Head Petr A. Zhdan, since '77;
Quantum Chemistry Laboratory: Head Vladimir M. Tapilin, C. PM. S., since '75; Senior Researcher Avdeev, Vasili I., C. Chem. S., since '77;
Central Support Departments: Design Department; Glass Blowing Department; Measuring Instruments Department; (no heads known);
Pilot Chemical Department: Head Tikhov, F. A., since '73.

(Institute of Catalysis. Novosibirsk: Siberian Division of the USSR Academy of Sciences, 1982, 72 PP.)

(1997 update)

Leading Scientists of Boreskov Institute of Catalysis

ANDRUSHKEVICH Tamara Vitalievna Doctor of chemical sciences (1994) Head of the Laboratory of Selective Heterogeneous Oxidation.

Tamara V. Andrushkevich studies successfully the regulations of catalytic effect of oxide systems on the partial oxidation of organic compounds. The mechanism and kinetics of oxidation and ammoxidation of propylene, acrolein, N-containing heterocycles belong to the sphere of her activities. She has established the redox mechanism for selective reactions. The principles of catalyst selection to oxidize acrolein to acrylic acid were developed on the assumption of the main role of the binding energy of surface intermediates. The role of acid-base and redox properties of the catalysts was recognized. Tamara V. Andrushkevich contributes considerably to the design of commercial catalysts for the two-stage propylene oxidation to acrylic acid and for propylene ammoxidation. At present, she designs the processes of the heterogeneous-catalytic gas-phase oxidation of formaldehyde to formic acid and of α -picoline to nicotinic acid.

ANIKEEV Vladimir Ji'ich, doctor of technical sciences (1992) senior researcher of the Laboratory of Mathematical Modeling of Multiphase Processes.

Head of the Research Group

The research interests of Vladimir I. Anikeev include the mathematical simulation of multiphase processes, catalytic reactors and chemical-technological schemes, experimental kinetic studies of catalytic processes and catalyst activity; characterization of heat- and mass transfer, studies in the fields of nontraditional power engineering, as well as development of new energy resources and energy saving plants and technologies on the basis of thermochemical catalytic reactions, coal and biomass thermochemical conversion. Vladimir I. Anikeev has initiated and developed a new scientific direction - an application of thermochemical catalytic processes in power engineering. He developed novel catalytic reactors/ receivers of the concentrated solar flux and proposed new experimental and theoretical methods to analyze the efficiency of these reactors; guided the construction of pilot plants for energy conversion and transfer [1][2] based on the closed thermochemical cycles proposed new schemes of heat-recovery installations; designed soft ware to calculate and analyze the exergy and to optimize numerous chemical catalytic processes and schemes.

ANUFRIENKO Vladimir Feodosievich, doctor of chemical sciences (1993)

Head of research group.

Vladimir F. Anufrienko is an expert in the ESR spectroscopy. He has revealed a covalent metal-ligand bond in a new family of chelate compounds of copper(II) and suggested a mechanism of a far distant delocalization of unshared electron in the chelate complexes. Vladimir F. Anufrienko has registered the effect of ligand exchange on the ESR spectra of copper(II) complexes in solutions. He was the first to prove the equatorial forms of copper(II) complexes to form. Vladimir F. Anufrienko revealed the effect of a concerted arrangement of copper ions and other paramagnetic ions caused by the Jahn-Teller cooperative effect in various oxide systems and oxide catalysts. During 20 years of his research activity he described some important peculiarities of the ESR spectra of titanium catalysts for polymerization. He is also known for his fundamental results concerning the ESR of carbons, cokes and carbon mesophase structures. These results were used to understand deactivation in methanol conversion over zeolite catalysts.

AVDEEVA Lyudmila Borisovna, candidate of chemical sciences (1977)

Head of the Group of Catalytic Hydrocarbons Decomposition on Metal Catalysts (1989)

Lyudmila B. Avdeeva has developed the technique for a nonoxidative catalytic conversion of methane (natural gas) to carbon and hydrogen. She has developed the principles for obtaining coke-resistant metal catalysts and for producing a novel graphite-like carbon material - catalytic filamentous carbon (CFC).

BALZHINIMAYEV Bair Sadyrovich, doctor of chemical sciences (1991)

Executive Director of the International Center for Catalysts Characterization and Testing.

Kinetics of heterogeneous catalytic reactions, reaction and chemical engineering belong to the sphere of his activities. His knowledge of kinetics and catalytic reaction mechanisms allows him to design and improve catalysts, catalytic processes and techniques of catalyst testing. Bair S. Balzhinimayev has developed experimental

procedures to characterize the kinetics of fast processes on heterogeneous catalysts. He studied the recently developed unsteady state kinetics of ethylene epoxidation, SCR of NO_x and SO₂ oxidation, as well as the oxidation of o-xylene to phthalic anhydride based on the detailed knowledge of active sites structure, and reaction mechanism.

BARANNIK Georgiy Borisovich, candidate of chemical sciences (1977)

Laboratory of Monolith Supports and Catalysts

The domain of his research activity includes the effect of reaction medium on the heterogeneous-catalytic reaction mechanism, synthesis and study of oxide catalyst active component, processes and catalysts for environmental control. Recently he became deeply involved in a new trend-chemical design and formation of structured heterogeneous catalysts-ceramic and composite monoliths. Ingenious monolith catalysts for DENOX process and complex purification of industrial waste gases have been developed on the basis of domestic raw materials. Studies of several new monolith supports and catalysts for some novel catalytic processes are in progress.

BOBROV Nikolay Nikolaevitch, candidate of chemistry (1974)

Head of the Laboratory for the Catalyst Activity Testing.

Nikolay N. Bobrov is the expert in experimental kinetic methods applied for catalysis. His nowadays activity concerns the standardization of control over catalysts and supports; equipment for testing catalysts activity, overall and active surface of catalysts and supports. Nikolay N. Bobrov is also occupied by designing the express analyzers of gas and gas/vapor compositions, devices for reference gas mixtures preparation. His scientific activity concerns kinetics of oxidative conversion of methane and other hydrocarbons. He designs the education accessory software to investigate the formal kinetics of steady-state heterogeneous processes.

BUYANOV Roman Alekseevich, doctor of chemical sciences (1972), Professor (1976).
Honoured Scientist of Russia, the Associate Member of RAS. Lenin prize winner.

Head of the Laboratory of Dehydrogenation.

Professor Roman A. Buyanov developed a basis for building the theory of low-soluble hydroxides crystallization via the oriented growth and the theory of polynuclear hydroxo complexes formation and that of condensed systems of low-soluble hydroxides in mother liquors. Accounting for the NMR data, he has developed the theory of magnetic mechanism of ortho-para hydrogen conversion. He studied also the radical chain mechanism of catalytic pyrolysis. Thus, the role of the heterogeneous initiation, chains break and propagation over the catalyst surface has been elucidated. Prof. Buyanov also investigated the mechanism of the carbide cycle in coke deposition and the stage mechanism of carbon oxidation in catalyst regeneration. He developed the scientific principles for the synthesis of carbon-mineral supports, adsorbents, catalysts and composites. Prof. Buyanov studied the reasons of catalyst deactivation and destruction and accomplished their first scientific classification. New mechanisms of activation were applied to prepare and process the catalysts. He made a significant contribution to the development of the

general theory of catalysts preparation. He supervises various all-Russian conferences concerning the scientific principles of catalyst preparation technologies, and the problems of catalysts deactivation. Many commercial catalysts have been obtained in his laboratory, among them are the catalysts for dehydrogenation and sulfur removal via the Claus method etc..

DAVYDOV Anatolii Aleksandrovich, doctor of chemical sciences (1990)
Professor (1990)

Head of the laboratory of Selective Conversion of Paraffins.

Using the IR spectroscopy, Prof. Anatoliy A. Davydov studies the structure and properties of surface and surface complexes forming as simple and complex molecules adsorb on the oxide catalysts, and as reactions proceed on the surface of solids. He studies the mechanism of heterogeneous catalytic reactions by the IR spectroscopy analysis of surface intermediates.

DUPLYAKIN Valerii Kuzmich, doctor of chemical sciences (1990)

Director of Omsk Department of the Boreskov Institute of Catalysis.

Valeriy K. Duplyakin is an expert in the field of hydrocarbons catalytic conversion. His research activities concern the design of oil-refining and petrochemical catalysts. He contributed magnificently to the chemistry and technology of the main stages of supported catalysts preparation; to molecular design of the catalyst active component for reforming and isomerization. He commercialized a series of reforming catalysts and new technologies for supported catalysts production. He initiates the design of new materials based on carbon and complex oxides, which have unique properties. He suggested a new method of hydroxides production allowing to design complex oxides and catalysts at the atomic level.

FEDOTOV Martin Aleksandrovich, doctor of chemical sciences (1991)

senior researcher.

Martin A. Fedotov is a top specialist in NMR application to studying the structural and catalytic properties of coordinated compounds of molybdenum, tungsten and metals of Pt group in solutions. He has studied a generation of hydroxides obtained from pure and mixed solutions of salts of aluminium and transition elements of the 1st row. He also investigated the structure and catalytic properties of heteropoly molybdates in solutions and tungstates of various composition possessing transition metal ions, as well as the structure and catalytic properties of platinum metal complexes in solutions.

FENELONOV Vladimir Borisovich, doctor of chemical sciences (1986)

Head of the Laboratory for Catalysts Texture Investigation.

In his research activities he studies and simulates the porous structure and adsorption properties of catalysts and adsorbents, mechanism of their structure formation at different synthesis stages, develops the methods of adsorption and mercury porosimetry to study the structure of porous solids. Vladimir B. Fenelonov has developed the physico-chemical principles of texture generation for a set of standard catalysts and supports via successive technological stages of their synthesis;

elucidated the surface-capillary and colloidal mechanisms of texture formation taking into account various geometry in the dispersed system. He also developed methods for interpreting the data of adsorption and mercury porosimetry. At present he studies how the texture of porous carbon materials forms. His monograph "Porous Carbon" dedicated to this subject will be published in 1996.

GORODETSKII Vladimir Vladimirovich, candidate of chemical sciences (1974)
senior researcher

Head of the Surface Science Group

The main object of his scientific interest is to understand fundamentally the mechanism of low temperature surface processes related to catalysis by platinum metals. Rate oscillations and related concentration wave propagation, the activity of different adsorption states of reactants (molecular or atomic) and induced- surface structural changes in the course of reactions are now the hot topics in model reaction studies (H_2+O_2 , $CO+O_2$, $NO+H_2$, NH_3+O_2). The primary emphasis is to attack deeper the insights of catalytic processes at the atomic and molecular levels.

IONE Kazimira Gavrilovna, doctor of chemical sciences (1981)
Professor (1988)

Head of the Laboratory of Zeolite Catalysts.
Director of Scientific Engineering Center "ZEOSIT".

Prof. Kazimira G. Ione focusses on developing scientific approaches to the synthesis and characterization of acid-base zeolite catalysts. She has magnificantly contributed to the creation of scientific basis of zeolite synthesis, design of zeolite catalysts and zeolite-based catalysis in the basic and fine organic syntheses. Under her supervision her team has developed catalytic systems and process principles to produce lead-less high-octane-number gasolines from different hydrocarbon raw materials. Many reactions of basic and fine organic syntheses to produce alkyl aromatics, nitrogen containing compounds using environmentally friendly technologies were designed. The industrial production of zeolite catalysts and commercial installations catalytically synthesizing motor fuels, designed and patented by Prof. Ione and co-workers, successfully operate now.

ISMAGILOV Zinfer Rishatovich, doctor of chemical sciences (1988)
Professor (1990)

Head of the Department of Environmental Catalysis.

Prof. Zinfer R. Ismagilov is a well-known specialist in the field of environmental catalysis. His scientific interests are focussed on the development of environmentally friendly technologies, catalytic methods of wastes utilization and environmental control. He has elucidated the mechanism of hydrogen oxidation on oxides; the kinetics and mechanism of oxidation of organic substances and the mechanism of heterogeneous-homogeneous free radical reactions; designed new technologies to purify waste gases, utilize and recycle liquid and solid residues; developed new spherical alumina supports and catalysts for gas processing and petrochemistry. Prof. Zinfer R. Ismagilov initiated the development of honeycomb monolith supports and catalysts, used for VOC control, purification of automotive exhausts, DENOX of tail gases from power plants. He directed the organization of the first line producing monoliths in Russia. He has invented and patented a new process of

the direct catalytic oxidation of hydrogen sulfide to elementary sulfur both in fluidized bed and on a monolith catalyst. Commercial production of a series of catalytic heaters and appliances was organized using the results of his persistent R&D activities in the field of catalytic combustion.

IVANOV Aleksei Alekseevich, candidate of chemical sciences

Head of the Laboratory of Kinetics and Processes in the Fluidized Bed.

Aleksey A. Ivanov contributed significantly to the studies of catalysts and processes to oxidize sulfur dioxide and aromatic compounds. He investigates the mechanism of catalyst action and catalysis under unsteady-state conditions. Aleksey A. Ivanov has developed a physico-chemical and mathematical concept to control the effective nonstationary state of catalysts in catalytic oxidation. He has developed the transition response techniques to study reactions and detailed mechanisms of a series of industrial catalytic processes such as sulfur dioxide oxidation, o-xylene oxidation to phthalic anhydride.

KERZHENTSEV Mikhail Anatolyevich, candidate of chemical sciences (1979)

Head of the Group of Processes for Direct Catalytic Oxidation of Hydrogen Sulfide

Mikhail A. Kerzhentsev is an expert in the catalytic combustion, oxidative heterogeneous catalysis using catalysis for environmental protection. His research activities include the study of kinetics of complete oxidation of various organic compounds over solid catalysts, fluidized bed catalytic combustion of organic compounds and wastes, development of catalysts and processes for the direct oxidation of hydrogen sulfide to elemental sulfur.

KHASIN Aleksandr Viktorovich doctor of chemical sciences (1989)

Leader of the Group of Oxidation on Metals.

Aleksandr V. Khasin investigates the isotope exchange of oxygen and nitrogen, ammonia synthesis, reaction of nitric oxide with carbon monoxide, hydrogen and ethylene oxidation over metals. He gave a quantitative analysis of the kinetics of oxygen isotope exchange on silver and that of nitrogen on iron. He also determined the ratio between the rates of nitrogen isotope exchange and ammonia synthesis, which permitted to predict the synthesis rate using the isotope exchange data. He investigated the regulations and simulated quantitatively the catalytic ethylene oxidation on silver.

KIRILLOV Valerii Aleksandrovich, doctor of technical sciences (1986)
Professor (1991)

Head of the Laboratory of Mathematical Modeling of Multiphase Processes.

Valeriy A. Kirillov is engaged in the mathematical simulations of chemical reactors; studies on hydrodynamics of multiphase fluids, phenomena of heat and mass transfer upon chemical and phase conversions and application of catalysis to ecology and power engineering. Prof. Kirillov has developed the theory of simultaneous processes of

chemical and phase conversion on a porous grain and in the catalyst layer; suggested a set of technologies for the liquid phase catalytic purification of industrial gases from the sulfur compounds and nitrogen oxides; solved the problems of thermochemical conversion and storage of solar energy via the use of heterogeneous catalysis.

KOCHUBEY Dmitrii Ivanovich, doctor of physico-mathematical sciences (1994)

Head of the Laboratory of Spectral Methods

Dmitriy I. Kochubey contributed a lot to the EXAFS studies of ultradispersed metal clusters, oxides and sulfide materials, and to scanning tunnel microscopy on surfaces. Dmitriy I. Kochubey has developed the following EXAFS techniques: fluorescence transmission, overall photocurrent, XEOL (in the International Siberian Center of Synchrotron Radiation). He also directs the EXAFS studies at this Center. He has developed a technique for characterizing the phase composition of supported metal catalysts under anaerobic conditions and various operation modes.

KOVALENKO Galina Artemievna, candidate of chemical sciences (1985)

Head of the Group on Biocatalysis

The research activities of Dr. Kovalenko unite the selective bio-oxidation of organic substrates including gaseous alkanes and alkenes by suspended and immobilized enzymes and microbial cells; research and design of methods for immobilizing enzymes and bacteria on inorganic supports based on modified and nonmodified minerals including carbonized alumina and monolith honeycomb supports; study of general principles of enzyme stabilization via immobilizing biocatalysts on/in inorganic matrices; application of obtained heterogeneous biocatalyst in various fields including biotechnology, medicine and clinical analysis.

KOZHEVNIKOV Ivan Vasilievich, doctor of chemical sciences (1983)

Professor (1990)

Head of the Laboratory of Catalytic Reactions of the Organic Synthesis.

Prof. Ivan V. Kozhevnikov is a distinguished scientist known for his expertise in catalysis for organic synthesis. His research interests lie in the area of metal complex and acid catalysis in homogeneous and heterogeneous liquid-phase reactions. He contributed to the mechanistic studies of homogeneous catalysis by the Lewis acids. He also performed an extensive research on palladium catalyzed oxidation of organic compounds (olefins, alcohols, arenes, carbohydrates, etc.). Prof. Ivan V. Kozhevnikov has made a significant contribution to the acid and oxidation catalysis by heteropoly acids; preparation and characterization of HPA catalysts. He studied the mechanisms of HPA catalytic performance, development novel catalytic methods for the synthesis of fine chemicals (stabilizers, medicines, vitamins (E,K,C, etc.)). Some of his innovations were commercialized. In his recent studies he aimed at designing advanced solid acid catalysts based on HPA and related compounds incorporated in novel mesoporous M41S zeolites. He is the author of more than 150 works, including 32 Russian Patents, 9 reviews and monograph "Catalysis by Acid and Bases". Since 1993, he works as a visiting professor (joint

program "Catalysis by HPA and Related Systems) at the Delft University of Technology, the Netherlands.

KRIVORUCHKO Oleg Petrovich, doctor of chemical sciences (1990)

Head of the Laboratory for Catalysts Preparation.

Oleg P. Krivoruchko develops theoretical principles of heterogeneous oxide catalysts preparation and related technologies. He has also developed nontraditional methods for preparing supports and catalysts via thermochemical, mechanochemical and electron-beam activation of solids under conditions far from equilibrium. He has discovered and studied experimentally the phenomenon of unusual liquid metal-carbon particles formation during the solid -phase interaction between Fe, Co, Ni and amorphous carbon at the temperatures by 500-900°C lower than the melting point of metals and their carbon eutectics. These particles constitute carbon solutions that exhibit an abnormally low saturation towards carbon (to 50 at.%) and extremely high flowing into the carbon support. When moving, these metal-carbon particles catalyze the transformation of amorphous carbon to graphite.

KRYUKOVA Galina Nikolaevna, candidate of chemical sciences (1989)
senior researcher of the Laboratory of Structural Methods

Head of the Electron Microscopy Group.

Kryukova Galina Nikolaevna. Candidate of Chemical Sciences (1989), Senior researcher of the Laboratory of Structural Methods, Head of the Electron Microscopy Group

KUNDO Nikolai Nikolaevich, doctor of chemical sciences (1991)

Head of the Laboratory of Catalytic Processes of Desulfurization.

Nikolay N. Kundo successfully develops catalytic processes in the gas phase and solutions for detoxicating wastes containing sulfur compounds, searches for catalysts resistant to sulfur compounds, and studies catalytic reaction mechanisms. He has developed the processes for the liquid phase catalytic purification of gases from hydrogen sulfide, yielding elementary sulfur. He pioneered the use of catalysts based on cobalt phthalocyanines for this purpose. Test experiments provided a 95% yield of sulfur and practically complete gas purification from hydrogen sulfide. Heterogeneous catalysts on the basis of cobalt phthalocyanine allow to detoxicate wastes from hydrogen sulfide and mercaptanes. Studies of H₂S+SO₂ reaction in aqueous solutions produced efficient catalysts for sulfur generation. The process of sulfur removal from the effluent gases containing sulfur dioxide was designed using the data obtained.

KUVSHINOV Gennadiy Georgievich, doctor of technical sciences (1992)

Head of the Group of Catalytic Processes in Dynamic Beds

The field of his research activities unites the engineering of chemical, mechanical and thermal processes. Gennadiy G. Kuvshinov results come from the mathematical simulation and design of chemical reactors, hydrodynamics and heat- and mass transfer in dynamic dispersed systems (fluidized-, circulating-, moving, vibrant beds), as well as from catalysis application to ecology, power engineering and processing of new carbon materials.

KUZIN Nikolay Alekseevich, candidate of chemical sciences (1982)

Nikolay A. Kuzin designs metal based catalysts, studies microkinetics of chemical reactions with phase transformations and develops chemical technologies related. He is an expert in catalysis, especially in the design of catalysts for highly exothermal processes, and in macrokinetics theory and chemical technology. He obtained key results when designing metal based catalysts for the liquid-phase decomposition of The field of his research activities unites the engineering of chemical, mechanical and thermal hydrogen peroxide and hydrazine. These catalysts are mechanically stable in the gasogeneration. Dr. Kuzin also studies macrokinetic regulations of such processes on the catalyst grain. His studies allowed him to elucidate the essence of physical chemical phenomena proceeding in the gas-phase catalytic decomposition of hydrogen peroxide and hydrazine and to give a mathematical description of these processes in a reactor. Nikolay A. Kuzin has designed the methods to obtain catalytically active armoured metal membrane materials. These methods in turn allowed him to develop three ways of catalytic gas fuel combustion to produce heat. Such materials are used in catalytic devices (or heaters) allowing to burn the stoichiometric fuel-air mixtures at 800-850oC producing no nitrogen oxides. Moreover, the heaters act as heat exchangers.

KUZNETSOV Vladimir L'vovich, candidate of chemical sciences (1978)

Head of the Group of Synthesis of Surface Compounds
Director of BIC Information Center

Vladimir L. Kuznetsov is the expert in synthesing and studying highly dispersed compounds. His scientific interests are focussed on the research and design of supported catalysts immobilizing metal complexes and clusters on the supports of different origin (oxides, carbon). He has also developed the method for transforming disperse diamond to curved graphitic structures (onion-like carbon, surface carbon nanotubes), methods for preparing ultra-disperse magnetic materials. Vladimir L. Kuznetsov is the organizer and decision maker of the BIC Information Center, responsible for supporting the databank on catalysis.

LIKHOLOBOV Vladimir Aleksandrovich, doctor of chemical sciences (1983)
Professor (1985)

Head of the Laboratory of Catalysis by Metal Complexes
Head of the Chair "Catalysis and Adsorption" at the Novisibirsk State
University.

Prof. Vladimir A. Likholobov is a well known specialist in the synthesis of heterogenized complexes of metals and application of these new materials for preparing catalysts, sorbents and composites. He has developed fundamental and methodological approaches to the synthesis of anchored chemicals by the "tailor- made" method providing a wide spectra of chemical compositions and structures of the catalyst active sites and improving the "chemical accuracy" of the synthesis. He contributed magnificently to the research of processes for activating dihydrogen, carbon monoxide, dioxygen, olefin molecules by transition metal ions, as well as of ligand rearrangements yielding the products of hydrogenation, oxidation and carbonylation of various organics. Now he is desgning methods for synthesing the surface-functionalized carbon materials which are catalysts and sorbents of a new

generation (they serve as key materials to produce dyes, biologically active substrates, fine organics).

MALAKHOV Vladislav Veniaminovich
doctor of chemical sciences (1988)

Head of the Analytical Laboratory.

MASHKINA Anna Vasilievna doctor of chemical sciences (1973)
Professor (1988)

Head of the Laboratory of Catalytic Conversions of Sulfur-Containing Compounds.

Taking into account the chemical nature of the heterogeneous catalysis, Prof. Mashkina has established a general approach to predicting the catalytic action of materials with respect to sulfur compounds interactions. Her studies of chemical interactions between the reagents and the surface allowed to perform thermodynamically possible but previously unknown reactions and to select efficient catalysts for some particular processes in the inert media of hydrogen, oxygen and hydrogen sulfide. She supervised the design of efficient catalysts and processes for synthesizing alkane thiols, aliphatic- and cyclic sulfides and sulfoxides, sulfolane, thiophenes, methylthiazole.

MASTIKHIN Vyacheslav Matveevich, doctor of chemical sciences (1986)
Professor (1994)

senior researcher.

Prof. Vyacheslav M. Mastikhin studied catalysts and catalytic reactions with radiospectroscopy methods, such as electron spin resonance (ESR) and nuclear magnetic resonance (NMR). At the initial stage of his work he studied with ESR the active component structure in almost all important catalysts. He was the first to investigate how vanadium catalysts for sulfur dioxide oxidation behave in situ and obtained the data on the change of their phase composition as the gas mixture composition and temperature change. Then he turned his efforts towards the NMR spectroscopy. Using the high performance solid state NMR he has developed new approaches to study heterogeneous catalysts. In order to study the sites on heterogeneous catalysts surface, he has developed labels and rotors allowing NMR measurements in sealed tubes rotated at magic angle, and was the first in the field. His work initiated similar studies abroad and helped in their development. To study the catalyst performance in situ, he designed probes allowing to analyze at high temperatures (up to 650°C) in reacting gases media. Approaches designed by Prof. V. Mastikhin helped to obtain unique results important for catalysis fundamentals and application. These results help to create new efficient catalysts and to understand the mechanism of catalytic reactions.

MATVEEV Klavdii Ivanovich, doctor of chemical sciences (1970)
Professor (1982)

Head of the Group for Studing Catalysts and Processes Based on Heteropoly Acids.

Prof. Klavdiy I. Matveev designs and studies homogeneous catalysts for oxidation in basic and fine organic synthesis. He pioneered in the homogeneous catalysis with

heteropoly acids, which resulted in the production of more than 25 catalysts for various reactions of organic synthesis. He is the author of 48 patents in USSR and 2 patents in 6 European countries. Nowadays he is predominantly engaged with catalytic synthesis of vitamins K and E.

MOROZ Ella Mikhailovna, doctor of chemical sciences (1989)

senior researcher.

X-ray diffraction of highly-dispersed systems is the main field of her research work. Using this method Ella M. Moroz studies the structural and substructural properties of catalysts and supports. With the up-to-date experimental and numerical methods she has developed X-ray methods to study the multicomponent highly-dispersed materials. The methods are based on the integral analysis of the X-ray intensity curves. Method of radial atomic distribution (RAD) was used to study the phase composition, structure and size of the crystallites of multicomponent catalysts. The criterion of RAD curves reliability was found. The harmonic analysis of diffraction peaks profile was used to identify the crystal dimensions and parameters of crystal distribution and microdistortion. For the first time X-ray analysis was used to determine the structure of low temperature alumina which is of key importance for supported catalysts. Ella M. Moroz characterized the mechanism of interaction between these compounds and promoters. Ella M. Moroz has studied the structural and substructural characteristics of a series of monometallic supported catalysts Me/(Al₂O₃, C, SiO₂, spinels). (Me = Pt, Ir, Pd, Re, Ni) and bimetallic catalysts of Pt-Me type (Me = Sn, Re, Ru, Ir, Ce, etc.) prepared via various procedures.

NOSKOV Aleksander Stepanovich doctor of technical sciences (1993)

Head of Chemical Engineering Department.

The main fields of his scientific interests are the mathematical modeling of catalytic fixed bed reactors and forced unsteady-state catalytic processes, development and commercialization of catalytic processes used to protect the environment from wastes containing VOC, SO₂ and NO_x. At present his interests are focussed on the use of the catalyst surface unsteady state in catalytic processes. He supervises the design and commercialization of new catalytic processes for gas purification under unsteady-state regimes.

PANOV Gennadii Ivanovich, doctor of chemical sciences (1985)

Associate Member of IUPAC (1989),

Head of the Laboratory for Catalytic Synthesis of Oxygen-Containing Compounds.

Dr. Panov studies the mechanism of molecules activation on solid surfaces and its manifestation in heterogeneous catalysis. Using the isotope techniques for the mechanistic studies, he has revealed general regularities in the activation of diatomic molecules (N₂, O₂, H₂). His recent activity relates to the oxidation catalysis over zeolites and search of new routes in the oxidative organic synthesis. He and his colleagues has discovered an efficient way for the direct hydroxylation of aromatics. This way uses a biomimetic strategy based on a remarkable ability of Fe complexes stabilized in the zeolite matrix to produce reactive oxygen species similar to the active oxygen of enzyme monooxygenases.

PARMON Valentin Nikolaevich, Associated Members of RAS (1991)
doctor of sciences (1984), Professor (1991)

Head of the Laboratory of Catalytic Methods of Solar Energy Conversion
Director of the Boreskov Institute of Catalysis.

Prof. Valentin N. Parmon has developed and studied a large amount of catalysts and photocatalysts for dihydrogen production from water, thermocatalytic systems and devices for the direct conversion of concentrated solar energy and ionizing radiation energy, a new family of materials for chemical accumulation of low-potential heat, systems for CO₂ fixation under mild conditions. Prof. Parmon carried out the fundamental study on the design of catalysts for water conversion to dioxygen and elucidated the mechanism of this action, unusual adsorption and catalytic properties of high-temperature superconductors, gas phase electrocatalytic reactions of CO₂ reaction and oxidation of light hydrocarbons under mild conditions. Among his recent works one should mention papers concerning a possible impact of photocatalysis of tropospheric aerosols on the global chemistry of the Earth atmosphere, conceptual basis of application of renewable and nontraditional energetics in Siberia, the role of chemistry and catalysis in the sustainable development of future energetics as well as design of new catalysts and catalytic technologies for the biomass conversion to valuable fuels.

PAUKSHTIS Eugeny Aleksandrovich, doctor of chemical sciences (1992)

senior researcher

Eugeny A. Paukshtis uses the quantitative IR spectroscopy to study the surface of catalysts. He has evaluated the methods for acidity measurements regarding thermodynamic scales. He suggested to use the proton affinity scale to measure the acid sites strength. Now He has studied the acidity of different types of zeolites including HY, H Mordenite, H-erionite, beta-zeolites, H-ZSM-5. Studying the catalytic reaction mechanisms, he and his co-workers suggested that carbonium ion in aliphatic compounds behaves as a "transition state". He has established a relationship between the catalytic activity and PA (proton affinity) of acid sites. Now he also works in the field of fluorescence analysis of dispersed metal (Ag) on supports.

PLYASOVA Ludmila Mikhailovna, doctor of physico-mathematical sciences (1993)

Head of the laboratory of Structural Methods.

To her scientific interests belong X-ray diffraction for studying polycrystal materials, their development with regard to catalyst peculiarities. Among these methods is the high-temperature X-ray diffraction analysis in controlled media (in situ X-ray diffraction analysis); methods studying how the complex oxide catalyst structure forms during all stages of catalyst preparation and operation; methods studying the crystal-chemical peculiarities of complex oxides exhibiting catalytic properties. Ludmila M. Plyasova has studied how the phase composition and structure of some Mo-, Fe-, Cu-containing oxide systems form. Data on the phase transformation, crystal-chemical nature of phases, their thermal stability, reaction medium effect on the phase composition and structure help to understand the mechanism of the catalyst active state formation and to control the catalyst properties.

ROMANNIKOV Vyacheslav Nikolaevich, candidate of chemical sciences (1978)

Research Group

Vyacheslav N. Romannikov is occupied with zeolite synthesis, study of mechanisms of reactions catalyzed by zeolites and with the design of zeolite containing catalysts. He has developed the principles of zeolite acidity regulation using chemical modification. The corresponding catalytic system has been elaborated for the highly-selective alkylation of aromatics.

RYNDIN Yurii Alekseevich, candidate of chemical sciences (1977)

Head of the Laboratory of Catalysis by Anchored Metal Complexes.

Yuriy A. Ryndin is engaged in catalysis by the anchored metal complexes. He studies the nature of active sites of supported oxide and metal catalysts via a purposeful synthesis of molecular models of sites resulting from organometallic precursors.

SADYKOV Vladislav Aleksandrovich, candidate of chemical sciences (1978)

Head of the Laboratory of Catalysts for Deep Oxidation.

Vladislav A. Sadykov studies environmental molecular catalysis, detailed mechanisms of heterogeneous catalytic oxidation and NO reduction, defects of oxide catalyst structures, new routes of catalyst preparation (plasmochemical, hydrothermal, mechanochemical treatments), supported noble metal catalysts promoted by oxides. He studies the nature of bulk and surface defects of transition metal oxides and their role in the oxidation catalysis; elucidates the mechanisms of the low-temperature CO oxidation on oxides and supported catalysts. He has elaborated a set of cheap, highly active and thermostable catalysts for environment control using wastless technologies.

SAVCHENKO Valerii Ivanovich, doctor of chemical sciences (1985)
Professor <1988)

Head of the Laboratory of Metal Catalysts.

Using up-to-date physical methods for surface studies, i.e. LEED, Auger and photoelectron spectroscopy, mass-spectrometry and mathematical modelling of catalytic processes, Prof. Valeriy I. Savchenko deals with the atomic structure and electronic properties of single crystal and powdered catalysts; studies the kinetics of adsorption and catalytic reactions, mechanisms of chemisorption and catalysis on metals. He has established the correlation between the energy and kinetics of adsorption and oxidative catalysis, as well as between the surface structure of metal catalysts and its reconstruction under the influence of the reaction media. Mathematical modeling methods (differential equations integration, homotopy and Monte Carlo) allowed him to show that during CO oxidation on heterophase systems there may appear super-additive activity at the kinetic conjugation of surface different patches, caused by the surface diffusion (spillover) of CO molecules adsorbed.

SAVINOV Evgeniy Nikolaevich, doctor of chemical sciences (1994)

Assistant Professor of Physical Chemistry at the Novosibirsk State University (1981)

His research activities concern particulate photoelectron chemistry, photocatalytic transformations of organic compounds as well as the synthesis and characterization of ultrasmall semiconductor particles. He is also engaged in the heterogeneous photocatalysis, solar- and environmental chemistry. He is the author of more than 70 publications and 5 patents.

SEMIKOLENOV Vladimir Aleksandrovich, doctor of chemical sciences (1994)

Senior researcher of the Group of Catalysts on Carbon Supports

Vladimir A. Semikolenov focuses his research activities on the development of new porous carbon-graphite materials, design and study of metal complex and highly disperse metal catalysts of platinum group supported on carbon, and on the design of new catalytic processes for fine organic synthesis. Here are the key results of his studies. (i) He has developed and obtained a new family of porous carbon materials, whose size and volume of pores, chemical composition and microcrystal surface structure can be varied within a wide range. (ii) He also developed new methods for preparing supported palladium particles of various geometry and size. He suggested the way, how to control the active metal distribution over the carbon support grain. The data obtained helped to create a series of commercial catalysts "palladium on carbon". (iii) A set of new processes to obtain valuable organic semiproducts, used to synthesize medicines, herbicides, food-stuff, dyes, to separate isotopes and to produce thermally stable polymers, was designed.

SIMONOV Alexander Dmitrievich, candidate of chemical sciences (1970)

Head of Laboratory of Reactors for Catalytic Head Generators.

Aleksandr D. Simonov studies the catalytic combustion and processing of solid fuels. At present he pays a particular attention to the processes of catalytic utilization of solid organic wastes and vegetable feedstocks; design of technology and equipment for bringing these processes to practice and technology commercialization. He is the author and co-author of more than 70 scientific publications.

SOBYANIN Vladimir Aleksandrovich, doctor of chemical sciences (1991)
Professor (1995)

Dean of the Natural Sciences Department at the Novosibirsk State University

Head of the laboratory of Catalytic Processes in Fuel Cells.

Prof. Vladimir A. Sobyenin is active in the surface science, adsorption and catalysis by metals, solid state electrochemistry and electrocatalysis. Using EELS, FEM, AES and TDS techniques, he has carried out the detailed study of the mechanisms of oxygen isotope exchange, hydrogen oxidation and ammonia decomposition on metals. Prof. Sobyenin is engaged in the development of fuel cell systems with solid H⁺ and O²⁻ conducting electrolytes to perform various catalytic reactions, methane conversion to valuable chemicals in particular.

STARTSEV Anatoliy Nikolaevich, candidate of chemical sciences (1977)

Head of the Group of Sulfide Catalysts

The field of his scientific interest includes the detailed mechanism and active component structure of sulfide HDS catalysts; anchored metal complexes; synthesis and characterization of metal complexes of Mo, W, Re, Ni and Co; design of supported catalysts; catalysts and unsteady-state process for dearomatization of oil fractions; carbon supported catalysts for hydrodemetallization of heavy crude oils; catalysts for bio-oils upgrading. Anatoliy N. Startsev has promoted the concerted mechanism of hydrodesulfurization catalysis, proposed the unsteady-state process of dearomatization, developed a new approach to synthesizing supported bimetal catalysts via the "surface assembling" of direct precursor of the HDS catalyst active component.

STOYANOV Eugeny Stepanovich, doctor of chemical sciences (1991)

senior researcher

His research interests comprise studying the composition and structure of all-type complexes and associates formed in solutions, their solvation and hydration, intermolecular interactions, and the problems related to the very strong H-bonds formation. Eugeny S. Stoyanov uses various spectroscopic techniques, namely IR, Raman and NMR, in his studies.

TALSI Eugeni Pavlovich, doctor of chemical sciences (1991)

senior researcher I

Eugeny P. Talsi is occupied with the NMR and ESR in situ studies of key intermediates of homogeneous catalytic oxidation and oxidative coupling. Two types of palladium superoxide complexes with different modes of O₂^{••} coordination to palladium (* or ••) were found. Superoxide complexes (*-mode) appear to oxidize quantitatively ethylene to ethylene oxide. Using ⁹⁵Mo, ⁵¹V, ⁵⁹Co, ¹⁷O, ¹H NMR spectroscopy and EPR technique, metal complexes formed in catalytic oxidation of alkanes by organic hydroperoxides and hydrogen peroxide were characterized. Alkylperoxo and peroxo complexes of Mo, V, Co and Ti were detected and studied in situ. Peroxotitanium(IV) complex Ti(O₂)(OEt)₂(EtOH)₂ was characterized in the reaction of Ti(OEt)₄ and HOOH. The complex can selectively epoxidize cyclohexene and hydroxylate phenol. New low-spin peroxoiron(III) complexes Fe(bpy)₂(OOH)Py, Fe(phen)₂(OOH)Py, active towards cyclohexane, were found in the Gif-type catalytic systems. Using ⁵⁹Co, ¹³C and ¹H NMR it has been shown that the so-called cobalt(III) acetate is a mixture of two types of oxo-centered trinuclear cations [Co₃O(OAc)₆(AcOH)₃]⁺ and [Co₃O(OAc)₅(OH)(AcOH)₃]⁺.

TOLSTIKOV Aleksandr Genrikhovich
doctor of chemical sciences (1993)
Winner of Leninskiy Komsomol Prize (1986)
Winner of Russia State Prize (1993)
Expert in the fine organic synthesis

VENIAMINOV Sergey Alekseevich candidate of chemical sciences (1963)

Head of Research Group of Unsteady-State-Kinetic Methods

Sergey A. Veniaminov studies the mechanism of model and industrially important catalytic reactions over oxide catalysts based on molybdenum and antimony. He uses a

complex of kinetic methods including steady state kinetics, pulse microcatalytic method, temperature programmed surface reaction (TPSR), temperature programmed desorption (TPD), the method of gas-phase titration of oxygen and other surface complexes. To study the kinetics and mechanism of individual stages, he used the pulse microcatalytic method simultaneously measuring the surface oxygen binding energy with a calorimetric method in situ and ESR in situ. The data on the kinetics of individual stages allowed to develop a technique to calculate steady-state and dynamic regimes for the oxidation reactions proceeding via the redox mechanism.

YERMAKOVA Anna doctor of technical sciences (1986)

senior researcher of the Laboratory of Multiphase Processes.

Anna Yermakova is the expert in mathematical modeling of chemical processes and apparatuses. She has developed fundamental and experimental approaches to mass-transfer studies in three-phase systems (gas-liquid-solid), modeling macrokinetic complex chemical reactions. She has established a new set of numerical methods to identify and analyze the kinetic models adapted for IBM PC. She developed a mathematical model of a new complex liquid-phase catalytic purification of process gases from the admixtures of sulfur dioxide, nitrogen oxides, arsenic oxides. Now she is occupied designing new simulation computer models mimicing the engineering schemes of chemical processes, including the Fischer-Tropsch process performed in a slurry reactor

YUDANOV Valeriy Fedorovich
doctor of chemical sciences (1992)

Head of the Laboratory of Adsorption

YURIEVA Tamara Mikhailovna, doctor of chemical sciences (1984)
Professor (1990)

Head of Laboratory of Catalytic Conversion of Carbon Oxides.

Prof. Tamara M. Yurieva is an expert in heterogeneous catalysis with oxides, she studies the mechanism of the oxide catalytic action in redox reactions. Prof. T. Yurieva has studied the peculiarities of oxides genesis and dependence of their catalytic properties on the structure of environment of metal ions determined experimentally. In accordance with a developed low-temperature catalyst preparation method Prof. T. Yurieva has designed a set of catalysts for various processes - alcohol dehydrogenation, synthesis of methanol and C2-C6 alcohols, alkylation of amines, fine purification of hydrocarbons from CO, low temperature and one-stage steam conversion of CO.

ZAGORUIKO Andrey Nikolaevich
candidate of technical sciences (1991)

Head of the Laboratory of Dynamics of Catalytic Processes

Andrey N. Zagoruiko is an expert in mathematical modeling and development of catalytic processes in a packed catalyst bed, performed under forced unsteady state conditions. The field of his research interest includes unsteady and steady-state kinetics of catalytic reactions, influence of the state of catalyst surface on the

catalyst activity, mathematical modeling of unsteady state processes in the packed catalyst bed, software design to simulate the processes. His applied interests are elemental sulfur production from hydrogen sulfide, removal of volatile organic compounds (VOC) from waste gases by catalytic reverse-process and adsorption-catalytic methods, oxidation of sulfur dioxide, deep oxidation and partial oxidation of organic compounds.

ZAKHAROV Vladimir Aleksandrovich, doctor of chemical sciences (1982)
Professor

Head of the Laboratory of Catalytic Polymerization.

Prof. Vladimir A. Zakharov studies the catalytic polymerization of olefins, synthesizes and studies solid catalysts of various types (supported organometallic systems, Ziegler supported catalysts, supported metallocene catalysts), investigates the kinetics and mechanism of catalytic polymerization. He has studied the composition, structure and reactivity of surface transition metal species in polymerization catalysts and developed a set of new highly active supported catalysts to produce polypropylene, polyethylene and copolymers of ethylene with α -olefins of controlled molecular structure and morphology.

ZDANOV Vladimir Petrovich, doctor of chemical Sciences (1988)
Professor (1988)

researcher

The main field of his scientific interest is the theory of elementary rate processes on solid surface. Prof. Vladimir P. Zhdanov has studied in detail vibrational relaxation of adsorbed particles via the excitation of phonons and electron-hole pairs; Dynamics of surface diffusion; adsorption and desorption including nonequilibrium and nonadiabatic effects; the influence of lateral interactions between adsorbed particles and adsorbate-induced changes in the surface on the kinetics of surface diffusion, adsorption, desorption and elementary chemical reactions.

ZHIDOMIROV Georgii Mikhailovich, doctor of physical-mathematical sciences (1975), professor (1986). Full Member of Russian Academy of Natural Sciences (1992). Member of the Board of Directors of the International Society for Theoretical Chemical Physics

Head of the Laboratory of Quantum Chemistry

Prof. Georgiy M. Zhidomirov develops the theoretical basis of quantum chemistry, elaborates and modifies semiempirical quantum chemical methods of calculations, performs quantum chemical studies using spectroscopic parameters (NMR, ESR, IR, electron spectroscopy, XPS, UPS, XANES, EXAFS), theory of magnetic resonance (NMR, ESR) form lines, theory of electron spin echo phenomena, theoretical surface sciences and molecular theory of heterogeneous and metal complex catalysis. He is systematically engaged in analyzing how magnetic resonance parameters (isotopic and anisotropic hyperfine coupling constants, g tensors and etc.) depend on the structure peculiarities of paramagnetic centers (free radicals, transition metal compounds), in elaborating semiempirical approaches to the quantum chemical studies of chemisorption and catalysis (MINDO/3-HB, CNDO-S2, NDDO/MC), and widely uses the cluster approximation to study the

electronic structure and reactivity of active site on oxides (zeolites, Al₂O₃, SiO₂, MgO, ZnO and oxides modified by enclosed transition elements).

ZOLOTARSKII Iliya Aleksandrovich

Head of the Laboratory of Industrial Catalytic Processes

He is concerned with the mathematical modeling of catalytic processes, from the kinetic models simulation to flow-sheeting evaluation, with an intent to design new catalytic processes and to improve the efficiency of the existing plants.

ZOLOTOVSKII BORIS PETROVICH, doctor of chemical sciences (1993)

Head Of Laboratory of Adsorbents and Supports.

Boris P. Zolotovskiy designs new alumina adsorbents and catalyst supports. In particular, he studies the catalysts for gaseous sulfur recover (the Claus processes). He supervised the design and commercialization of microspherical and spherical alumina supports and catalysts, including the catalysts for the Claus process; the design of a unique titanium oxide catalyst for the Claus process.



21. The Mathematics Institute in Akademgorodok.

Lavrent'ev (Lavrentyev), Mikhail M. Born in July 1932 in Moscow. Russian mathematician. He has been a corresponding member of the Mathematics Department of the academy since 1968 and an academician of that Department since 1992. He worked in that Department from 1955 to 1957. He graduated from Moscow State University in 1955. He joined the Siberian Department in 1957. He has been a professor at the Novosibirsk State University since 1963, holding the chair in mathematical problems in geophysics. From 1980 to 1986, he directed the Computer Center of the Siberian Department. In 1986 he was named Director of the Mathematics Institute in Novosibirsk that was founded in 1957 to research theoretical and applied mathematics. He is the son of M. A. Lavrentiev, the first head of the Siberian Department. He was named to the Presidium of the Siberian Department in 1987. Since 1988, he has been head editor of the *Siberian Mathematics Journal*. He is a member of the Society of Mathematical Geology. He is an honored scientist of the former Soviet Union. He received the Lenin Laureate Prize in 1962, the State prize in 1987. He has received a number of other medals and recognitions. (GSE 14, p. 302.)

One of the major mathematics centers in Russia, the institute was established in 1957. Research is conducted on theoretical and applied mathematics. From 1957 to 1987, the institute was under the direction of academician S. L. Sobolev who was noted for his studies of equations for mathematical physics and functional analysis, particularly for the theory of cubature formulae. Mathematicians whose work has won international recognition include: A. I. Maltsev, A. D. Alexandrov, L. V. Kantorovich, A. V. Bitsadze, A. A. Borovkov, S. K. Godunov, Iurii L. Ershov, M. I. Kargapolov, A. A. Liapunov, V. L. Makarov, Iurii G. Reshetniak, D. V. Shirkov, and A. I. Shirshov. Director: Mikhail M. Lavrentiev has been its Head since 1987. The Academician Secretary is Vladimir I. Lotov, D. PM. S. In 1989, institute personnel included: Deputy Director Valeri L. Makarov, D. PM. S., since '74;

Algebra Department: Head-- Anatoli I. Shirshov, D. PM. S., since '71; Senior Researcher Iurii G. Reshetniak, since '68;
Computing Systems Department: Head Eduard V. Evreinov, D. Tech. S., since '71;
Cellular Logic Laboratory: Head-- V. A. Skorobogatov, since '71;
Cybernetics Department: Head-- Vitali K. Korobkov, since '71;
Economic Mathematics Department: Head-- Valeri L. Makarov, D. PM. S., since '74; Senior Researcher Aleksandr A. Kaplan, since '63; Junior Researchers: V. A. Bulavskii, since '77; and R. A. Zvagina, since '77;
Theoretical Mathematics Department: Head-- Sergei L. Sobolev, D. PM. S., since '58; Senior Researchers: Andrei V. Bitsadze, D. PM. S., since '69; V. N. Lagunov, since '67;



22. Inorganic Chemistry Institute in Akademgorodok.

Kuznetsov, Fedor A., D. Chem. S. Born in 1932. Physical Chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1984, and academician since December 1987. He also is a member of the Siberian Department of the Academy. He graduated from the Leningrad State University in 1955. He began work at the Inorganic Chemistry Institute of the Siberian Department in 1958, served as an aspirant, a junior researcher, and senior researcher in a major laboratory in that institute. From 1971 to 1983, he has acted as head of the Epitaxial Layers Laboratory and of the Electronics Materials Laboratory of the Inorganic Chemistry Institute in Novosibirsk, being named its Director in 1983. The institute was established in 1957 in cooperation with the N. S. Kurnakov General and Inorganic Chemistry Institute for the purpose of studying complex compounds, splitting uranium and plutonium, and the extraction and investigation of rare earth metals. He has been a professor at the Novosibirsk University since 1976, holding the chair in inorganic chemistry since 1986. He is the head editor of *Izvestiya*. In 1988 he was named chairman of the Scientific Council on Inorganic Chemistry. He is a member of the Electrochemical Society of the USA--since 1979. Recipient of the State Laureate Prize in 1981.

Administration

(1997 update) Director of the Institute
Academician Kuznetsov Fedor Andreevich
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The institute was established as one of the first ten institutes of the new Siberian Branch of the AN SSSR in 1957. It was originally formed with personnel from the N. S. Kurnakov Institute of General and Inorganic Chemistry, the M. V. Lomonosov Moscow State University, the Leningrad State University, the D. I. Mendeleev Moscow Institute of Chemical Technology, the Leningrad Institute of Chemical Technology, and the N. I. Lobachevskii Gorkiy State University. From 1957 to 1977, the institute was under the Directorship of A. V. Nikolaev, D. Chem. S.; from 1977 to 1979, under B. I. Peshchevitskii, D. Chem. S.; and from 1979 to 1991, under S. P. Gubin, D. Chem. S. At the present time (1991) the institute

employs some 900 persons of whom more than 300 are scientists. The specialized science Council of the institute grants doctors and candidates of science degrees in inorganic chemistry, physical chemistry, and analytical chemistry. The institute is involved in a number of international programs.

Structure and Scientific Personnel: Director F. A. Kuznetsov, D. Chem. S., has headed the institute since 1991 (he served as a Deputy Director beginning in 1971); Deputy Directors: Professor L. N. Mazalov, D. PM. S., (physics) (at the institute since 1959); Professor I. E. Paukov, D. Chem. S., (thermodynamics) (at institute since 1968); A. V. Mischenko, D. Chem. S., (chemistry) since 1991; Iurii G. Stenin, D. Chem. S. (physical chemistry), since 1991; Scientific Secretary: V. N. Liubimov, D. Chem. S., since 1991.

The Compounds Coordination Department is under Professor B. I. Peshevskii, D. Chem. S., since 1958. Its laboratories include:

- 1) **the Chemistry of Complex Compounds Laboratory,**
- 2) **the Synthesis of Complex Compounds Laboratory,**
- 3) **the Chemistry of Rare Platinum Metals Laboratory,**
- 4) **the Chemistry of Superconductors Laboratory,**
- 5) **and the Search Group.**

Thrusts of scientific research in the laboratories of this department include the coordination of compounds of the Noble metals including polynuclear and polyligand compounds, Boron compounds, volatile metallorganic compounds, fluorocomplexes of Noble metals, low metric bis- and tris-chalcogenides and chalcogenides of Mo, Nb, Re and their lithium intercalates, and complex clathrate structures.

The Solutions, Extractions, Sorptions Department under Professor V. G. Torgov, D. Chem. S. since 1958 has four laboratories:

- 1) **the Chemistry of Extraction Processes Laboratory;**
- 2) **the Sorption and Exchange Processes Laboratory;**
- 3) **the Clathrate Compounds Laboratory;**
- 4) **and, the Chemical Ecology of Water Media Laboratory.**

Research is conducted on the chemical states of elements in different media--solutions, melts, gases and solid phases; thermodynamic and kinetic characteristics of equilibria in solutions including complex compounds of Noble and transition metals; the mechanism and dynamics of extraction and re-extraction, sorption, crystallization processes; the development of techniques and equipment for separation and purification of inorganic compounds; the ecology aspects of chemical technology, and instrumental chemical analysis of high pure substances, compounds and mixtures.

The Inorganic Synthesis Department under Professor I. I. Iakovlev, D. Chem. S., since 1958 has three laboratories under it:

- 1) **the Thermal Methods of Investigation Laboratory;**
- 2) **the Chemistry of Hydrides Laboratory;**
- 3) **and, the Radiation Chemistry Laboratory.**

Research is conducted in quantum chemical theory of bonding in different classes of inorganic compounds; development of new effective calculation methods of electron structure of atoms and molecules; the development of new types of experimental equipment for investigation of electron structures--ultra soft high resolution X-ray emission and X-ray absorption spectrometers; X-ray diffraction structural investigation of complex inorganic compounds; infrared, ultraviolet, visible

spectroscopy in application to chemical and structural characterization of substances and materials.

The Structural Chemistry Department under Professor I. N. Masalov, D. PM. S., since 1959 has four laboratories in it:

- 1) **the Physical Methods of Investigation of Chemical Bonding Nature Laboratory;**
- 2) **the Optical Methods of Investigation Laboratory;**
- 3) **the Radiospectroscopy Laboratory;**
- 4) **and the Crystallochemistry Laboratory.**

The Chemistry of Materials for Microelectronics Department under Academician F. A. Kuznetsov, D. Chem. S., since 1958 is comprised of 10 laboratories:

- 1) **the Epitaxial Layers Laboratory;**
- 2) **the Dielectric Layers Laboratory;**
- 3) **the Physical Properties of Semiconductors and Dielectrics Laboratory;**
- 4) **the Synthesis and Growth of Single Crystals of Rare Earth Compounds Laboratory;**
- 5) **the Thermodynamics of Inorganic Materials Laboratory;**
- 6) **the Purity Control of Semiconductor Materials Laboratory;**
- 7) **the Modeling of Physico-chemical Processes Laboratory;**
- 8) **the Group of New Technological Processes for Microelectronics Laboratory;**
- 9) **the Group of High Purification of Metals;**
- 10) **and, the Group of Vacuum Photosensitive Resistors.**

Scientists in these laboratories research material design, high pure substances (their preparation and analysis); material preparation methods of single crystals, films, multi-layer structures, high temperature superconductors; structural, chemical and physical characterization of materials and solid state structures, and development of new technological and diagnostic equipment.

The Chemical Thermodynamics Department under Professor I. E. Paukov, D. Chem. S., since 1968 has three laboratories:

- 1) **the Thermodynamic Investigations Laboratory;**
- 2) **the Physics of Low Temperatures Laboratory;**
- 3) **the Statistical Thermodynamics of Condensed Phases Laboratory.**

Research includes statistic thermodynamics of phase transitions and interactions of chemical compounds of different types; study of critical phenomena; experimental techniques of low temperature calorimetry, solution calorimetry, measurements of heat capacities, vapor pressures, heterogeneous equilibria, etc; systematic experimental investigation of thermodynamic parameters of inorganic substances, systems and processes; thermodynamic modeling, and evaluation and estimation of thermodynamic parameters, and the building of thermodynamic properties data bases.

The Information and Computer Center in Akademgorodok is comprised of a support department with a design bureau and workshops.

Some of the outstanding scientists who research in the institute include: Ye. B. Amitin, D. PM. S., born in 1932, Graduated from Kharkov State University in 1955 and joined the institute in 1968--interested in solid state physics; V. R. Belosludov, D. PM. S. born in 1942, Novosibirsk State University, 1967, and joined the institute

in 1968--interested in solid state physics; A. V. Belyaev, D. Chem. S., born in 1936, Moscow State University, 1958-- interested in chemistry and technology of rare metals; V. L. Bogatyrev, D. Chem. S., born in 1935, Moscow State University 1959, joined institute 1959--interested in sorption and ion exchange; S. V. Borisov, D. PM. S., born in 1930, Gorkiy State University, 1953, joined institute in 1958--interested in crystallochemistry; L. A. Borisova, D. Chem. S., born in 1932, Kazan State University, 1955, joined institute in 1963--interested in materials for electronics; V. V. Volkov, D. Chem. S., born in 1930, Urals Polytechnical Institute, 1953, joined institute in 1964--interested in chemistry of Boron and mechanochemistry; Iurii A. Dyadin, D. Chem. S., born in 1935, Moscow State University, 1959, joined institute in 1959--interested in clatrate compounds; I. M. Ivanov, D. Chem. S., born in 1929, Gorkiy State University, 1953 and joined institute in 1960--interested in the chemistry of nonferrous rare metals; I. K. Igumenov, D. Chem. S., born in 1944, Novosibirsk State University, 1966, joined institute in 1966--interested in chemistry of volatile coordinate metallic compounds; A. V. Kondratenko, D. PM. S., born in 1951, Novosibirsk State University, 1974 and joined institute in 1974--interested in quantum chemistry; F. A. Kuznetsov, D. Chem. S., born in 1932, Leningrad State University, 1955, joined institute in 1958--interested in materials for electronics; L. N. Masalov, D. PM. S., born in 1935, Rostov State University, 1959, joined institute in 1959--interested in X-ray spectroscopy and quantum chemistry; E. V. Matizen, D. PM. S., born in 1926, Leningrad State University, 1952, joined institute in 1968--interested in low temperature physics; I. Ye. Paukov, D. Chem. S., born in 1933, Moscow State University, 1956 and joined institute in 1968--interested in chemical thermodynamics; B. I. Peshevitskii, D. Chem. S., born in 1929, Leningrad Technological Institute, 1951, joined institute in 1958--interested in chemistry of coordinate compounds; V. G. Torgov, D. Chem. S., born in 1934, Moscow State University, 1957, joined institute in 1958--interested in the chemistry of the Noble metals; V. Ye. Fedorov, D. Chem. S., born in 1937, Leningrad Technological Institute, 1959, joined institute in 1966--interested in the chemistry of superconducting materials; I. R. Shelpakova, D. Chem. S., born in 1930, Semipalatinsk Pedagogical Institute, 1953, joined institute in 1970--interested in analytical chemistry; I. G. Yudelevich, D. Chem. S., born in 1920, Alma-Ata Pedagogical Institute, 1945 and joined institute in 1963--interested in analytical chemistry; and I. I. Iakovlev, D. Chem. S., born in 1930, Tomsk Polytechnological Institute, 1952 and joined institute in 1958--interested in chemistry and chemical technology.

(Information provided by letter dated 28 October 1991 from F. A. Kuznetsov, Director of the institute.)



24. Novosibirsk Organic Chemistry Institute in Akademgorodok.

Established in 1958. From 1958 to 1975, the Director of the institute was corresponding member N. N. Voroshtsov, and from 1975 until 1982, corresponding member V. P. Mamaev, headed the institute. The institute has established a scientific information center on Molecular Spectroscopy that identifies structures of organic compounds from the molecular spectra, and computer-aided systems for the controlled synthesis of complex organic compounds are being developed. The center is used by some 160 research institutions in Russia and other countries. The

institute's personnel numbered 550 persons in 1992 of whom 170 were scientists. Major research directions are aromatic and heterocyclic chemistry, natural products, and chemical informatics.

Scientific Structure and Personnel:

(1997 update) Administration Novosibirsk Institute of Organic Chemistry of SB RAS

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Deputy Directors Professor Vladislav M. Vlasov; Dr. Vladimir F. Starichenko, and Dr. Mikhail M. Mitasov. There are some 11 laboratories, a chemical data center, and a pilot plant at the institute. There are also a number of composite research groups and auxiliary subdivisions in the institute. The laboratories are as follows:

- 1) The Organic Reaction Mechanisms Laboratory:** Head, Professor Viacheslav G. Shubin, D. Chem. S.; he graduated from Moscow State University in 1959 and began working in the institute in that same year; his major research interests are in carbonation chemistry; leading scientists includes Gennadii I. Borodkin, C. Chem.S.; he graduated from the Novosibirsk State University in 1970 and began his work at the institute in that same year;
- 2) The Nucleophilic and Radical Ion Reactions Laboratory:** Head, Professor Vitalii D. Shteingarts, D. Chem. S.; he graduated from the Mendeleev Moscow Chemical-Technological Institute in 1959 and began work at the institute in 1961; his research interests are in nucleophilic and radical reactions of fluorinated aromatic compounds;

- 3) **The Cationoid Reactions Laboratory:** Head, Professor Vladimir A. Barkhash, D. Chem. S.; he graduated from the Mendeleev Moscow Chemical-Technological Institute in 1956 and joined the institute in 1963; his interests are in carbonium ion chemistry;
- 4) **The Intermediates Laboratory:** Head, Professor Vladislav V. Vlasov, D. Chem. S.; he graduated from the Mendeleev Moscow Chemical-Technological Institute in 1959, joining the institute in 1962; his interests are in quantitative data for nucleophilic reactions of aromatic compounds;
- 5) **The Halogen Compounds Laboratory:** Head, Professor Viacheslav E. Platonov, D. Chem. S.; he graduated from the Kirov Urals Polytechnical Institute in 1959 and began work at the institute in 1965; his major scientific interests are in polyfluoro-aromatic chemistry; Leading scientists include: Lyubov S. Kobrina, D. Chem. S.; graduate of the Mendeleev Moscow Chemical-Technological Institute in 1959 and began work at the institute in the same year; her interests are in nucleophilic and radical reactions of fluoro-aromatic compounds; leading scientists include Viktor M. Karpov, C. Chem. S.; he graduated from the Novosibirsk State University in 1970 and began work immediately at the institute;
- 6) **The Nitrogen Compounds Laboratory:** Head, Professor Leonid B. Volodarskii, D. Chem. S.; he graduated from the Leningrad Technological Institute in 1954 and began researching in the institute in 1959; his interests are in the synthesis and properties of nitroxides; other leading scientists include Igor A. Grigoriev, D. Chem. S.; he graduated from the Novosibirsk State University in 1971 and is a specialist in the field of synthesis and properties of nitro oxides and nitrones;
- 7) **The Heterocyclic Compounds Laboratory:** Head, Professor Oleg P. Shkurko, D. Chem. S.; he graduated from Moscow State University in 1959 and began work at the institute in that same year; his interests are pyrimidine chemistry; 8) **The Organic Light-sensitive Materials Laboratory:** Head, Professor Tatiana N. Gerasimova, D. Chem. S.; she graduated from the Mendeleev Moscow Chemical-Technological Institute in 1957 and began work at the institute in 1959; her interests are in polyfluoro-aromatic chemistry and in organic dyes chemistry; leading scientists include Valerii I. Eroshkin, C. Chem. S.; he graduated in 1961 from the Tomsk Polytechnical Institute and began work at the institute in 1972;
- 9) **The Fluorine-containing Organoelement Compounds Laboratory:** Head, Professor Georgii G. Furin, D. Chem. S.; he graduated in 1962 from the Dnepropetrovsk State University and began work in the institute in 1962; his research interests are in fluorine-containing organoelement chemistry; leading scientists include Vadim V. Bardin, C. Chem. S.; he graduated from the Novosibirsk State University in 1974 going to work at the institute upon graduation; his interests are in the fluoride ion in organic chemistry and fluorinating agents in organic synthesis;
- 10) **The Forest Chemistry Laboratory:** Head, Professor Viktor A. Raldugin, D. Chem. S.; he graduated from the Novosibirsk in 1970 and began working at the institute in 1970; his interests are in the chemical composition of Siberian conifers;
- 11) **The Technological Laboratory:** Head, Dr. Viktor S. Kobrin;
- 12) **The Chemical Data Center:** Head, Professor Boris G. Derendyaev, D. Chem. S.; he graduated from the Perm' State University and went to work at the institute in 1967; his interests are in mass-spectrometry and in chemical information, and
- 13) **The Pilot Plant** under Dr. Genadii I. Shchukin.

In addition to these units, there are a number of research groups that include: Viacheslav V. Lapachev, D. Chem. S., a graduate of the Kuibyshev Polytechnical Institute in 1972 and in 1992 he headed up the Molecular Electronics Group; Vladimir V. Litvak, D. Chem. S.; he graduated in 1967 from the Novosibirsk State University and began work at the institute that same year; in 1992, he headed the Polyhalogenated Aromatic Xenobiotics Group; Viktor I. Mamatyuk, C. Chem. S.;

he graduated in 1967 from Tomsk Polytechnical Institute in 1967 and began work at the institute immediately; in 1992 he headed the Nuclear Magnetic Resonance Group; Irina F. Mikhailova, C. Chem. S.; she graduated from the Mendeleev Moscow Chemical-Technological Institute in 1954 and began work at the institute in 1959; in 1992 she headed the Organic Structure and Composition Group; Other leading scientists in the institute include Aleksei P. Krysin, C. Chem. S.; he graduated from the Mendeleev Moscow Chemical-Technological Institute in 1963 and began work at the institute in 1967 in the fields of the synthesis and properties of polyalkylated phenols; Viktor S. Kobrin, C. Chem. S.; he graduated from the Mendeleev Moscow Chemical-Technological Institute in 1959 going to work at the institute upon graduation, and Gennadii I. Shchukin, C. Chem. S.; he graduated from the Novosibirsk in 1974 and joined the institute in 1975 and has led the work in imidazoline nitroxides. Academician Secretary is Lenina K. Kozachok. **(Information provided in a letter from Deputy Director Vladislav Vlasov dated December 5, 1991.)**



25. Theoretical and Applied Mechanics Institute in Akademgorodok.
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Fomin, Vasilii M., D. PM. S. Born in 1940. Corresponding member of the Academy in 1993. Deputy Director of the Theoretical and Applied Mechanics Institute in Novosibirsk since 1979, and he has been head of it since 1992. That institute studies physical gas dynamics, combustion kinetics, hypersonic aerodynamics, shockwave processes, magneto- hydrodynamics, and measurement techniques for gas flows.

Established in 1957. Dr. Nikolai A. Zheltukhin, corresponding member of the Russian Academy of Sciences is on its staff. It also develops lasers for Soviet industry. Dr. Vasilii M. Fomin, D. PM. S. has headed the institute since 1992; from 1957 to 1965, the institute was headed by S. A. Khristianovich; from 1965 to 1966, by M. F. Shukov; and from 1966 to 1971, by academician V. V. Struminskii; from 1971 to 1976, by corresponding member R. I. Soloukhin; from 1976 to 1984, by academician I. I. Ianenko. Viktor G. Dulov, D. PM. S., was Director from 1984-1992. The Deputy Directors for scientific work are Anatolii M. Charitonov, D. Tech. S., and Anatolii A. Maslov, D. PM. S. The institute secretary is Boris I. Gutov, C. Tech. S.

Institute of Theoretical and Applied Mechanics (1997 Update)

The Institute of Theoretical and Applied Mechanics of Siberian Branch of the Russian Academy of Sciences (ITAM SB RAS) was founded in 1957. On July 21 S. A. Khristianovich was appointed the first Director of ITAM and approved the main scientific directions: high-speed aerodynamics; combustion, kinetics and turbulence; strength of materials and constructions; mechanics of soils and rocks as applied to the mining art problems. Afterwards the Institute was headed by

Corresponding member of the USSR Acad. Sci. M. F. Zhukov (1965-1966), Academician V. V. Struminsky (1966-1971), Corresponding member of the USSR Acad. Sci. R. I. Soloukhin (1971-1976), Academician N. N. Yanenko (1976-1984), Corresponding member of the USSR Acad. Sci. V. G. D ulov (1984-1989). Since 1990 the Director of the Institute is the Corresponding member of RAS V. M. Fomin.

Staff of the Institute

The Institute of Theoretical and Applied Mechanics is an academic research institution which is successfully working in the field of advanced problems of mechanics. The main activities of the Institute are connected with the development of high-speed flying vehicles and are based on experimental and theoretical investigations. The experimental base of the Institute provides both the measurement of the total aerodynamic characteristics of the aircraft models and the study of the fine structure of various flows. The experimental and theoretical investigations are connected with the problems of hydrodynamic stability theory, the boundary layer theory, the fuel supersonic mixing and combustion theory, the multiphase hydrodynamics taking into account physical and chemical transformations, etc. The highly qualified scientific and engineering staff and close co-operation between theoretical and experimental methods make it possible to solve various fundamental and applied problems of modern aerogasdynamics at a high level.

The International Center of Aerophysical Research (ICAR) has been working at the Institute since 1991. A wide range of aerophysical investigations is carried out at the Center under subsonic, supersonic and hypersonic velocities. ICAR publishes the ICAR Papers in English and sends them to those who are interested in.

Main scientific directions of the Institute:

Mathematical modeling in mechanics
Aerogasdynamics
Physical gasdynamics

Major scientific laboratories:

Optical Methods of Gas Flow Diagnostics;

Supersonic Combustion;

Aeroacoustics;

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Physics of High-Speed Processes;

Mechanics of Composite Materials and Constructions;

Physics of Mutliphase Media;

Computational Aerodynamics Laboratory

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M.S., Mechanics and Mathematics, 1968, Moscow State University, Moscow, Russia. Ph.D., Mechanics of Fluids and Plasma, 1979, Institute of Theoretical and Applied Mechanics, Novosibirsk, Russia. Professor, Mechanics of Fluids and Plasma, 1993, Institute of Theoretical and Applied Mechanics, Novosibirsk, Russia. 1988-present time, research scientist, senior scientist, head of group, head of laboratory at the Institute of Theoretical and Applied Mechanics, Novosibirsk, Russia. Twenty-eight years varied experience in rarefied aerodynamics. Designed and developed both numerical methods and software for the calculation of aerodynamics for satellites, space stations and reentry space vehicles.

He is familiar with the application of numerical and engineering methods of rarefied aerodynamics in real aerospace projects (for example, spacecraft "BURAN").

He has been responsible for the creation of new numerical methods for solving the Boltzmann equation for finite Knudsen numbers, the development of the software for calculation of the aerodynamics of satellites and space stations at high flight altitudes, the Theoretical validation of the Direct Simulation Monte Carlo methods for rarefied gas flows and the creation of new numerical schemes of the DSMC, the analysis of the connection of the statistical simulation results with the solution of the Boltzmann equation, the development of the software for calculation of the free-molecular aerodynamics of satellites and space stations (as space station "Mir", satellites "Cosmos-1402" and "Cosmos-1900"), and the creation of computational tools for rarefied gas aerodynamics applicable to modern parallel computer architecture and its application to the calculations and analysis of 3-D aerodynamics of real space vehicles. M.S. Ivanov was a principal investigator from the Russian side during the creation of the RAMSES system for ESOC. From 1983 to 1996 he was a Senior lecturer at Novosibirsk Technical University. His total number of publications (journals, books and referred conferences) is more than 90.

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His areas of research interests include: Numerical Methods for Compressible Fluid Flows; TVD Schemes of Higher Orders; ENO and Weighted ENO Schemes; Compact Difference Schemes; Pseudospectral Methods; Interactions of Strong Shock Waves;

Mach Reflection in Steady Flows; Shock Wave/Boundary Layer Interactions and Laminar Separation; Hypersonic Compression Ramp Flow Transition to Turbulence; Hydrodynamic Instability of Supersonic Shear Layers Numerical Simulation of High-Speed Shear Layers Dynamics

Aerophysical Investigations of Subsonic Flows;

LABORATORY OF AEROPHYSICAL RESEARCHES OF SUBSONIC FLOWS

Head of the Laboratory:

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Grekh Genrikh Ruvimovich (Senior Research Scientist)

Dikovskaya Nadezhda Dmitrievna (Research Scientist)

Dovgal Alexander Vladimirovich (Senior Research Scientist)

Zanin Boris Yurievich (Senior Research Scientist)

Scherbakov Valerij Afanasievich (Research Scientist)

Main theme:

Origin of turbulence in subsonic shear flows.

Basic scientific directions of last 15 years have been:

- 1. Experimental investigation of origin and development of disturbances in two- and three-dimensional boundary layers;**
- 2. Investigation of localized vortex structures in transitional shear flows;**
- 3. Experimental investigation of coherent structures in turbulent shear flows;**
- 4. Investigation of flow topology and disturbance development in separated flows;**
- 5. Problems of shear flow control.**

To carry out the investigation the following has been designed and created:

- a) methods of control disturbance excitation in shear flows;**
- b) computer system of sampling and processing of hot-wire measurements;**
- c) a variety of visualization techniques.**

Main laboratory results are:

- 1. Discovering of a new (subharmonic) type of the transition to turbulence in a boundary layer;**
- 2. New concept of laminar-turbulent transition at high free stream**

- disturbance level was proposed;**
- 3. Strong influence of eigen small amplitude disturbances on flow structure in laminar separation was found and described;**
- 4. A method of laminar-turbulent transition control by riblets was developed.**

Control of Gas and Fluid Motion;

Experimental Aerodynamics;

Nonequilibrium Processes;

Mathematical Methods of Continuum Mechanics;

Hypersonic Flow Laboratory

Maslov Anatoly A. head of laboratory

Maslov A. A. -doctor of physical and mathematical sciences, Professor

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Prof. A. A. Maslov is a specialist in the field of fluid mechanics, author and co-author of more than 130 scientific papers on the problem of stability and transition in supersonic boundary layers, hypersonic aerodynamics, including the monograph "Evolution of Disturbances in Compressible Flows" (1980).

The works of A. A. Maslov are devoted to the study of wave processes inducing the transition of the laminar form of the flow into the turbulent one in supersonic shear layers. He has solved a number of theoretical problems on stability of compressible boundary layers. The characteristics of the flow stability have been calculated for the first time in the country, the influence of cooling on the evolution of disturbances in the boundary layer has been studied.

Of great importance are the experimental investigations of Prof. A. A. Maslov on the study of laminar-turbulent transition of compressible flows and on the flow control in the boundary layer. His papers provide an explanation for the "transition reverse" that occurs under a deep cooling of the surface in some experiments.

Experimental studies of A. A. Maslov contributed considerably to the understanding of the structure of unstable disturbances turbulizing supersonic boundary layers. The amplification of external acoustic disturbances by the boundary layer has been found in the studies. The surface cooling has been shown to be able both to stabilize and destabilize the flow. The evolution of various wave modes in the boundary layer has been examined.

A new direction of experimental investigations on modeling of instability waves in the boundary layer using artificial disturbances has been started in the works of Prof. A. A. Maslov. The developed methods and approaches have allowed one to obtain a full amplitude-phase characteristic of instability waves, to study their spectral composition, and to carry out the experiments on receptivity of supersonic boundary layers to external disturbances.

Wave Processes in Supersonic Viscous Flows Laboratory

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It investigates the origin of turbulence in supersonic shear flows.

Basic scientific directions

Subject	Chief
Theory of wave interaction in supersonic flow Gaponov	S. A.
Experimental investigation of hydrodynamic stability of two-dimensional boundary layer and wake and their receptivity to free-stream disturbances	
A.D.Kosinov	
Experimental investigation of instability and breakdown of three-dimensional supersonic boundary layer	
V. Ya.Levchenko	
Experimental investigation of disturbance micro-structure in subsonic boundary layer	
Kosorygin	V. S.
Experimental setup - wind tunnel O-325.	

Scientific collaboration in RUSSIA

Central Aero-Hydrodynamic Institute (Zhukovsky, Moskow region)

Research Institute for Mechanics of Moskow State University (Moskow)

Computer Center of RAS (Moskow)

Moskow Physics and Technology Institute (Moskow)

Novosibirsk State Constructive Academy (Novosibirsk)

Research Institute for Technical Physics (Snezhinsk, Chelyabinsk
region)

Scientific collaboration outside RUSSIA

University of Stuttgart (Germany)

Arizona State University (USA)

NASA (USA)

Rockwell International Science Center (USA)

Boeing (USA)

DLR - German Aerospace Research Establishment (Germany)

Royal Institute of Technology (Sweden)

Modeling of Turbulent Flows.

Research Group of Physical and Mathematical Modeling of Turbulent Flows

Head of the Laboratory:

Professor Albert F. Kurbatskii

E-mail address: kurbat @ aero.nsu.ru

FAX: (383-2) 352268

The staff of the laboratory Research areas:

The modeling of the turbulent stratified flows, particularly, the free turbulent flows: mixing layer, surface jet, open- channel flow. The modeling of the air pollution dispersion in the atmospheric boundary layer (second-order closure). The modeling of the turbulent swirl flows: statistical model of the transport equations to third- and fourth-order moments (in circular tube).

The Institute of Theoretical and Applied Mechanics SB RAS is a co-founder of scientific journals:

- Journal of Applied Mechanics and Technical Physics;**
- Combustion, Explosion and Shock Waves;**
- Thermophysics and Aeromechanics.**

ITAM SB RAS is the basic research institute for:

- the chair of aerophysics and gasdynamics of the Novosibirsk State University;**
- the chair of aerogasdynamics of the Novosibirsk State Technical University.**

Many of researchers combine their scientific work with teaching at these institutions.

**Control of Gas and Fluid Motion;
Experimental Aerodynamics;
Nonequilibrium Processes;
Mathematical Methods of Continuum Mechanics;
Hypersonic Flows;
Wave Processes in Supersonic Viscous Flows;
Computerized Tomography Group**

**Leader of the Group
Dr.Valery Pickalov, PhD**

**Institute of Theoretical and Applied Mechanics
Siberian Branch of Russian Academy of Sciences**

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**Staff of the Computerized Tomography Group
Valery Pickalov, Ph.D
Alexander Bulyshev, Ph.D (up to 31 Dec 1995)
Andrey Bronnikov, Ph.D
Nataly Denisova, Ph.D
Alexey Likhachov, Ph.D
Nina Chugunova**

**Participants of our projects from another Institutes
Ivan Kazantsev, Ph.D (Computing Center, RAS, Novosibirsk)
Tatyana Melnikova, Ph.D (Institute of Thermophysics, RAS,
Novosibirsk)
Alexander Balandin, Ph.D (Siberian Energetic Institute, RAS,
Irkutsk)**

**Symposiums on Computerized Tomography (1983-1993)
1983, Novosibirsk
1985, Kujbyshev (Samara)
1987, Kiev
1989, Tashkent
1991, Zvenigorod
+ Proceedings of the Symposium
1993, Novosibirsk
+ Preliminary Programme of Symposium
+ Contents of Abstracts of Symposium
+ Proceedings of the Symposium
+ How to order the Proceedings (Order Form)
+ Some images from Symposium**



26. The Siberian Center of Aerophysical Studies is located at this institute. It is an international center for aerophysical studies and for an intensification of international cooperation between aerodynamics centers and laboratories. Its scientists conduct studies on problems of laminar turbulent transition in boundary layers, complex turbulent flows, shock waves, and regularities of viscous and inviscid hypersonic flows. The center is under the direction of Professor V. Fomin of the Institute of Theoretical and Applied Mechanics in Akademgorodok-Novosibirsk.

Structure and Scientific Personnel:

Experimental Gas Aerodynamics Laboratory: Head Anatoli M. Kharitonov '79;
Hydrodynamic Stability Laboratory: Head Viktor Ia. Levchenko, C. Tech. S.,
since '72;
Supersonic Combustion Laboratory: Head unknown.

A complex of wind tunnels and gas-dynamic installations covering the Mach number range from 0.03 to 25 has been developed at the institute. Fundamental physical phenomena have been discovered and interpreted that are responsible for the initiation of turbulent shear flows, and methods for controlling the process have been proposed.

(1997 update)

Institute of Theoretical and Applied Mechanics of SB RAS

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ITAM SB RAS

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WWW: <http://www.itam.nsc.ru/>

Basic scientific directions

Current activity

The Institute of Theoretical and Applied Mechanics of Siberian Branch of the Russian Academy of Sciences (ITAM SB RAS) was founded in 1957. On July 21 S. A. Khristianovich was appointed the first Director of ITAM and approved the main scientific directions: high-speed aerodynamics; combustion, kinetics and turbulence; strength of materials and constructions; mechanics of soils and rocks as applied to the mining art problems. Afterwards the Institute was headed by Corresponding member of the USSR Acad. Sci. M. F. Zhukov (1965-1966), Academician V. V. Struminsky (1966-1971), Corresponding member of the USSR Acad. Sci. R. I. Soloukhin (1971-1976), Academician N. N. Yanenko (1976-1984), Corresponding member of the USSR Acad. Sci. V. G. Dulov (1984-1989). Since 1990 the Director of the Institute is the Corresponding member of RAS V. M. Fomin.

Staff of the Institute

The Institute of Theoretical and Applied Mechanics is an academic research institution which is successfully working in the field of advanced problems of mechanics. The main activities of the Institute are connected with the development of high-speed flying vehicles and are based on experimental and theoretical investigations. The experimental base of the Institute provides both the measurement of the total aerodynamic characteristics of the aircraft models and the study of the fine structure of various flows. The experimental and theoretical investigations are connected with the problems of hydrodynamic stability theory, the boundary layer theory, the fuel supersonic mixing and combustion theory, the multiphase hydrodynamics taking into account physical and chemical transformations, etc. The highly qualified scientific and engineering staff and close co-operation between theoretical and experimental methods make it possible to solve various fundamental and applied problems of modern aerogas dynamics at a high level.

The International Center of Aerophysical Research (ICAR) has been working at the Institute since 1991. A wide range of aerophysical investigations is carried out at the Center under subsonic, supersonic and hypersonic velocities. ICAR publishes the ICAR Papers in English and sends them to those who are interested in.

Main scientific directions of the Institute:

**Mathematical modeling in mechanics
Aerogas dynamics
Physical gas dynamics**

Major scientific laboratories:

- **Optical Methods of Gas Flow Diagnostics;**
- **Supersonic Combustion;**
- **Aeroacoustics;**
- **Physics of High-Speed Processes;**
- **Mechanics of Composite Materials and Constructions;**
- **Physics of Multiphase Media;**
- **Computational Aerodynamics;**
- **Aerophysical Investigations of Subsonic Flows;**
- **Control of Gas and Fluid Motion;**
- **Experimental Aerodynamics;**
- **Nonequilibrium Processes;**
- **Mathematical Methods of Continuum Mechanics;**
- **Hypersonic Flows;**
- **Wave Processes in Supersonic Viscous Flows;**
- **Modeling of Turbulent Flows.**

The Institute of Theoretical and Applied Mechanics SB RAS is a co-founder of scientific journals:

- **Journal of Applied Mechanics and Technical Physics;**
- **Combustion, Explosion and Shock Waves;**
- **Thermophysics and Aeromechanics.**

ITAM SB RAS is the basic research institute for:

- **the chair of aerophysics and gas dynamics of the Novosibirsk State University;**
- **the chair of aerogas dynamics of the Novosibirsk State Technical University.**

Many of researchers combine their scientific work with teaching at these institutions.



27. High Temperature Physics Institute (Institute of Thermal Physics) in Akademgorodok under Academician Vladimir E. Nakoriakov, D. Tech. S. has been its Director since 1988.

Nakoriakov, Vladimir E., D. Tech. S. Born in 1935. Engineer. Specialist in the mechanics of heterological systems and solid state physics. Since 1981, he has been a corresponding member of the Problems of Machine Building and Control Processes Department of the AN SSSR and the RAN and an academician and deputy chairman of the Siberian Department since December 1989. He is author and co-author of 250 scientific works of which six are significant monographs and he is credited with eight inventions. He graduated from the Tomsk Polytechnical Institute in 1958 and from 1958 to 1964, he worked at the Transportation Energetics Institute. In 1965 he joined the staff of the Thermal Physics Institute. In 1974, he was named head of the Two-Phase Laboratory of Thermal Physics Institute in Novosibirsk, becoming Deputy Director in 1986, and in 1988, he was named the Director of that institute that was founded in 1959 to study heat transfer, thermal physics of ionized gases, and gas dynamics. He is responsible for experiments leading to the development of a theory that shows a greater velocity being achieved in filtration through heat exchange during condensation and a forced flow in various media. He has been a professor at the Novosibirsk University since 1976 and served as Prorector and rector of that university from 1983 to 1985. While serving at the university, he guided the doctoral work of six students and the research of 40 aspirants for the candidate degree. He was named to the Siberian Department Presidium in 1983, becoming deputy chairman of the Siberian Department in 1985. He received the Government's Laureate Prize in 1983 and holds other medals and awards.

The institute was established in 1957 and until 1988 was under the guidance of Academician S. S. Kutateladze. Basic research on theory of heat transfer, physics of hydrodynamics and gas dynamics and the thermal physics of ionized gases. The work of the institute in laser physics was awarded the Townes Prize of the American Optics Society. The institute supervises the work of two major design offices: "Energokhimmash" of the Ministry of Chemical and Petroleum Engineering Industry and "Tekhenergokhprom" of the Ministry of mineral fertilizers. Dr. Mikhail F. Zhukov and Dr. Veniamin P. Chebotaev--corresponding members of the Russian Academy of Sciences--are on the staff of this institute. Academician Secretary is Aleksandr N. Kekalov, C. PM. S. In 1989, personnel included: Director Vladimir E. Nakoriakov, D. Tech. S., May '88; Deputy Directors: Veniamin P. Chebotaev, D. PM. S., since '78; Boris P. Mironov, since '78; and, Mikhail F. Zhukov, since '70. Major scientific trends in the Institute include studies in the field of the heat and mass transfer theory and the physical hydrogasdynamics covering fundamental problems of turbulent energy and mass transfers, rarified gas dynamics, thermohydrodynamics of heterogeneous systems, gas dynamics, electrodynamics and heat transfer in a thermal plasma flow, laser physics and low temperature energetics. Institute laboratories include:

Bubble Dynamics Laboratory: Head Ivan Malenkov, since '78; **Condensation Heat Transfer Laboratory:** Head Ivan Gogonin, since '78;

Electrochemical Two-Phase Flow Laboratory: Head Vladimir Chekhovich, since '78;

Forced Convection Boiling Water Laboratory: Head Nina N. Mamontova, since '74; Junior Researchers: Avtsentiuk, B. P., since '74; and Bobrovich, G. I., since '74;

Helium Heat Transfer Laboratory: Head Mark O. Luset, since '78;

Laser Laboratory: Head Veniamin P. Chebotaev, D. PM. S., since '78; Senior Researcher Bagaev, S. N., since '77;

Non-Newtonian Fluid Mechanics Laboratory: Head E. M. Khabakhpasheva, since '71;

Physics of Low Temperature Plasmas Laboratory: Head B. A. Urinkov, since '73;

Rarified Gas Laboratory: Head Aleksei K. Rebrov, D. PM. S., since '69;

Thermodynamics and Thermogasdynamics Laboratory: Head Boris P. Mironov, since '69; Deputy Head Pokusaev, B. G., since '73;

Two-Phase Laboratory: Head Vladimir E. Nakoriakov, D. Tech. S., since '74; Senior Researchers: Kashinskii, O. N., since '74; Kozmenko, B. K., since '78; Mukhin, V. P., since '74; Pokusaev, V. G., since '74; Valukina, N. V., since '78;

VI. Compound Institute of Semiconductor Physics in Akademgorodok under General Director corresponding member of the RAS Konstantin K. Svtashev.

28. Institute of Semiconductor Physics

630090, Novosibirsk-90, Russia

pr. ac. Lavrentieva, 13

ISP SB RAS

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E-mail: help-1@isph.nsk.su

Svtashev, Konstantin K., D. PM. S. Born in 1936. Physicist. Specialist in the elements of the bases in information systems, and diagnostics of semiconductor structures. Corresponding member of the Information Science, Computer Technology, and Automation Department of the AN SSSR from December 1987 and reconfirmed in 1992. He has authored and co-authored 104 scientific works of which two are major monographs. He graduated from the Leningrad State University in 1959. He worked as an engineer at the State Optics Institute imen S. I. Vavilov from 1959 to 1962. In 1962, he began working at the Semiconductor Physics Institute of the Siberian Department, in 1975 becoming its Deputy Director. In 1980, he was made head of SKTB as a specialist in the electronics and the analytics of instrument making. He has been a professor at the Novosibirsk State University since 1985 and, as a professor has supervised the research of two doctoral students and of 11 aspirants for the candidate degree. He is editor of the journal Microelectronics. He received the Laureate Prize of the Soviet Ministers of the SSSR in 1984.

Rzhanov, Anatolii V., D. PM. S. Born in 1925 in Ivanova. Russian physicist. Academician of the Siberian Department and corresponding member of the General Physics and Astronomy Department of the Academy since 1962. Academician of the Information Science, Computer Technology, and Automation Department of the Academy since 1984. He graduated from the Leningrad Polytechnic Institute in 1941. From 1944 to 1962, he worked at the Institute of Physics of the AN SSSR and since 1968, he has been Director of the Institute of Semiconductor Physics of the Siberian Department of the AN SSSR and the RAN in Novosibirsk. He joined the Presidium of the Siberian Department in 1976. The Physics Institute was established in 1964 to research microelectronics with emphasis on the physics of semiconductors, lasers, non-linear optics, and the stability of semiconductor materials. He has taught at the University of Novosibirsk since 1963 becoming a professor there in 1966. His works are in the physics of dielectrics and semiconductors and in semiconductor electronics. He discovered and studied the piez electric effect in polarized barium titanate ceramics, and he produced and conducted research on samples of point-contact and fused germanium diodes and triodes. (GSE 22, p. 528.)

Established in 1962. Research is conducted in microelectronics with emphasis on the physics of semiconductors, lasers, non-linear optics, and the stability of semiconductor materials. Its scientists also study the acoustic surface waves on the surfaces of piezo-electrics and the interaction of these waves with laser irradiation. Engineering approaches have been developed allowing for the design of acoustic-electronic devices which provide a substantial miniaturization of the present-day radio electronic equipment. Dr. Sergei V. Bogdanov, corresponding member of the Russian Academy of Sciences is on the staff of this institute. Since 1968, Anatolii V. Rzhanov, D. PM. S., has been its Director. The academician secretary is Sergei D. Luchinin, C. PM. S. In 1989, institute personnel included: Deputy Directors: Aleksandr F. Kravchenko, D. PM. S., since '64; and, Igor G. Neizvestni, since '70.

Electro-acoustics Laboratory: Head Sergei V. Bogdanov, since '67; Senior Researchers: Lobanova, G. A., since '68; Savvinikh, S. K., since '65; Sheloput, D. V., since '68; Iakovkin, Igor B., since '71;

Kinetic Phenomena Laboratory: Head Aleksandr F. Kravchenko, D. PM. S., since '64; Senior Researcher Borodovskii, Pavel A., since '71;

Radiation Damage Laboratory: Head Leonid S. Smirnov, since '67;

Ion Implantation Department: Head Nikolai N. Gerasimenko, C. PM. S., since '73;

MOS Department: Head Stanislav S. Sinitza, since '71;

Photo conductivity Department: Senior Researchers Lezheiko, L. V., since '76; Stas, V. F., since '73; Vasiliev, A. V., since '73;

Semiconductor Surfaces Laboratory: Head N. I. Krasnikov, since '73;

Thin Films Laboratory: Head Leonid N. Aleksandrov, D. PM. S., since '68;

Semiconductor Theory Department: Senior Researchers Chaplik, Aleksandr V., since '75; Nakhmanson, R. S., C. PM. S., since '69; Petrosian, V. I., since '69;



29. The Technological Construction Institute for Microelectronic Instruments in Akademgorodok under Vadim K. Sokolov, C. PM. S.



30. Chemical Kinetics and Combustion Institute in Novosibirsk.

Molin, Iurii N., D. Chem. S. Born in 1934. Specialist in chemical physics. Corresponding member since 1974, and academician of the General and Technical Chemistry Department of the AN SSSR from 1981. He graduated from the Moscow Physico-Technical Institute in 1957. He worked at the Chemical Physics Institute of the AN SSSR from 1957 to 1959. In 1959, he joined the staff of the Chemical Kinetics and Combustion Institute of the Siberian Department. In 1967, he headed a laboratory of that institute, and in 1971, he became its Director. The institute was organized in the 1960s to study chemical physics and electron and nuclear magnetic resonance. Since 1978, he has also acted as head of the Fast Liquid Phase Reactions Laboratory of the Chemical Kinetics and Combustion Institute. He was named to the Presidium of the Siberian Branch in 1986. He has been a professor, holding the chair in chemical physics at the Novosibirsk University, since 1977. He was head editor of *The Journal of Structural Chemistry*

from 1977 to 1988. He is an honored scientist of the former Soviet Union. He received the Lenin Prize in 1986 and holds a number of other awards and medals. (GSE 30, p. 563.)

Established in 1957 to research chemical physics and electron and nuclear magnetic resonance. Major research includes investigation of elementary processes and mechanisms of chemical conversions with the use of Theoretical Physics and novel physical techniques; the study of the mechanism of combustion processes in a gas and condensed phases, generation and propagation of artificial aerosols; the development of techniques for the synthesis of organic compounds with conjugated bonds. Two academicians and one corresponding member of the Russian Academy serve on the staff of this institute. The staff of the institute totaled 450 in 1992 of whom 250 were scientific researchers and of whom 23 held the doctorate and 120 the candidate degree. Iurii N. Molin, D. Chem. S. has been Director of the institute since 1972. He is an academician of the RAS and also heads a laboratory that studies reactions in solutions and spin chemistry. Yu Isvetkov, D. Chem. S., is an assistant Director who also heads up a laboratory that does research in free radicals and in spin echo. He is a corresponding member of the RAS. M. Sagdeev, D. Chem. S. is an assistant Director who heads the Tomography Center and is also a corresponding member of the academy. V. Panfilov, D. Chem. S. is an assistant Director. And Iurii Efimov, C. PM. S. is Scientific Secretary of the Institute. All of these laboratories and the group are under **the Kinetics Department** of the Institute:

(Note: The following update is some 47 pages long and constitutes the most detailed description of an institute's research structure, activity, and results in the guide.)

(1997 update) **Administration of the Institute of Chemical Kinetics and Combustion of SB RAS**

Director of the Institute
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Scientific Secretary
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the Radiation and Spin Chemistry Laboratory: under U. Anisimov, D. Chem. S.;

the Photochemistry Research Laboratory: under N. Bazhin, D. Chem. S.
the Infrared Laser Photochemistry Laboratory: under A. Petrov, D. Chem. S.;
the Theoretical Chemistry Research Laboratory: under A. Burstein, D. PM. S.
the Organic Intermediates by CIDNP Laboratory: under I. Leshina, D. Chem S.,
and,
the group studying stimulated nuclear polarization: under A. Yurkovskaia (aya),
C. Chem. S.

The Combustion Department has three laboratories:

the Combustion of Gas Systems Laboratory under V. Babkin, C. PM. S;
the Combustion of Condensed Systems Laboratory under V. Zarko, D. PM. S.,
and
the Kinetics of Combustion Processes Laboratory under U. Korobeinichev, D.
PM. S.

The Aerosols Department has two laboratories and two groups:

the Atmospheric Aerosols Laboratory under K. Koutsenogii, D. PM. S.;
the Aerosol Applications Laboratory under V. Makarov;
the Aerosol Instrumentation Development Group under the leadership of A.
Ankilov, and
the Composition and Structure of Aerosols Group under S. Paschenko, C. PM.
S.

The Organic Chemistry Department has one laboratory:

the Organic Synthesis Laboratory under M. Shwarzberg, D. Chem. S.
The New Techniques and Instruments Department has three laboratories:
the Methods and Instruments for Chemical Kinetics Laboratory under Iurii
Grishin, D. PM. S.;
the Free Electron Laser Laboratory under. Savchenko, C. PM. S., and
the Proton Accelerators Laboratory under A. Bogomolov, C. PM. S.

There are three independent “international” centers located at the institute:

The Hydroscope Center is under A. Legchenko, C. Tech. S.;

The Tomography Center under R. Sagdeev, D. Chem. S., and

The International Photochemistry Center based on free electron lasers developed by
the Institute of Nuclear Physics in Akademgorodok. These centers have been
established in order to ease contracting with foreign industrial firms and to receive
government grants for research from various sources in Russia and from
abroad. Academician Secretary is Iurii Ia. Efimov, C. PM. S.



31. The Cytology and Genetics Institute in Akademgorodok.

Shumnii, Vladimir K., D. Bio. S. Born in 1934. Biologist. Specialist in the field of
experimental genetics. Corresponding member of the General Biology Department
of the Academy since 1979, and academician since 1992. He graduated from the
Moscow State University in 1958 and joined the Institute of Cytology and Genetics
of the Siberian Department upon graduation passing successively through positions
as laboratory assistant, junior and senior researcher, and from 1970 to 1985,
Deputy Director and in 1985, Director of that institute. He is chairman of the
Scientific Council on the Biological Sciences (1988). He joined the Presidium of
the Siberian Department and of the National Academy in Moscow in 1980. He has

been a professor since 1979, holding the chair in cytology at the Novosibirsk State University. He is chairman of the Siberian Department's V. I. Vavilov Genetics and Selection Society. The Altai International Center for Humanitarian and Biospheric Research, was established in 1991. The center will involve the collaboration of three major bodies: the United Institute of History, Philology and Philosophy in Akademgorodok-Novosibirsk, the Cytology and Genetics Institute in Akademgorodok-Novosibirsk, and the Gorno-Altai Republican Soviet in Gorno-Altai, Russia. As Director of the Institute of Cytology and Genetics of the Siberian Department located in Akademgorodok-Novosibirsk, Dr. Shumny will play a major role in the development of this international research institute.

Administration of the Institute Cytology and Genetics

Director of the Institute

Vladimir K. Shumny, academician, Prof., Dr.Sci.

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Vice directors of the Institute:

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Suren M. Zakian, Prof., Dr.Sci.

Anatoly V. Kushnir, Ph.D.

Scientific secretary of the Institute

Alexander V. Osadchuk, Ph.D.

Scientific secretary of the foreign affairs of the Institute

Galina N. Kiseleva, Ph.D.

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fax: (383)2356558

E-mail: kiseleva@cgi.nsk.su

Established in 1957. From 1959 to 1985, the Director of the institute was Academician D. K. Belyaev who played a key role in the revival of genetic research in the Soviet Union. The institute has five main research thrusts: 1) Molecular genetics, 2) Cytogenetics, 3) Plant genetics, 4) Animal genetics, 5) and, Physiological genetics. Two fundamental problems are under investigation in the institute. They are the investigation of the structure and functioning of the genome, and the second is the cognition of laws of evolution and selection. In addition to maintaining contracts with many scientific research centers throughout the world, the institute keeps close relations with Novosibirsk University where its personnel determine the activities of three chairs--Genetics and Cytology, Molecular biology, and Physiology. Postgraduate studies are directed in the institute. The total number of scientists in the institute was 378 in 1991 of whom two were corresponding members of the Russian Academy of Sciences, eight were professors, 32 held doctors of sciences degrees, and 171 held candidates of sciences degrees.

1997 update

[General Information of the Institute of Cytology and Genetics

The Institute of Cytology and Genetics of the Siberian Branch of the Russian Academy of Sciences was founded in 1957 among the first

institutes of the Siberian Branch. Its first director was Academician N.P.Dubinin. From 1959 to 1985, the director was Academician D.K.Belyaev who made a great contribution to the creation of the Institute and revival of genetics in Russia. At present the Institute is headed by Academician of the Russian Academy of Sciences V.K.Shumny.

The Institute of Cytology and Genetics of the Siberian Branch of the Russian Academy of Sciences is a center of genetics well-recognized in the country, which carries out research in a wide range of problems of modern genetics, molecular and cellular biology. During the recent years, in the Institute there is a progressive general tendency of integration of molecular, cellular and genetic approaches. This process leads inevitably to disappearance of clear-cut borders between different directions of research, increase of interdisciplinary contacts, a considerable enrichment with techniques and ideas.

According to the objects and scientific techniques, and also to the traditions developed at the Institute, one can distinguish conventionally seven main branches of research:

**Molecular genetics.
Cytogenetics.
Theoretical genetics.
Human genetics.
Plant genetics.
Animal genetics.
Physiological genetics.**

The main efforts of the scientists of the Institute are directed to solution of two fundamental problems: the first one is concerned with the investigation of the structure and functioning of genome, the second one with the cognition of laws of evolution and selection.

The Institute participates in the elaboration of large programs of national economy concerned with creation of new high-productive plant varieties, animal breeds, and strains of microorganisms, working out new technologies used in agricultural industry, human and veterinary medicine.

The successful development of science is promoted by international scientific contacts. The scientists of the Institute are collaborating with many scientific institutions of the countries: USA, Great Britain, Germany, Japan, Sweden, France, Canada, Denmark, Italy, Finland etc.

The Institute is one of the organizers of the Altai International Center on Biospheric and humanitarian research. In order to carry out the research in this Center on ecological genetics, animal, plant and human genetics and preserving the genepool we invite the interested scientists all over the world to cooperation.

The Institute publishes every year many dozens of papers in Soviet and international scientific journals and books.

The Institute of Cytology and Genetics maintains close relations with the Novosibirsk University with the widely-educated specialists in general, theoretical and experimental biology, able to use the basic knowledge of mathematics, physics, chemistry and methods of exact sciences for solving actual biological problems. Specialization of students in cytology, genetics, physiology of man and animals, biochemistry, microbiology and ecology is organized in the department.

In the educational process special attention is paid to show the connection between biology, physics, chemistry, mathematics and to expose the unity of physical, chemical and biological processes and phenomena as well as to show their qualitative differences.

To show the importance of biology in the future activity of mankind is one of the main object of education.

Many leading scientists deliver lectures, conduct seminars and workshops for the students of the Biological Faculty, and determine the activities of two chairs: Genetics and Cytology, Physiology, and the work of two departments: of molecular biology and general biology - the Institute supervises together with other institutes of biological profile.]

The institute maintains a large vivarium as an experimental base for the study of animal genetics, an experimental farm of approximately 7000 hectares where animal breeding, fur farming, feed production, and seed production occur, and in the Gorno-Altai Autonomous region the Altai Experimental Farm of the Siberian Division of the Russian Academy of Sciences was created in 1980 to collect, preserve, and accumulate a genetic pool scientifically and economically prospectively and native breed of Agricultural animals for breeding experimental purposes. Since 1987, the Cytology and Genetics Institute has been designated as the main institution of the Novosibirsk Agricultural Biotechnological Center that combines the institute personnel of--as well as a number of research institutes of--Novosibirsk and other Siberian cities, has as its main thrust the elaboration and application in agriculture of new methods of breeding for the creation of highly productive breeds and strains of animals, varieties and hybrids of plants, strains of microorganisms on the basis of cellular and genetic engineering. Academician secretary is Aleksandr V. Osadchuk, C. Bio. S. In 1991, the institute joined with the United Institute of History, Philology and Philosophy of the Siberian Department and the Republican Soviet of People's Deputies of Gorno-Altai in forming the Altai International Center for Humanitarian and Biospheric Research--a new international research center. (See: Ruble, Vol. I., p. 277.) (Information on this institute provided by Dr. G. Kiseleva, Scientific Secretary for Foreign Affairs of the Institute, by letter dated 21 October 1991. Pamphlet enclosed.)

{Institute of Cytology and Genetics in Akademgorodok (1996-97 update)

Administration:

**Director of the Institute; Vladimir K. Shumny (Shumnii), academician,
Professor, Dr. Sci.**

Vice Directors of the Institute:

Nicolai A. Kolchanov, Professor, Dr. Sci.

Suren M. Zakian, Professor, Dr. Sci.

Anatolii V. Kushnir, Ph.D.

Scientific Secretary of the Institute

Aleksandr V. Osadchuk, Ph.D.

Scientific Secretary of the foreign affairs of the Institute

Galina N. Kiseleva, Ph.D.

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General Information:

The Institute of Cytology and Genetics of the Siberian Branch of the Russian Academy of Sciences was founded in 1957 among the first institutes of the Siberian Branch. Its first Director was Academician N. P. Dubinin. From 1959 to 1985, the Director was Academician D. K. Belyaev who made a great contribution to the creation of the Institute and revival of genetics in Russia. At present the Institute is headed by Academician of the Russian Academy of Sciences V. K. Shumny.

The Institute of Cytology and Genetics of the Siberian Branch of the Russian Academy of Sciences is a center of genetics well-recognized in the country, which carries out research in a wide range of problems of modern genetics, molecular and cellular biology. During the recent years, in the Institute there is a progressive general tendency of integration of molecular, cellular and genetic approaches. This process leads inevitably to disappearance of clear-cut borders between different directions of research, increase of interdisciplinary contacts, a considerable enrichment with techniques and ideas.

According to the objects and scientific techniques, and also to the traditions developed at the Institute, one can distinguish conventionally seven main branches of research:

Molecular genetics.

Cytogenetics.

Theoretical genetics.

Human genetics.

Plant genetics.

Animal genetics.

Physiological genetics.

The main efforts of the scientists of the Institute are directed to solution of two fundamental problems: the first one is concerned with the investigation of the structure and functioning of genome, the second one with the cognition of laws of evolution and selection.

The Institute participates in the elaboration of large programs of national economy concerned with creation of new high-productive plant varieties, animal breeds, and strains of microorganisms, working out new technologies used in agricultural industry, human and veterinary medicine.

The successful development of science is promoted by international scientific contacts. The scientists of the Institute are collaborating with many scientific institutions of the countries: USA, Great Britain, Germany, Japan, Sweden, France, Canada, Denmark, Italy, Finland etc.

The Institute is one of the organizers of the Altai International Center on Biospheric and humanitarian research. In order to carry out the research in this Center on ecological genetics, animal, plant and human genetics and preserving the genepool we invite the interested scientists all over the world to cooperation.

The Institute publishes every year many dozens of papers in Soviet and international scientific journals and books.

The Institute of Cytology and Genetics maintains close relations with the Novosibirsk University with the widely-educated specialists in general, theoretical and experimental biology, able to use the basic knowledge of mathematics, physics, chemistry and methods of exact sciences for solving actual biological problems. Specialization of students in cytology, genetics, physiology of man and animals, biochemistry, microbiology and ecology is organized in the department.

In the educational process special attention is paid to show the connection between biology, physics, chemistry, mathematics and to expose the unity of physical, chemical and biological processes and phenomena as well as to show their qualitative differences.

To show the importance of biology in the future activity of mankind is one of the main object of education.

Many leading scientists deliver lectures, conduct seminars and workshops for the students of the Biological Faculty, and determine the activities of two chairs: Genetics and Cytology, Physiology, and the work of two departments: of molecular biology and general biology - the Institute supervises together with other institutes of biological profile.

Main branches of research of the Institute:

Molecular genetics.

Laboratory of Biochemical Animal Genetics.

Laboratory of Animal Molecular Genetics.

Laboratory of Gene Expression Control.

Laboratory of Genome Structure.

Sector of Molecular Neurogenetics.

Sector Molecular-Genetic Mechanisms of the Interactions Protein-Nucleic Acid.

Sector of Medicine Genetics.

Sector of Virology.

Cytogenetics.

Laboratory of Human and Animal Cytogenetics.

Laboratory of Cell Division.

Laboratory of Cell Biology.
Laboratory of Molecular Cytogenetics.
Laboratory of Cell Ultra structures.
Laboratory of Cells Differentiation.

Theoretical genetics.

Laboratory of Theoretical Molecular Genetics.
Laboratory of Molecular Genetic Systems.
Laboratory of Molecular Evolution.
Sector of Methods of Genetic Analysis.

Human genetics.

Human Molecular Genetics Sector.
Sector of Human Molecular and Evolutionary Genetics.

Department of Molecular genetics.

1. The Laboratory of Biochemical Animal Genetics.

Staff:

Suren M. Zakiyan, Prof., Dr.Sci., Head of the Laboratory.
Tatyana B. Nesterova, Ph.D.
Vladimir I. Mayorov.
Albina A. Isaenko
Evgeny A. Khrapov
Svetlana S. Karakhanova
Nadezhda B. Rubtsova
Nina A. Mazurok

Subjects of Research:

Study of heterochromatine blocks influence on X-chromosome inactivation
in hybrid voles of a *Microtus* genus.
Organization and evolution of chromosomal sets in human beings and
animals.

Participation in State and International Programs:

INTAS
RFBR
New Trends in Genetics

Subjects of Scientific Collaboration:

Regulation of gene expression in ontogenesis of mammals.

2. Laboratory of Animal Molecular Genetics.

Staff:

Aida G. Romashchenko, Ph.D., Head of the Laboratory
Mikhail I. Voevoda, Ph.D.

Nikolai N. Kolesnikov, Dr.Sci.
Viktor F. Kobsev, Ph.D.
Vladimir N. Babenko, Ph.D.
Larisa M. Skobeltsina, Ph.D.
Nikolai S. Yudin, Ph.D.
Svetlana V. Mikhailova

Subjects of Research:

Study of the molecular mechanisms of mammalian genome evolution: the possible functional role of the taxon-specific satellite-like repeats in Canidae genomes.

Study of genetic consequences of the radiation pollution on the residents of Altai territories: structural and functional variability of M-CSF receptor gene and mtDNA.

Development and design of automatic instrument for synthesis of polynucleotides with H-phosphonate chemistry. Synthesis of poly- and oligonucleotides for laboratory and institute needs.

General Results 1993-1995:

Basing on the data of the comparative analysis of the primary structures of different variants of Bsp repeats from racoon dog, domestic dog, silver fox and grey fox genomes, the evolutionary events have been reconstructed which determined the hierarchy of the internal organization of these DNA sequences. The five main types of subrepeats and two types of monomer seem to have occurred stepwise and before the divergence of the main phylogenetic lineages of Canidae. The structural-functional computer analysis demonstrated that Bsp repeats have potential positive and negative regulatory motifs. Some of variants have potential promoter boxes for general factors of RNA polymerase III. We have postulated the existence of selective factors providing the fixation of particular versions of the Bsp repeats in the Canidae genomes. One such factor might have been the emergence of DNA stretches in the Bsp repeats that were recognized by chromatin proteins. Majority of Bsp repeats occur in the transcriptionally inactive regions of precentromeric heterochromatin. These DNA sequences are typical satellite-like noncoding repeats. However they are also similar with interspersed repeats. For example: the size of RNA of both type repeats is heterogenous, their preferred nuclear localization is the same, their transcription is symmetrical. Abundant transcripts were detected in the external part of the kidney's medulla of arctic fox. Observed species and tissue-specificity of the transcription of Bsp repeats suggests that they may potentially accomplish regulatory functions in the fox genome.

Structural similarity concerning SINEs and Bsp repeats have been considered with the help of new introduced method of I-plete analysis. Considerable quantity of common conservative oligonucleotides were detected. Some of them are homologous to known functional motifs of specific DNA-binding proteins.

Participation in State and International Programs:

We have the current support from Siberian Branch of the Russian Academy of Sciences project "Physical and chemical bases of living system evolution" and Russian Human Genome Project.

Subjects of Scientific Collaboration:

Molecular genetic mechanisms of evolution and fixation of Canidae specific satellite-like repeats in the genomes of the modern Canidae species (Romashchenko Aida G., Ph.D.).

The study of genetic consequences of the radiation pollution in the population-family samples from residents of Altai territories: the structural and functional variability of M-CSF receptor gene and mtDNA (Romashchenko A.G., Ph.D., Voevoda Mikhail I., Ph.D.).

Analysis of the mitochondrial and nuclear genes DNA polymorphism in populations of the native inhabitants of North-East Asia (Voevoda Mikhail I., Ph.D.).

Molecular evolution of the regulatory regions in the genomes of the dog family (Canidae). (Kolesnikov Nikolai N., Dr.Sci.).

Synthesis of polydeoxyribonucleotides for project needs and development of methods of macroscale super-rapid synthesis of oligonucleotides (Kobsev Viktor F., Ph.D.).

3. Laboratory of Gene Expression Control.

Staff:

Tatyana I. Merkulova, Ph.D., Head of the Laboratory
Vasily M. Merkulov, Ph.D.
Rimma L. Mitina, Ph.D.
Galina A. Kovalenko, Ph.D.
Soya B. Levashova
Gennady V. Vasiliev
Yaroslav R. Efremov

Subjects of Research:

Molecular mechanisms of gene expression control.
Endogenic nucleases in antiviral defence.

General Results 1993-1995:

1) Glucocorticoid responsive elements (GREs) located -252 to -209 bp upstream and +1011 to +1054 bp downstream of the transcription initiation site of the mouse metallothionein-I (mMT-I) gene were identified in transient transfection experiments. However, the promoter region of the mMT-I gene (-330 to +70 bp) was found to provide low, if any, glucocorticoid induction of the linked CAT gene, while showing strong cadmium regulation, comparable with the in vivo level.

In studies of highly purified GR binding to EcoR I fragments of rTO gene DNA covering the region of localization of this gene from -8kb to +8kb, we have found a new region of specific binding to GR extending from the end of the 4th intron to the exon G. In determined nucleotide sequence of this region, with the help of computer

analysis, a cluster of consensus sequences of binding sites for some transactivating factors was found in the 4th intron. This region was shown to be a site of nuclear extract proteins binding.

- 2) A considerable increase of DNase activity after inoculation of Aleutian disease virus (ADV) or after injection of heterogeneous DNA was observed in serum from minks of standard (AA/Aa) genotype, resistant to ADV, but not in serum from Sapphire minks susceptible to ADV infection. An increase of DNase activity after injection of heterogeneous DNA was also observed in serum of white random bred and Black mice known as resistant to viral infection.

Participation in State and International Programs:

Russian State Programme "New Trends in Genetics".

Subjects of Scientific Collaboration:

A search and study of regulatory regions in glucocorticoid regulated genes, that will include:
Revealing of putative regulatory regions by computer methods
Investigation of glucocorticoid receptor and nuclear extract proteins binding to these regions
Study of their functional meaning in transient transfection experiments
Identification of regulatory elements forming the regions under study
Investigation of nucleases as humoral antiviral protective barrier.
Investigation of protective antiviral effect of exogenous RNases and DNases.

4. Laboratory of Genome Structure.

Staff:

Grigory M. Dymshits, Prof., Dr.Sci., Head of the Laboratory
Vyacheslav A. Adarichev, Ph.D.
Anna E. Dikalova, Ph.D.
Natalia A. Dudareva, Ph.D.
Sergei M. Kalachikov, Ph.D.
Valentina I. Rykova, Ph.D.
Inna E. Vlassova, Ph.D.
Ivan B. Khvorostov
Angelika A. Krivenko
Alexander V. Popovsky
Wjatschesslaw A. Wlassoff

Subjects of Research:

Structure-function organization of eukaryotic genome.
Nonradioactive detection of different sequences in the human and animal genomes.
Synthesis of the nucleoside 5'-triphosphate derivatives bearing the photoreactive groups and fluorescent labels.

Studies of substrate and template specificity of different RNA and DNA polymerases from various domains of life.
Study of nuclear proteoglycans participation in the regulation of gene expression.
Investigation of the molecular-genetic mechanisms of human hypertension using the rat strain with inherited stress-induced arterial hypertension.
Plant mitochondrial genome structure. Expression of mitochondrial genes in fertile and sterile sugar beet cytoplasms.

General Results 1993-1995:

New original methods of the synthesis of nucleoside 5'-triphosphate derivatives bearing the residues of various fluorescent dyes and photoreagents have been fulfilled and the compounds obtained have been studied as substrates for different DNA and RNA polymerases.

A model for the DNA polymerase translocation along the DNA has been proposed. According to the model, the movement of the enzyme is a result of transition of the enzyme-bound DNA from A- to B-form which is accompanied by the lengthening of DNA within the binding channel.

An original method of preparation of nonradioactively labelled DNA and RNA probes for molecular hybridization has been suggested. The method is based on incorporation of amino groups into polynucleotides by alkylation and transamination of nucleic base followed by attachment of different labels to these amino groups. The level of labelling of such probes by biotin and fluorochroms which gives maximal sensitivity during dot-, blot- and in situ hybridization has been determined.

The use of high sensitive biotinilated DNA probes allows to map the human chorionic somatomammotropin gene to the 17q22 region.

The new method of the DNA photoimmobilization onto the different solid supports which allows to increase the hybridization sensitivity have been developed.

The test-systems for nonradioactive DNA diagnostics of bovine leukemia provirus, Malaria in human blood, and mycoplasmic contamination of cell cultures have been developed.

It has been shown that nuclear proteoglycans are very conservative in mammalian cells. The oligo RNAs from the nuclear proteoglycan fraction are able to suppress a transcriptional process in cell culture.

The ISIAH (inherited stress-induced arterial hypertension) rat strain has been characterized by DNA fingerprinting method, and very high genetic homogeneity has been shown.

It has been carried out the mapping of point mutations in leader sequence of the hsp70 gene of various rat strains with hypertensive and normotensive status. The ISIAH rat strain has been shown to carry the point mutation in the leader sequence at a distance of 35 bp from the start of the transcription origin in the recognition site of restrictase BamHI.

The molecular-genetic differences between the fertile and sterile types of cytoplasm in sugar beet have been revealed. The mechanism of spontaneous conversion of normal cytoplasm to sterile one has been suggested.

It has been demonstrated that the rearrangements in mitochondrial DNA appeared during in vitro cultivation of plant cells, part of them has been inherited by regenerated plants. The data have been obtained providing the hypothesis that the higher generation of free oxygen radicals under stress conditions of culturing may be a cause of somaclonal variation.

Participation in State and International Programs:

New Trends in Genetics
Human genome
RFBR

Subjects of Scientific Collaboration:

Structure-function organization of eukaryotic genome.
Nonradioactive detection of different sequences in the human and animal genomes.
Studies of substrate and template specificity of different RNA and DNA polymerases from various domains of life.
Investigation of the molecular-genetic mechanisms of human hypertension using the rat strain with inherited stress-induced arterial hypertension. Analysis of linkage of stress-responsiveness and high arterial blood pressure with the set of molecular-genetic markers.
Plant mitochondrial genome structure. Expression of mitochondrial genes in fertile and sterile sugar beet cytoplasms.

5. Sector of Molecular Neurogenetics.

Staff:

Elina M. Baricheva, Ph.D., Head of the Sector
Tamara E. Sebeleva
Aleksy V. Katokhin

Subject of Research:

Molecular analysis of structure and function of the evolutionary conserved neurogenes (Nc genes) of *Drosophila* and homologous neurogenes of *Diptera* and *Mammalia*.

General Results 1993-1995:

During this period two neurogenes, Nc70F and Nc73EF, were studied in detail. The genome and cDNA clones nucleotide sequences of Nc70F and Nc73EF genes were obtained. Using Northern-blot analysis both Nc70F and Nc73EF were shown to be expressed in *Drosophila* neural tissue. Encoded by Nc70F gene protein was studied by Western-blot analysis and immunochemical staining of different organs of *Drosophila* larvae and adults. As concerning the Nc70F gene, the homology search has shown significant homology to the mouse delta transcription factor, However, there are some structural properties and unusual for TC factors neurospecificity.

Participation in State and International Programs:

New Trends in Genetics

Subjects of Scientific Collaboration:

Neurogenetics of Drosophila, Structure and Expression control of tissue-specific genes of eukaryotes.

6. Sector Molecular-Genetic Mechanisms of the Interactions Protein-Nucleic Acid.

Staff:

Ludmila K. Savinkova, Ph.D., Head of the Sector
Tamara G. Pankova, Ph.D.
Ariadna A. Sokolenko
Tamara M. Igonina
Tatyana V. Mayer, Ph.D.
Vera A. Rau

Subjects of Research:

Studies of the interaction of the RNA polymerases and the general transcription factors with promoter DNA in the process of transcription complex formation.

General Results 1993-1995:

Study of the interaction of the RNA polymerases and the general transcription factors with promoter DNA in the process of transcription complex formation has shown, that RNA polymerase had a rather high, but nonspecific affinity to all the promoter region studied ($K_d = 10^{**(-7)} M$). TATA containing oligonucleotides carrying alkylating groups at the 5'- ends bind covalently by 5'- ends only to the largest subunit of human RNA polymerase (220 kDa). Then we showed that the affinity of the yeast TATA-binding protein (TBP) to the short TATA-containing DNA regions depends on substitution within the TATA box and on its situation: dislodging TATA from the central position on the nucleotide sequence ($K_d = 3 \cdot 10^{**(-11)} M$) to the 3' or 5'- end would reduce the affinity 30 and 600-fold (dissociation constants being $1 \cdot 10^{**(-9)} M$ and $2 \cdot 10^{**(-8)} M$, respectively). Preincubation of RNA polymerase with increasing concentrations of the yeast TBP and further incubation with a fixed amount of ^{32}P - oligonucleotides carrying the alkylating groups showed that the higher TBP concentrations, the fewer covalent complexes of RNA polymerase II and ^{32}P -N with alkylating groups.

Participation in State and International Programs:

RFBR
Newest Methods of the bioengineering

Subjects of Scientific Collaboration:

Studying interaction of the general transcription factors with the homologous and heterologous promoter region genes. The detailed structure of the transcription complex and the processes underlying its formation are yet to become clear. That is why studies of separate stages of transcription complex formation, studies of the role of regulatory sequences and transcription factors in this formation, studies of their affinity to the regulatory sequences to other components of the transcriptional machinery are of importance for understanding the mechanisms of the transcription initiation reaction and the preceding events.

Subjects of Research:

Genetical and biochemical mechanisms responsible for the drug resistance of malarial parasite.

General Results 1993-1995:

The presence of cytochrome P-450-related genes in the plasmodial genome and the higher amount of these genes in chloroquine(Chl)-resistant strains of parasite were demonstrated. The other finding was that P-450-related DNA is transcribed in parasite cells and the level of transcription is obviously elevated in the Chl-resistant strain of parasites. This finding, along with previous biochemical data, indicating the presence of microsomal monooxygenases(MM) in the malarial parasite cells and its increase with augmentation of Chl-resistance (Bull.WHO 65, 381-386, 1987), confirms the linkage of MM to resistance of Plasmodium to Chl.

Participation in State and International Programs:

RFBR
State budget financial program

Subjects of Scientific Collaboration:

Use of inhibitors of monooxygenase (MM) activities and gene related oligodesoxynucleotides (ODN) for overcoming of chloroquine(Chl)-resistance of malarial parasites.

The amplification of cytochrome P-450-coding genes and high level of MM-activities may be one of the ways to provide Chl-resistance. The development of potential inhibitors of MM may hopefully provide means for overcoming of Chl-resistance of malarial pathogens (Bull. WHO 65, 387-389, 1987; Antimicrob. Agents and Chemotherapy 1993. 37:1318-1323).

At present several hypotheses have been proposed to explain the mechanism of resistance to chloroquine (Science. 1987. 238:1283-1285; Nature. 1990. 345:253-255; Biochem. Pharmacol. 1992. 43:1219-1227) and we still have no unifying argument to explain the reduced chloroquine responsiveness observed in resistant parasite. Efforts to develop new classes of antimalarial drugs that would circumvent drug resistance are underway. Synthetic oligonucleotides compose an alternative class of therapeutic agents and have been demonstrated to inhibit Plasmodium falciparum protein synthesis (NAR 1991. 19:1613-1618) and development of P.falciparum in vitro (PNAS 1992. 89:8577-8580).

We proposed to demonstrate the increased permeability of malarial-infected erythrocytes to ODN and to investigate the antimalarial activities of various ODN-derivatives.

7. Sector of Medicine Genetics.

Staff:

Anna E. Dikalova, Ph.D., Head of the Sector
Aleksander M. Gonchar, Ph.D.
Irina G. Shabalina, Ph.D.
Larisa N. Kudryashova
Julija V. Ablaeva
Sergey I. Dikalov, Ph.D.

Subjects of Research:

Molecular mechanisms of the development of diseases involving enhanced oxygen radical generation. The role of free radicals in the increased mutation rate in animal and plant cells. Molecular basis of somaclonal variation.

General Results 1993-1995:

By selecting and inbreeding Wistar rats which are sensitive (S) or resistant (R) to the cataractogenic effect of galactose the S and R rat strains were developed. Intense generation of oxygen radicals and enhanced lipid peroxidation were revealed in the liver and myocardium of the S rats. Data were obtained supporting the hypothesis that enhanced generation of OH-radicals in the S rat cells is due to the oxidation and autooxidation of the increased amounts of monosaccharides intensively transported into the rat cells. Numerous DNA rearrangements were found in the S rat genomes. Decreased oxidative phosphorylation and the lower respiratory control ratio were found in liver mitochondria of S rat. Formation of protein carbonyl groups and membrane fluidity were increased. SOD and catalase activity were decreased. Tumors, premature aging (low fecundity, growth retardation and short life-span), cataracts, cardiomyopathy-like changes in the myocardium, scoliosis are characteristic of the S rats.

Preliminary data demonstrated that there are groups of patients with scoliosis, cardiomyopathy, atherosclerosis in families predisposed to these diseases which are characterized by a very intense hexose transport into cells, enhanced free radical generation and lipid peroxidation.

The high mutation rate in the genome of the plant cells which are grown in cell suspension or in tissue culture is known as somaclonal variation. Although extensive documentation of this phenomenon is available in numerous plant species, the existing data on this subject do not allow to make unambiguous conclusion about the nature of somaclonal variation. We advanced the suggestion that culturing of plant cells in vitro are stressful conditions which may result in the hyperproduction of oxygen free radicals which in turn react with DNA and cause the mutations. If it is so, we may regulate the mutation process using in medium the agents stimulating or

inhibiting free radical generation. It was shown that mutation frequency correlates with the intensity of the oxygen radical formation when into the nutritive medium for cultivating plant cells the scavengers of free radicals or stimulators of oxygen radicals generation were used. Cytological study of plant cells have demonstrated that the rate of cell growth was 3-5 times higher and callus cultures were more viable, the number of necroses was reduced up to zero when the cells grown on the media with Fe-ADP, Fe-citrate, Fedeferroxamine instead of Fe-EDTA. Substitution of Fe-EDTA by Fe-ADP, Fe-citrate, Fe-deferroxamine decreased hydroxyl radical formation in plant cells. The rate of plant cell mutations was dependent on the state of antioxidant system of the cells - in particular of catalase activity and the content of cell antioxidants - thiols and ascorbic acid.

Participation in State and International Programs:

New Trends in Genetics, 2 grants (Russia)
MacArtur Foundation, 1 grant (USA)
International Science Foundation, 1 grant

Subjects of Scientific Collaboration:

Molecular mechanisms of the development of diseases involving enhanced oxygen radical generation. The role of free radicals in the increased mutation rate in animal and plant cells. Molecular basis of somaclonal variation.

8. Sector of Virology.

Staff:

Nina L. Galachar, Ph.D., Head of the Sector
Elena G. Ufimtseva

Subjects of research:

The problem of gene determined resistance to retroviruses on the model of avian AMV-infection.
Interspecific hybridomas.

General Result 1993-1995:

The resistivity mechanisms to retroviral AMV-infection and the leucogenesis for high resistive and low resistive lines of avians are investigated.

Participation in State and International Programs:

The state program of Russia "The physico-chemical fundamentals of biology and evolution of natural systems, problems of genetics and selection, physiology of plants and biotechnology".

Subjects of Scientific Collaboration:

The collaboration with Institute of cancer, Heidelberg, Germany. The collaboration possible in the field of viral oncology on the models used by authors and on their models as well.

Further research is necessary of the mechanisms, that provide the resistance to retroviral infections, to oncoprocesses development induced by that viruses, and, at last, of mechanisms, that are the basis for regression of oncoprocess observed for sane individuals.

The collaboration with Laboratory of heterohybridomas, Surray University, UK.

We should like to collaborate in investigations on interspecific hybridomas, in particular, in investigations on Ig genes expression.

Cytogenetics Department.

1. Laboratory of Human and Animal Cytogenetics.

Staff:

Alexander S. Grafodatsky, Prof., Dr.Sci., Head of the Laboratory
Nikolai B. Rubtsov, Ph.D.
Olga V. Sablina, Ph.D.
Nadezhda V. Vorobiova, Ph.D.
Margarita B. Rogacheva, Ph.D.
Aleksey I. Protopopov, Ph.D.

Subjects of Research:

Organization and evolution of human and animal chromosomal sets.

Participation in State and International Programs:

International Science Foundation INTAS
Russian/Sweden Scientific Collaboration
RFBR
Russian Human Genome Programm
New Trends in Genetics

Subjects of Scientific Collaboration:

Human and Animal chromosomes: Gene mapping, Repeat DNA, Microdissection, Fluorescence in situ hybridization (FISH), Karyotype and genome evolution.

2. Laboratory of Cell Division.

Staff:

Boris F. Chadov, Dr.Sci., Head of the Laboratory
Eugeniya V. Chadova
Elena A. Hotskina
Galina N. Buzykanova
Sergey A. Khopyl
Elena V. Artiomova
Leonid V. Omelianchuck, Ph.D.
Valery I. Chubikin

Subjects of Research:

Meiotic division mechanism in *Drosophila melanogaster*.

General Results 1993-1995:

A common model of pairing and crossing-over was suggested. Explanation of the mechanism of interchromosomal effect on crossing-over and the mechanism of suppressing crossing-over in chromosomal rearrangement was given. Some mutations transgressing the course of meiosis and mitosis were obtained.

Participation in State and International Programs:

New Trends in Genetics

Subjects of Scientific Collaboration:

Genetical and cytological study of cell division mutants obtained in *Drosophila melanogaster*. The mutants obtained in the laboratory can be provided for further investigations.

Cytological description of insertions of Y-material into chromosome 2 of *Drosophila*. The laboratory can determine the character of the inserted Y-material using differentiative staining techniques.

Obtaining of abundant genetical data about recombination in *Drosophila* for determination of the interference in different regions.

3. Laboratory of Cell Biology.

Staff:

Alexander G. Blinov, Ph.D., Head of the Laboratory

Iya I. Kiknadze, Dr.Sci, Prof.

Larisa I. Gunderina, Ph.D.

Albina G. Istomina, Ph.D.

Karlydash G. Aimanova, Ph.D.

Svetlana V. Scherbik, Ph.D.

Yuri V. Sobanov, Ph.D.

Subjects of Research:

Functional organization of polytene chromosome:

Molecular and cytological study of tissue - specific genes. Silk protein genes of special lobe of chironomid salivary gland as a model of study.

Chromosomal evolution in chironomids: homologous rows of chromosomal variability. Effects of anthropogenic actions on chromosomal polymorphism in natural population.

Mobile elements of chironomid: molecular structure, chromosomal localization and evolution.

General Results 1993-1995:

Molecular analysis of tissue - specific puff BRa of *C.thummi* revealed two genes, one of them - F6.2 is not expressed in tissue-specific manner. This gene encodes a 67 kDa protein, which was distributed in the cells of all larval tissues examined. Another gene in the BRa region is C1.2 gene. We have determined full nucleotide sequences of both genes. F6.2 and C1.2 genes contain two and four 700 bp exons, respectively. Comparative analysis of predicted amino acid sequences shows the high level of homology.

The chromosomal evolution of chironomidae subfamily have been investigated by comparative analysis of the banding patterns of the polytene chromosomes of 81 species from 11 genera. It was shown the significance of telomer-telomer fusion, local centromeric heterochromatin amplification, changes of nucleoli's amount, reduction of the chromosome number, appearance of additional nucleoli and Bchromosomes for karyotype divergence. Three new cytological complexes with unusual combination of chromosomal arms and rare fixed paracentric inversions have been describe. This study revealed the parallel (homologous) rows of chromosomal variability. Cytogenetic analysis of the natural chironomids populations (West Siberia, Altai, Yakutia) revealed the unique inversion sequences of the polytene chromosomes. The unique sequences have been describe in natural Altai populations under radionuclide pollution after Semipalatinsk explosions.

We have described and characterized two transposable elements from the *Chironomus thummi* genome. One of them, MEC belonged to the class II of transposable elements, which use transposase activity for their transposition. The second element, NLRCth1, belonged to the class of non-LTR retrotransposons. Transposition of these elements is accomplished via reverse transcription. Twenty three species belonging to four genera of the Chironomidae family were investigated by in situ hybridization with a probe containing the NLRCth1. We have shown that the distribution of the NLRCth1 is restricted by *Chironomus* genus. Total DNA from eight *Chironomus* species has been tested by Southern-blot hybridization with a probe containing the NLRCth1. It has been shown that a minimum of three different non-LTR retrotransposons are present in the *Chironomus* genus. All of them contain similar nucleotide sequences in the region of the ORF2 which encodes reverse transcriptase.

Participation in State and International Programs:

RFBR:

- o Parrallel rows of variation in chironomid chromosomal evolution: additional tissuse-specific Balbiani rings are a model for study.
- o Non -LTR retrotransposons: evolution and expression.

New Trends in Genetics:

- o *Chironomus thummi* as the test system for genetical taxocology.
- o Chromosomal evolution of chironomid.
- o Structural and functional organization of the tissue-specific Balbiani ring BRa of *Chironomus thummi*.
- o Mobile elements of chironomids.

Biological variety: Chironomid karyofunds of Siberia, features of the their evolution and variability under anthropogenic actions.

Subjects of Scientific Collaboration:

Chromosomal geography of Holarctic chironomids: polytene chromosome banding pattern variability in Palearctic and Nearctic *Chironomus* species (*C.tentans*, *C.pallidivittatus*, *C.plumosus*, *C.entis*)
Molecular - biological approach for the investigation of the evolutionary relationship in the *Chironomus* genus: mtDNA, Globin genes, non-LTR retrotransposons as evolutionary markers.
Genes for special lobe-specific silk proteins: structure, regulation of expression, evolution.

4. Laboratory of Molecular Cytogenetics.

Staff:

Igor F. Zhimulev, Prof., Dr.Sci., Head of the Laboratory
Elena S. Belyaeva, Dr.Sci.
Valerii F. Semeshin, Dr.Sci.
Galina V. Pokholkova, Ph.D.
Elena B. Kokoza, Ph.D.
Sergey A. Demakov, Ph.D.
Tatyana Yu. Kozlova, Ph.D.

Subjects of Research:

Study of molecular and genetical bases in gene-ecs organization and expression in *Drosophila*, implementing a cascade gene transregulation activated in cell with steroid enzyme ecdysterone.
Molecular-cytogenetic study of structural-functional organization in *Drosophila* polytene chromosomes.
Cloning and sequencing DNA from interdisc regions in polytene chromosomes, machine sequence analysis.
Cloning and functional analysis of DNA.
Study of structural and functional changes of regions during deep gene inactivation under heterochromatin influence.

General Results 1993-1995:

The tissue-specific nature of transregulation function of the *ecs* locus, playing the key role in ecdysterone induction of metamorphosis in *Drosophila* has been stated: in some tissues, the *ecs* locus is responsible for induction of expression of ecdysone-dependent genes, whereas in the others it suppresses them.

It was shown that deep gene inactivation as a result of position-effect variegation is due to overcompaction of the chromosomal material. Heterochromatin-associated protein, HP1, appearing in euchromatin in the course of compaction, is one of compaction factors.

DNA of one of the biggest chromomeres in *Drosophila* genome (about 300 kb) has been completely cloned and the genes, silent DNA, the bands encoding DNA-transcripts were mapped. On the whole in the 10A1-2 band we have found 10 functionally independent genes and DNA sequences.

Cloning at the molecular level of the 9F12-10A1-2 region of *Drosophila* X-chromosome has been completed. About 30

chromosome rearrangement break points, 12 genes, as well as several transcribed DNA fragments were located on the physical map. The size of 7 bands of this region are found to vary within the range of 4-190 kb. The compaction ratio of DNA varies within the range of 8-36 on fine bands and within 150 on thick ones. The bands of this region are different in their genetic content. The fine bands contain 1-3 genes and the thick 10A1-2 band contains 3 genes and at least 6 transcribed DNA fragments. Comparing the genetic and the physical maps we have found that in this region 0.01 centiMorgan corresponds to 3.3 kb of DNA.

On the BR-c locus comprised of about 120 kb we have found 3 regulation regions. The first one is found on the 5' end of the gene and controls female fertility. The second one is found between the 1st and 2nd exons and controls genes expression in tissues. The third region is found in the middle part of the gene and controls puff activation in response to ecdysterone.

Participation in State and International Programs:

INTAS program (2 projects)
RFBR (2 projects)
Ministry of Power Engineering of the USA
New Trends in Genetics (6 projects)

Subjects of Scientific Collaboration:

Department of Genetics, University of Cambridge, England, Prof.
M.Ashburner;
European Molecular Biology Laboratory, Heidelberg, Germany, Prof.
F.Kafatos

5. Laboratory of Cell Ultrastructures.

Staff:

Alexej D. Gruzdev, Prof., Dr.Sci., Head of the Laboratory
Tatjana D. Dubatolova
Svetlana A. Trunova
Fedor E. Kuzin
Natalja V. Shamina, Ph.D.
Natalja V. Dorogova
Elvira R. Galieva
Galina K. Isakova, Ph.D.

Subjects of Research:

Study of DNA topology in eukaryotic chromosomes.
Study of genetical control and cellular mechanisms of meiosis in higher plants based on collection of meiotic mutants. Light and EM analysis and comparison of morphological and biochemical phenotypes of the mutants.
Cytogenetical study of seasonal embryonic diapause in mammals.

General Results 1993-1995:

High value of DNA supercoiling density -0.075 was found in transcriptionally hyperactive Balbiani ring 2, the value is above the threshold of formation of noncanonical forms in torsionally stressed DNA. On the contrary, DNA in transcriptionally inactive bands of polytene chromosomes was found to be practically under no torsional tension, but topologically closed. Nevertheless, DNA of temporary inactive polytene nuclei (after brief heat shock and during the last larval molt of *Chironomus* larvae) was found to be under negative torsional tension.

Several synaptic (*as1*, *as2* etc.) mutants and mutants affecting segregation of chromosomes and spindle structure (*ms3*, *ms28*, *dv*) in maize were analysed. New mutations (*ms*, *ms3*, *pam*) affecting cell cycle regulation were found and analyzed. Perinuclear ring of microtubules - a new cytoskeletal structure was found in plant meiotic cells. Its reorganization to meiotic spindle was described. Unknown stage of cytokinesis - a stage of crosswise dyad which is indicative of double-step simultaneous cytokinesis has been noted.

Cytogenetic analysis of reorganization of the mink embryonic genome during diapause has been carried out. Seasonal delay in implantation (embryonic diapause) is known widely spread in the animal world and being of adaptive value. It was found that the diapausing blastocyst size growth is realized due to the increase in the number of trophoblast cells without classic mitotic divisions. Giant polytene (up to $512n$) nuclei divide by the "hidden" segregation of their genomes. The resulting new cells possess most high functional activity which is supposed to provide successful implantation and placentation of embryo.

Participation in State and International Programs:

RFBR

New Trends in Genetics

Joint project "DNA topology in chromatin and chromosomes" with Prof.

Dr. M. Lezzi (Institut f. Zellbiologie, ETH, Zurich, Switzerland).

Subjects of Scientific Collaboration:

Study of DNA topology in metaphase chromosomes, inactive nuclei of lymphocytes, sperm heads et al. Study of changes in DNA topology during cell cycle, during cell differentiation, after lymphocyte activation etc.

Study of genetical control and cellular mechanisms of meiosis in higher plants. Light and EM analysis and comparison of morphological and biochemical phenotypes of the mutants.

Cytogenetical investigations of embryonic genome activity during seasonal delayed implantation in mammal.

6. Laboratory of Cells Differentiation.

Staff:

Sergei I. Baiborodin, Ph.D., Executive Head of the Laboratory

Victoria I. Deribas, Ph.D.

Vladimir H. Zimmermann, Ph.D.
Nina V. Baginskaya
Nina K. Eriskovskaya
Elena U. Bolobolova

Subjects of Research:

Cell skeleton and differentiation.
Exogenous DNA-cell interactions.
Electron microscopy of nucleotide complexes.
Carcinogenesis and precancer resistance.

General Results 1993-1995:

Using light and electron microscopy and immunocytochemistry for the study of monoclonal antibodies against glucoso-6-phosphate dehydrogenase (G6PD) a possibility of G6PD to bind with the elements of actin cytoskeleton of various types of cells has been shown in experiment for the first time. This supports a recently developed conception on the relationship among the enzymes participating in basal cells metabolism and the elements of cell skeleton. The former relationship may be treated as a universal cell mechanism providing compartmentalization of basal processes of biosynthesis in cells.

The relationship between the exogenous DNA (oligonucleotides of different modifications) and human cells were studied by light and electron microscopy using biotin-streptavidin-gold labeling. It has been shown that pT16 oligonucleotide complex passes into the nucleus and accumulates in it already within 10-15 minutes.

Visualization of oligonucleotides by means of streptavidin-fluorescein labeling has indicated to presumable binding of this complex at the sites of local single DNA strands. A distribution pattern of these sites has been obtained.

Study of splicing proteins distribution on mRNA transcripts of Balbiani ring genes has shown that: a) the proteins which participate in splicing events bind with RNA at the intron localization sites and do not arranged all along the transcriptional site; b) splicing proceeds within 5-6 minutes and can be finished well before or after transcription is over, dependent on, whether the introns are localized in the proximal or distal part of the gene.

Active processes of reliable reduction and decrease of cardiomyocytes number have been recently revealed on the model of mature rats repeated starving and feeding. Exhaustion of proliferation potential of population was established at the end of experiment, just when the mechanisms of cell hypertrophy switch on into the supplementation of cardiac muscular cells restoration. A new preparative method of cardiac muscular cell lesions visualization using luminescent photochemistry has been established and the morphology of early necrobiosis in cardiomyocytes was studied. A complex of morphohistochemical methods has been developed,

which reliable labels precancer lesions, not yet affecting the viability, but indicating to carcinogenic load on animals. This method can be applied in onco-ecological monitoring of polluted regions.

Subjects of Scientific Collaboration:

Study of tissue resistance to carcinogenesis. Collaboration is possible in the field of neoplasm morphology and distribution in the organs of wild rodentia populations and under conditions of induced carcinogenesis. This work will significantly improve the efficiency of assessment of the carcinogenic load on environment.

Study on exogenous nucleic acids entrance into mammalian cells.

Collaboration is possible in working out efficient methods of polyand oligonucleotides introduction into cell culture and into cells of the living organisms, which is necessary for working out new research vectors in molecular biology and therapy (gene therapy, establishment of biological functions of definite genes etc.).

Theoretical Genetics Department.

1. Laboratory of Theoretical Molecular Genetics.

Staff:

Nikolay A. Kolchanov, Prof., Dr.Sci., Head of the Laboratory

Alexander E. Kel, Ph.D.

Igor B. Rogozin, Ph.D.

Mikhail P. Ponomarenko, Ph.D.

Andrey A. Ptitsyn

Igor V. Ishchenko

Igor I. Titov

Yury V. Kondrakhin, Ph.D.

Fedor A. Kolpakov

Dmitrii. D. Afonnikov

Olga V. Kel

Elena. A. Anan'ko

Elena. V. Ignat'eva, Ph.D.

Sergey. V. Lavr'ushev

Dmitrii A. Grigorovich

Ludmila V. Katokhina

Vadim V. Fedoseev

Subjects of Research:

Theoretical and computer investigation of structure-functional organization and evolution in molecular-genetical systems (MGSU) and genetical macro-molecules (DNA, RNA, and proteins).

Participation in State and International Programs:

Global Change

NATO

RFBR

Department of Electronics

Subjects of Scientific Collaboration:

Theoretical molecular genetics.
Theory of molecular evolution.
Computer analysis of nucleotide sequences.
Theory of functional DNA and RNA sites.
Data base on transcriptional regulation of eukaryotic genes.
Methods of prediction of RNA secondary structure.
Computer analysis of protein secondary structure.

International Scientific Collaboration

In the development of our research we collaborate with:

Dr. E. Wingender, National Research Center for Biotechnology,
Braunschweig, Germany)
Dr. Luciano Milanese, Istituto di Tecnologie Biomediche Avanzate of
National Research Council, Milan, Italy
Dr. Phil Bourne, Dr. Ilya Shindyalov, San Diego Supercomputer Center,
General Atomics, San Diego; University of California, San Diego, U.S.A
Dr. Heinz Sklenar, Max Delbruck Center for Molecular Medicine (MDC),
Berlin, Germany
Dr. Chris Overton, University of Pennsylvania, Philadelphia, U.S.A.
Dr. James Fickett, Los Alamos National Laboratory, NM, U.S.A.

2. Laboratory of Molecular Genetic Systems.

Staff:

Vadim A. Ratner, Prof., Dr.Sci., Head of the Laboratory
Lubov' A. Vasilyeva, Prof., Dr.Sci.
Irina N. Morosova
Igor A. Seledtsov
Yury I. Volf
Kira S. Makarova

Subjects of Research:

Mathematical Genetics, Theory of Molecular-Genetic Regulatory Systems,
Theory of Molecular Evolution; Quantitative Genetics, Mathematical
Population Genetics, Theory of Selection; Computer Genetics, Computer
analysis of biopolymer sequences, Computer modelling of evolution;
Experimental research of the role of Mobile Genetic Elements in Gene
Expression, Variability, Selection and Evolution of Quantitative Characters.

General Results 1993-1995:

The phenomena of *Drosophila melanogaster* MGE transposition induction by stress factors were found and investigated: by heavy heat-shock (Dm-412, B104), by gamma-irradiation (Dm-412) and by isogenization (Dm-412). The rates of MGE transposition were increased by 2-3 orders of magnitude. In all cases the rules of

transpositions were visibly similar. The system of response to heat-shock treatment is supposed to be a common mechanism of induction. The computer analysis of distribution of functional sites of Dm-412 was done; the clusters of functional site motifs were found. The concept of MGE genomic system and of MGE role as "movable cassettes of functional sites" was developed. The concept of upper borders of MGE copy number and of transposition rate per genome was formulated and estimated. The phylogenetic trees of retrotransposons of insects, fungi and plants were reconstructed. Basing on experimental data of Southern blot-hybridization, the trees of similarity of retrotransposon patterns were built. It was shown that stress treatment of flies results in appearance of genetic variability in quantitative characters. Selection becomes effective, and fixation of MGE pattern consensus develops very quickly (some tens of generations). The random fixation prevails against adaptive ones. The computer-mathematical model of population dynamics of polygene and MGE patterns under selection was developed. The concept of Mendelian genes and polygenes was developed basing on the view point of limiting factors of expression of quantitative character.

Participation in State and International Programs:

Russian State Progr. "New Trends in Genetics", 2 grants.
RFBR, 2 grants.
Russian Ministry of Higher Education Programm "Russian Universities", 1 grant.
International Science Foundation, 1 grant.
ISSEP (G.Soros Professors), 1 grant.

Subjects of Scientific Collaboration:

All theoretical problems indicated, by personal agreement.
Teaching courses on all indicated problems for students and postgraduates, by personal agreement.
Molecular problems of Mobile genetic elements and Quantitative characters - experimental work, by personal agreement.

3. Laboratory of Molecular Evolution.

Staff:

Yuri G. Matushkin, Ph.D., Executive Head of the Laboratory
Sergei N. Rodin, Dr.Sci.
Dagmara P. Furman, Ph.D.
Pavel S. Morozov
Igor B. Kuznetsov
Tatyana A. Kozhemiakina
Andrei A. Zharkikh, Ph.D.
Andrei Yu. Rghetski, Ph.D.
Tatyana L. Sitnikova

Subjects of Research:

Molecular evolution, phylogenetical analysis, mathematical models of evolutionary processes, packages of programs for evolutionary investigators (VOSTORG - multiple alignment, building and analyzing of phylogenetic trees; GEOMETRY - method of statistic geometry in sequence space, GLS - Germ Line mutational Spectrum). Mobile elements and polygenic systems of character determination (experiments with *Drosophila*).

General results 1993-1995:

Structural, statistical and phylogenetic analyses of the theory of the concordant origin of tRNA with complementary anticodons and two alternative classes of aminoacyl-tRNA synthetases showed that signature KMSKS and HIGH motifs of the catalytic (Rossmannian type) AAPC 1st class domains are complementary to conservative motifs of 1st and 2nd catalytic AAPC 2nd class domains. Complementation of the two AAPC classes agrees with the coevolutionary theory for the genetic code based on close pathways of amino acids biosynthesis; with the facts of preferential binding of ribozymes with positively charged amino acids; with localization in the tRNA of identity determinants and general complementary symmetry of the genetic code. Computer stimulation to study the sets of tRNAs has indicated to the evolutionary optimization of primary sequences which maintains stability of the secondary cloverleaf-like structure. Computer analysis of thermodynamic characters of the secondary tRNA cloverleaf-like structure was made for a set of major taxonomic groups (archebacteria, eubacteria, eukaryotes, chloroplasts and mitochondria). It has been shown that in the studied groups (except mitochondrial tRNA) the tRNA secondary structures free energy distribution scores are reliably close to the norm. Amount of the tRNA secondary structure stability in different groups of organisms is the higher, the stricter are the environmental conditions under which these organisms exist. It was shown that the presence of non-canonic base pairs in the tRNA stem regions puts restraint on the presence of hypermutable CG-dinucleotides. Moreover, the non-canonical base pairs, different from the G-U ones, have more significant influence on the occurrence of such dinucleotides than the Q-U base pairs. The processes of parallel variability, in which different mobile elements participate as peculiar "genome parasite" (GP) on the one hand and genome itself participates as a host on another one were studied. Sets of differential equations have been constructed, allowing to build the following models of situations:

- GP incorporates only into free genome sites and can freely exist outside the genome only for a short period of time.**
- GP incorporates only into free sites of genome but can freely exist outside the genome for a long period.**
- GP incorporates both into free and occupied sites ("molecular memory") and can freely exist outside the genome for a brief period of time. Its prototypes are Alu-like mammalian repeated sequences.**
- GP incorporates both into free and occupied sites and is capable of independent existence outside the genome. Its prototypes are retroviruses.**

The models analysed have indicated that the coevolutionary GP complication (from the primitive one through acquisition of terminal repeats ("molecular memory"), to sufficiently complicated structures with a non-genome type of existence) was accompanied with the following alternating selective coevolutionary limitations on the side of genome size: limitations on the top - absence of limitations - limitations on the bottom. Thus, genetically active elements can be regarded as international factors of progressive coevolutionary dependent genomes complication. The pseudogene-specific C>T (G>A) transitions, especially at the CpG hotspots, are distributed along the tree domain map of the p53 gene in a very strikingly similar fashion as those in tumor progressed clones. The randomly jumbled sequences of the same base composition formed essentially different distributions of mutations, especially within the important DNA binding p53 midregion. Each mutation pattern displays a definite excess of C>T transitions at both CpG and non CpG sites on the transcribed strand. However, this excess was largest for the evolutionary selected pattern and lowest (if at all) for the tumor associated and the pseudogene-specific ones. Consequently, it is primarily within its midregion that the human p53 gene is structurally predisposed to detrimental mutagenesis. The present database of tumor associated p53 mutations shows a frequent p53 dysjunction in tumor cells, but contains a large cancer relevant mutational "noise". The latter presumably has little to do with the cancerrelated clonal expansion and oncogenic regeneration. The investigation consists of identification of polygenes participating in development of quantitative character - number of macrochaetes in achaete-scute *D. melanogaster* mutations, and building of a pattern for functioning of the system on the whole. For polygenes identification, the mobile genome elements are used provided that these elements could be the markers and/or modulators of gene activity within the insertion zones. Comparative analysis of sets of mobile elements distribution patterns in lines with different genotypic and phenotypic manifestations revealed stable combinations of insertions which correlate with definite degree of character expression. Dependence of this kind allows for consideration that genome regions labelled with such specific sets of insertions can be the regions of polygenes localization. Altai *D. melanogaster* specificity in number and distribution of mobile elements P and hobo has been established in genomes of 13 isofemale lines. Data obtained allow for a hypothesis to be set up that the Altai population belongs to M' type.

Participation in State and International Programs:

Human Genome
New Trends in Genetics

Subjects of Scientific Collaboration:

Molecular evolution, phylogenetical analysis, mathematical models of evolutionary processes, packages of programs for evolutionary investigations.
Mobile elements and polygenic systems for characters determination (experiments on *Drosophila*).

4. Sector of Methods of Genetic Analysis.

Staff:

Tatyana I. Aksenovich, Ph.D., Head of the Sector
Gulnara R. Svischeva
Sergey V. Nikitin
Aleksy V. Filimonov
Yury C. Aulchenko

Subjects of Research:

Segregation and linkage analyses of pedigree data (theoretical and applied aspects).

General Results 1993-1995:

Methods have been developed for evaluation of the capacity of linkage criteria, optimal planning of pedigree samples for linkage analysis and a new method for ascertainment formalization of pedigrees via proband. Precision of the genetic prognosis using the data on gene linkage was studied. New knowledge was obtained on the genetic control of cholesterol concentration in blood and on a number of anthroposcopic traits of man. Packages of programs were made for segregation analysis of binary and quantitative traits.

Participation in State and International Programs:

New Trends in Genetics

Subjects of Scientific Collaboration:

Development of the methods of genetic analysis of characters.
Segregation analysis of characters in man using available pedigree samples.

Human Molecular Genetics Sector.

Sector of Human Molecular and Evolutionary Genetics.

1. Human Molecular Genetics Sector.

Staff:

Rem I. Sukernik, Dr. Sci., Professor, Head of the Sector
Yelena B. Starikovskaia (aya)
Olga V. Raldugina

Subject of Research:

Studies on variation of the mitochondrial and nuclear DNAs in Native Siberians, with special reference to their population and evolutionary history, and genetic relationships to Native Americans.

Issues and questions addressed in project.

To address long-standing problems such as the timing and origins of the Americans, the number of subsequent demic expansions across Beringia and/or northern Pacific rim, the chronology and routes of these expansions, and the sizes of the founding populations, we conducted a detailed genetic study of the mtDNA variation in indigenous populations of Kamchatka and Chukotka.

The findings and implications.

The origin of the Koryak mtDNA lineages were defined by comparing their mtDNA haplotypes with those of the Evenki, Udegey and Nivkhs. The Koryaks of Kamchatka were found to have mtDNAs belonging to three of the four major haplotype groups (haplogroups) observed in northern Asian and Native American populations (A, C, and D), although at reduced frequencies relative to those in other eastern Siberian groups, and lacked deletion mtDNAs from the fourth, haplogroup B. Most of the Koryak mtDNAs belonged to haplogroups G and X, which were formerly called OTHER mtDNAs. Haplotypes belonging to haplogroups other than A, C, and D, namely G, were found to be uncommon in the Reindeer Chukchi, rare in Coast Chukchi and absent in Siberian Eskimos. Whereas the ancestral Koryak population appears to be genetically related to both Evenki of the middle Siberia and Amur River/East Asian populations, the Chukchi and Eskimos of Chukotka peninsula show apparent genetic similarity with those occurring in northern North American Natives, thereby indicating direct genetic links of the Chukchi and Siberian Eskimos to the latest Beringian populations. Conversely, the bipartite genetic profile revealed in the Koryaks reflect the relatively recent dispersal of their ancestors into Kamchatka peninsula. It appears that diffusing extensively along Asiatic coastline of the Bering Sea, the expanding Koryaks absorbed small tribes of maritime hunters who lived in low population densities in northeastern Kamchatka.

Participation in State and International Programs:

Professor Dr Jan Klein, Department of Genetics and Molecular Medicine,
Max Planck Institute of Biology, Tübingen (Germany);
Dr Douglas C. Wallace, Department of Genetics and Molecular Medicine,
Emory University School of Medicine, Atlanta, GA (USA);
Dr James V. Neel, Department of Human Genetics, University of Michigan
Medical School, Ann Arbor, MI (USA).

Subjects of Scientific Collaboration:

There are opportunities for additional international collaboration within the frames of above-mentioned project provided that potential conflicts of interest are excluded. All requests should be sent to Dr Rem I. Sukernik, to this Novosibirsk address.

2. Sector of Human Molecular and Evolutionary Genetics.

Staff:

Ludmila P. Osipova, Ph.D., Head of the Sector
Tatyana Karaphet, Ph.D.
Olga L. Posukh, Ph.D.

Subject of Research:

Genetic variability, differentiation and molecular evolution of human populations in Siberia.

General Results 1993-1995:

Some Siberian native populations - Northern Selkups, Tundra and Forest Nentsi, Altai-people, Evenks were involved in studies during 1993-1995. Results were obtained on genetic and demographic aspects based on estimates of the population size, the degree of admixture, migration flow, reproductive parameters, coefficient of inbreeding, genealogical data etc., and on population genetic aspects based on the studies of polymorphism with respect to blood groups, serum proteins, isozymes and immunoglobulin markers (Gm-system). Molecular genetic investigations are being carried out on immunoglobulin genes. Duplication of some immunoglobulin genes (GPG2) was first discovered. It may be considered as compensatory mechanism for previously founded deletions of genes IGHG1 and IGHG4. Molecular genetic investigations are being carried out on mitochondrial DNA in some Siberian populations. Studies on estimation of risk atherosclerosis and cardio-vascular diseases in North Siberian natives was performed. A study of polymorphism with respect to HLA antigens (in Northern Selkups) was carried out.

Participation in State and International Programs:

The Russian State Program "New Trends in Genetics": "The Creation of Computer Data Bank of gene pool of the northwestern Siberian indigenous populations for estimation of genetic potentials and genetic-demographical processes".

The RFBR: "Complex study of gene pool of isolated populations of the Siberian Russian Old Believers in comparison with panmixic Russian population"

INTAS Project 93-0035: "Molecular diversity and evolution of the human genome in the Northern Siberia".

Joined work on the basis of Agreement with the Laboratoire d'Immunogenetique Moleculaire, LIGM, Institut de Genetique Moleculaire (Montpellier, France) (1992-1996) in the field of immunogenetic studies of indigenous populations of Siberia.

Joined International Project "Y chromosome variation in Native human populations of Siberia" (Laboratory of Molecular Systematics and Evolution, University of Arizona, Tucson, USA).

Subjects of Scientific Collaboration:

The studies of the Northern indigenous human populations (the genetic-demographic, molecular-genetic and epidemiological aspects).

Molecular-genetic studies of human immunoglobulin genes (Gm system) in the Northern indigenous populations, analysis of structure of human immunoglobulin genes.

Population-genetic studies of genes controlling alcohol metabolizing enzymes in the Northern indigenous human populations.

The studies of polymorphism of mitochondrial DNA in the Northern indigenous human populations.

Y chromosome variation in Native human populations of Siberia.

Plant Genetics Department.

Laboratory of Plants Heterosis
Laboratory of Experimental Modeling of Evolutionary Processes.[Image]
Laboratory of Population Plant Genetics.
Laboratory of Genetics of Mutations and Mutation Process.
Laboratory of Plant Cytology and Apomixis.
Wheat Genetics Laboratory.
Laboratory of Experimental Mutagenesis.
Laboratory of Chemical Technology.
Laboratory of Cytogenetics.
Plant Genepool Sector.
Sector of Gene Engineering of Plants.
Sector of Physical-Chemical Biology.
Sector of Genetic Bases of Plant Selection.
Sector of Wide Hybridization and Tissue Culture of Plants.
Sector of Molecular Genetics of Cereals.
Wheat Genetics Sector.
Group of Developmental Genetics of Plants.

Animal Genetics Department.

1. Laboratory of Ecological Genetics and Animal Genetic Resources.

Staff:

Anatoly V. Kushnir, Ph.D., Head of the Laboratory
Vilen N. Tikhonov, Dr.Sci.
Alexander I. Vistavnoi, Ph.D.
Evdokia K. Minina, Ph.D.
Alexander V. Terletsky
Vera E. Bobovitch
Nikolay N. Evsjukov
Olga B. Prushinskaya

Subjects of Research:

Collection and conservation of genetic resources of wild and domestic animals.
Study on the ecological-genetic nature of adaptation in the aboriginal animal species under extreme environment.
Problems of hybridization and populational genetics of pigs (domestic and wild), horses and marals were studied with the help of immunogenetic assay and cytogenetic methods.

2. Laboratory of Developmental Genetics.

Staff:

Natalia S. Zhdanova, Ph.D., Executive Head of the Laboratory
Natalia M. Matveeva, Ph.D.
Leonid F. Maksimovsky, Ph.D.
Alexander G. Shilov, Ph.D.
Natalia M. Astakhova, Ph.D.
Aleftina N. Golubitsa

Marina V. Lavrentyeva
Elena M. Kaftanovskaya, Ph.D.
Sergey B. Kuznetsov

Subjects of Research:

Study of cells differentiation and their reversibility in mammals.
Comparative mapping of mammalian genomes.

General Results 1993-1995:

Cell hybrids between embrionic stem cells and mouse Peucocytes were obtained during differentiation for study of organization and inactivation mechanism of mammalian X-chromosome. Using them the ability of a differentiated cell to dedifferentiate till the pluripotential state while bringing it into an embryonal stem cell was demonstrated for the first time. It is shown that a short-term rize of DNA one-chain breaks and sister chromatid exchanges can be seen in 2-3 mitotic divisions after the beginning of spontaneous differentiation of embryonal stem cell in vitro as well as at differentiation introduction in teratocarcynoma cells.

At normal preimplantational mouse development the level of DNA breaks is rizing at the 8-16 blastomeres stage. Works on obtaining transgenic animals in a carnivora representative American mink are carried out.

Using cell hybrids, by methods of electrophoretic division of proteins and Sauthern blot hybridization about 80 genes on an American mink chromosome, about 20 genes on a common shrew chromosome and 4 genes on a domestic pig chromosome are assigned.

A collection of cell lines, containing one chromosome of pig 2, 5, 8, 12 or t(1, 13) against the background of mink chromosomes was obtained as well as a collection of human monochromosomal hybrid lines with chromosomes 3, 5, 12, 13, 15, 18, 21 and X. These lines are a valuable source of precise physical mapping of mammal chromosomes and obtaining chromosome-specific libraries.

Participation in State and International Programs:

Human Genome
RFBR
New Trends in Genetics
The wellcome trust 039045/Z/93/Z/MjM/LEC
NATO-project (HTECH. Zf 931407)

Subjects of Scientific Collaboration:

University Halle, Germany
University of York, UK
Royal University, Copenhagen, Denmark

3. Laboratory of Evolutionary Genetics.

Staff:

Arkady L. Markel, Prof, Dr.Sci., Head of the Laboratory
Ludmila N. Trut, Dr.Sci.
Victor G. Kolpakov, Dr.Sci.
Dmitriy V. Klochkov, Dr.Sci.
Larissa A. Kolesnikova, Ph.D.
Oleg V. Trapezov, Ph.D.
Islamia Z. Plusnina, Ph.D.
Ludmila V. Osadchuk, Ph.D.
Irina N. Oskina, Ph.D.
Ludmila A. Prasolova, Ph.D.
Olga E. Redina, Ph.D.
Tatyana A. Alekhina, Ph.D.
Sergey Ya. Amstislavsky, Ph.D.

Scientific directions:

Selection vector and variability patterns under experimental conditions of animal domestication

Genetic and physiological mechanisms of stress-responsiveness and arterial hypertension: experimental study in the newly developed rat strain with stress-sensitive arterial hypertension -(ISIAH strain).

Reproductive endocrinology of fur animals

Comparative psychology, biological psychiatry, animal models of psychopathology.

Embryo cryobanking of laboratory and wildlife species. Effect of freezing, cryopreservation and embryo transfer on the fate of the organism and manifestation of hypertension and other inherited traits.

4. Laboratory of Genetics of Insect Stress.

Staff:

Inga Yu. Rauschenbach, Prof., Dr.Sci., Head of the Laboratory
Tamara M. Khlebodarova, Ph.D.
Larisa G. Grenback
Natalya E. Gruntenko
Ludmila V. Shumnaya
Marina Z. Sukhanova

Subjects of Research:

Stress response in Insects: mechanisms and genetic control.

General Results 1993-1995:

Two important links of the stress response of insects juvenile hormone (JH) and dopamine (DA) was studied under normal and stress conditions in two Drosophila virilis lines, one resistant to stress, the other not. The genetic control of these links was studied. It was demonstrated that JH metabolism is affected by three enzymes (epoxide hydrolase [JHEH] and two forms juvenile hormone esterase

[JHE], DFP-sensitive JHE and DFP-insensitive JHE) in *D.virilis* and two enzymes (JHEH and JHE) in *D.melanogaster*. Adults of wild type of both species responds to stress by a decrease in JH metabolism (r-lines). In individuals of mutant not resistant to stress lines lack this response (nr-lines). The JHE activity is under the control of autosomal gene which is located on chromosome II in *D.melanogaster*. It was found that in mated females of *D.virilis* JH degradation is affected by DFP-sensitive JHE, while in mated females of *D.melanogaster* by JHEH. The activity of JHE falls under stress in *D.virilis* and that of JHEH in *D.melanogaster*. The decrease in JHE activity is provided by a reduction of protein amount. It was demonstrated that decrease of JH metabolism under stress produces a delay in oviposition in both species and a decrease in fertility. The role of JH in adaptation of *Drosophila* populations to stress was established. It was demonstrated that r- and nr-lines of *D.virilis* differ in DA content and level of response of DA system to heat stress. It was determined that the differences between the lines are under the control of a single gene each. The gene responsible for the differences in DA content in normal conditions has been located on the X-chromosome, the one controlling differences in reactivity of DA system under stress was located on one of the autosomes. It was found that increase in DA content in r-line of *D.virilis* under short-term stress is not due to changes in the activity of mono- and diphenol oxidases (MPO and DPO) and tyrosine hydroxylase. Another finding that DPO activity is controlled by a gene located on the X-chromosome in *D.virilis*. A hypothesis for control of DA content under stress is suggested. It is concluded that there may exist a coordinate genetic control of the various links of the stress response.

Participation in State and International Programs:

Russian State Scientific Program "New Trends in genetics"
RFBR
International Science Foundation (Soros)

Subjects of Scientific Collaboration:

Biogenic amines in stress response of insects: mechanism and genetic controls. Using the model created in our laboratory (two contrasting in stress reaction lines of *D.virilis*) to study the content and metabolism of octamine in the norm and in stress and to study their genetical control.

The role of system of juvenile hormone (JH) metabolism in control of reproduction and in adaptation of insect populations to stress conditions.

To study the role of content and (JH) metabolism in reproduction of lines *D.virilis* (contrasting in reaction to stress) under normal conditions and in heat shock and to study their genetical control.

5. Laboratory of Immunogenetics.

Staff:

Alexander V. Taranin, Ph.D., Head of the Laboratory
Ludmila V. Mechetina, Ph.D.
Olga Ju. Volkova, Ph.D.
Alexander M. Najakshin
Eugenii S. Belousov
Boris Ju. Alabyev
Svetlana M. Miroshnichenko
Anna L. Maerova

Subject of Research:

Molecular evolution of immune system.

General Results 1993-1995:

The subject is new for the laboratory. This work has been started in 1994. The goal of the studies is cloning of the genes encoding leukocyte-specific cell surface receptors in primitive vertebrates to facilitate understanding of the evolution of immune recognition. We developed a novel strategy for cloning of cDNA encoding uncharacterized cell surface proteins. This strategy is based on the techniques of expression cloning in eukariotic cells and subtraction techniques. Briefly it looks as following. The special shuttle vector was constructed for the preparation of cDNA libraries. The cDNAs inserted in this vector produce chimeric proteins containing immunoglobulin lambda chain at NH₂-end. Under transit transfection into COS-7 cells the lambda-portion of chimera provide extracellular transport. If the cDNA encodes integral membrane protein with C-end transmembrane region, the chimeras anchors on the surface of the transfected cells and such cells (and cDNA clones, respectively) can be selected using antibodies against lambda chains. Additional enrichment may be provided using preliminary subtractive hybridization of cDNA library to remove cDNAs common to different tissues. The experiments we performed with model constructions using cDNA of membrane form of sturgeon immunoglobulin heavy chain have demonstrated that the approach is working. We believe that it would be possible using this strategy to clone a pool of cDNAs encoding leukocyte cell surface receptors from species whose leukocyte antigens are poorly studied. Theoretical considerations suggest that as a final result we should obtain several dozens clones representing leukocyte-specific cell surface glycoproteins. The cloned cDNAs are proposed to be used as molecular probes and also for production of recombinant proteins, raising of monoclonal antibodies against them, immunochemical characterization of leukocyte populations and studying immunity. Initially we planned to involve into this project three taxa: cyclostomas (lamprey), chondrosteys (sturgeon) and teleosts (salmon). However, shortage of financial support limited our activity to the studies of lamprey only.

Participation in State and International Programs:

Russian State Program "New trends in genetics"
RFBR

Russian State Program "Human Genome"
Russian High School Foundation for Basic Natural Sciences International
Science Foundation.

Subjects of Scientific Collaboration:

Molecular cloning of the genes encoding leukocyte cell surface antigens
in primitive vertebrates.
Establishment of long term cell lines of leukocytes in primitive
vertebrates.
Studies of unspecific antibacterial factors from primitive vertebrates.

6. Laboratory of Genetics of Populations.

Staff:

Ilya K. Zakharov, Ph.D., Head of the Laboratory
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Ludmila P. Zakharenko, Ph.D.
Natalya Ya. Weisman, Ph.D.
Andrey V. Ivannikov, Ph.D.
Marina A. Voloshina., Ph.D.

Subjects of Research:

Dynamics of mutational process and natural populations gene pool in
Drosophila melanogaster.
Unstable X-linked mutations and mutator genes from natural populations
of *Drosophila melanogaster*.
Analyses of the unstable systems sn49 and XZ in *Drosophila melanogaster*.
Drosophila species in Eurasian continent.
Mutagenesis.

General Results 1993-1995:

Due to scientific descendance of some generations of Russian population geneticists, it became possible to accumulate together the data obtained during systematic studies of mutational gene content of *Drosophila melanogaster* natural populations on the vast territory of the former Soviet Union in the period from 1931 to 1993. As a result of these studies, some periods of synchronous global and local increases and decreases in concentration and mutability of certain mutations were detected. These periods were termed as mutational bursts or mutational vogue. In 1937, the sex linked mutations yellow and, in a less extent, white and singed gained universal currency, their frequency and concentration being increased. The burst was followed up to 1946. Beginning from 1968 up to 1976, the abnormal abdomen phenotypical mutations became vastly distributed throughout all Soviet Union populations of *Drosophila melanogaster* studied. As this took place, the concentration of aberrant flies reached tens of percents. Recurring of mutational activity enlargement of the singed gene occurred in 1973 and lasted up to 1979. This enlargement occupied the whole species areal (following mosaic structure) on the contrary to the local pattern

of recurring distribution for the yellow mutation in 1982-1992. This burst was observed only in one population of *Drosophila melanogaster*, namely, in Uman, the Ukraine. Every period of enlarged concentration and frequency of de novo appearance is characterized by its own unique mutational and allele spectrum, which determines the burst. The dynamics of concentration level and occurrence frequency also determine the burst periods.

One of the main properties of the most yellow and singed alleles isolated from natural populations is their genetic instability. Phenotypically normal revertants were unstable too. The ability to interallelic transition may be conserved throughout prolonged breeding period of the strains at the laboratory. The classification of isolated yellow and singed alleles and their derivatives, which were obtained at the laboratory as a result of mutations, was carried out according to the character and extent of their mutational expression, spectrum, and mutational frequencies. An allelospecificity concerning the mutational properties, both mutational frequency and repertoire of interallelic transitions, was observed.

A comparative analysis of mutational burst is performed, factors and mechanisms of locus-specific mutational activity are being discussed. The role of mobile elements and mutator genes in the process of formation of genetic variability and instability in natural populations is being speculated. The data are being interpreted in the context of the insertional mutagenesis principles.

The spontaneous mutations of the genes yellow, white, singed and chromosomal rearrangements are typical for XZ chromosome of *Drosophila melanogaster*, isolated from the natural population. In the stocks of mutant derivatives of XZ chromosome, which contain single, two and three unstable visible mutations (markers), the frequency of arising of sex linked lethal mutations was analysed. It turned out that the frequency of sex linked lethal mutations increases with the growth of the number of the markers in the stock. The phenomenon described was denoted as "marker induction" and possibly can explain the fact of phenotypic homogeneity in natural populations of *Drosophila*. The lethal mutations which spontaneously arose were localized. It was shown that mutations are nonrandomly distributed along XZ chromosome. The derivatives of XZ chromosome have specific sites of arising of lethal mutations alongside with the common sites of "hot spots" of lethal mutagenesis. In some cases, the arising of lethal mutations was accompanied by inversions in XZ chromosome. It is possible that the lethal destabilization of derivatives of XZ chromosome, appeared due to selection accumulating visible mutations, is the result of the multiplication the hot spots of mobile genetic element transpositions.

Participation in State and International Programs:

The grants of RFBR

Subjects of Scientific Collaboration:

Collaboration with Dr. Kevin O'Hare from Department of Biochemistry
Imperial College of Science, Technology and Medicine, London SW7 2AZ, UK
(Travelling Research Fellowship from the Wellcome Trust in 1994 (UK).

Sector of Genetics of Meiosis.

Staff

Pavel M. Borodin, Dr.Sci., Prof., Head of the Sector
Ivan P. Gorlov, Dr.Sci.
Antonina I. Zhelezova
Tatyana Yu. Ladygina, Ph.D.
Andrei V. Polyakov, Ph.D.
Lyudmila A. Chugaeva
Marina I. Rodionova
Olga Yu. Gorlova

Subjects of Research:

Chromosome pairing and recombination in mammalian meiosis.
Population cytogenetics of animals.

General Results:

During the last years our scientific interests have been concerned with a study of meiosis in mammals. We are mainly interested in chromosome pairing, recombination and segregation in heterozygotes for various chromosome rearrangements.

Some studies in chromosome polymorphism in natural populations of different mammals are also carried out. Different cytogenetic methods are used in the study: electron microscopy of surface-spread synaptonemal complexes (SC), analysis of chiasma frequency and distribution at diakinesis - metaphase I, analysis of chromosome segregation at anaphase I and analysis of metaphase II.

Using high resolution G-band staining we revealed inversion origin of the double insertion of HSR in chromosome 1 isolated from the wild population of *Mus musculus musculus*. We found that heterozygotes for this chromosome show increase and redistribution of chiasma frequency in the affected bivalent. It is suggested that discontinuity of SC in the site of insertion leads to these changes in recombination due to suppression of chiasma interference.

Later this suggestion was confirmed in our study in chromosome pairing and recombination in mice heterozygous for different translocations involving chromosomes 16 and 17 and partial trisomics for the proximal region of chromosome 17.

A separate study was concerned with interference in normal karyotype. We found that chiasma interference is reduced non linearly with an increase of a cytological distance between chiasmata and that

crossing-over in regions proximal to realized chiasma is more strictly suppressed than in regions located distally.

Chiasma frequency was also studied in mice selected for high body weight and fertility. Significant effect of the selection on mean chiasma frequency and its variance was detected. Since recently we have been studying chromosome pairing in single and double heterozygotes for two partially overlapping paracentric inversions in Chromosome 1 of the house mouse In(1)1Rk and In(1)12Rk using electron microscopy of synaptonemal complexes. We have shown that the pairing pattern (frequency of homo-, hetero- and asynaptic configurations) in the inversion heterozygotes depended on the size and location of the inverted region rather than on its G-band composition. We found that different regions of the heteromorphic bivalent are interdependent in their pairing: synapsis in one region can interfere or facilitate synapsis in another region.

We carried out an examination of the chiasma distribution in chromosome 1 of male mice homozygous and heterozygous for a distal inversion In(1)12Rk and in karyotypically normal males. A significant decrease of chiasmata in the subtelomeric region and redistribution of chiasma frequency in the proximal non-inverted region of the bivalent 1 were found in heterozygotes. No differences were found in chiasma distribution between homozygotes for the inversion and homozygotes for the normal chromosome 1. These results demonstrate that the frequency of chiasmata depends on a position of the chromosomal region: a change of localization of the chromosomal region results in change in chiasma frequency in it. In the double heterozygotes for inversions we revealed a positive chromatid interference between exchanges in both inversions. There is a significant excess of four-chromatid and three-chromatid double exchanges in comparison with two-chromatid exchanges.

Indications for the positional control of chiasma distribution and for chromatid interference we consider as the most interesting results of our study.

Recently we are involved in the different projects concerning the biology of germ cells in farm animals. We described the sequence of changes in chromosome behaviour and nuclear morphology during meiotic prophase in male goats and female pigs, analyzed meiotic configurations in newly found Robertsonian translocation in cattle and in interspecific hybrids CattleXBanteng.

We are also taking part in gene mapping in human and the common shrew.

Sector of Immunogenetics of Pig.

7. Meiosis Laboratory

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Chromosome pairing and recombination in structural heterozygotes
Gene mapping in the common shrew (*Sorex araneus*)
Standard karyotype of the house musk shrew (*Suncus murinus*)

Chromosome variation in *Sorex araneus* and *Suncus murinus*

Last updated 18 April, 1997 ©P.Borodin

Physiological Genetics Department.

1. Laboratory of Genetic Neuroendocrinology.

Staff:

Nikolai N. Dygalo, Prof., Dr.Sci., Head of the Laboratory and Head of Group of Genetic and Ontogenetic Psychoneuroendocrinology.

Lidiya I. Serova, Dr.Sci., Head of the Group of Genetic Neurochemistry and Pharmacology.

Alexander V. Osadchuk, Ph.D., Head of the Group of Genetic Endocrinology.

Vasily S. Lankin, Dr.Sci., Head of the Group

Larisa L. Maslova, Dr.Sci., Head of the Group

Galina T. Shishkina, Ph.D.

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Oksana N. Kozlova, Ph.D.

Konstantin V. Svechnikov, Ph.D.

Alina V. Amikishieva

Larisa G. Ahmerova

Dmitry G. Shaharov

Group of Genetic and Ontogenetic Psychoneuroendocrinology.

Leaders: Nikolai N. Dygalo, Prof., Dr.Sci., and Galina T. Shishkina, Ph.D.

Subjects of Research:

Genetic and ontogenetic bases for individual variability in psychoneuroendocrine reactivity (Adrenoceptors, Tyrosine Hydroxylase, Steroid Hormones of Adrenals and Gonads, Stress, Reproduction, Behaviour, Genetic Variability, Effects of Prenatal Treatments (hormones, stress, environmental pollution)).

General Results 1993-1995:

Genetic differences in the rates of sexual maturation, seasonal changes in plasma levels of sex steroids, fecundity, genital morphology, adrenocortical stress reactivity, emotional and aggressive behaviour, and in the activity of the key enzyme of catecholamine syntheses - tyrosine hydroxylase (TH), concentrations of norepinephrine, densities of adrenoceptors in the brain regions were revealed between aggressive and domesticated grey rats, Wistar and August rats, mice of several strains, and their hybrids. Most of the animals with reduced stress reactivity and aggressiveness have elevated TH activity and decreased adrenoceptors densities in the brain. Negative intrastrain and interstrain correlations between the hypothalamic density of 3H-clonidine-binding sites and plasma testosterone levels were found in mice.

Glucocorticoids injected into pregnant females affect fetal testosterone levels, genital morphology, adrenocortical stress reactivity,

emotional and aggressive behaviour, TH activity and densities of adrenoceptors in the brain regions in newborn and adult offspring. Interstrain differences in the consequences of the prenatal treatment were revealed. The relations between hormone-induced changes in neurochemistry and physiology in general resembled those found in genetic study. Low-doses of prenatal ionizing irradiation have long-lasting effects on the behaviour and steroid hormones levels in the blood of adult rats and of their nonirradiated progeny.

Participation in State and International Programs:

RFBR:

"Effects of ecological disturbance endured by population on reproduction and viability of subsequent generations".

International Science Foundation:

"Genetic study of susceptibility of the gonadal and brain noradrenergic systems to prenatal glucocorticoid treatment".

Russian State Program "New Trends in Genetics":

"Genetic variability in systems of regulation of stress and reproduction";

"Mechanisms of hormonal regulation of gene expression controlling the development of homeostatic systems in mammals".

Russian State Program "Universities of Russia":

"Investigation of the brain adrenoceptors during ontogenesis".

Subjects of Scientific Collaboration:

Adrenoceptors, Tyrosine Hydroxylase, Steroid Hormones of Adrenals and Gonads, Stress, Reproduction, Behaviour, Genetic Variability, Effects of Prenatal Treatments (hormones, stress, environmental pollution). Physiology, Neurochemistry, Pharmacology, Expression of Neurogenes.

Group of Genetic Neurochemistry and Pharmacology.

Leader: Serova L.I., Dr. Sci.

General Results 1993-1995:

The investigation of interaction between biosynthetic parameters of brain catecholamine neurons and genetically determined dominant behaviour. Grouped mature male mice of 6 strains A/He, C57Bl, DD, YT and PT were used in experiments. It was established that intrastrain variation in activity of tyrosine hydroxylase was higher than interstrain one in cortex, hypothalamus, hippocampus, striatum and brain stem. It was shown positive rank intrastaine correlations between the levels of noradrenaline, tyrosine hydroxylase activity in striatum, hippocampus and brain stem and percentage of dominant males in studied mice stains. These results indicate that between capacity to dominate in group and biosynthesis of noradrenaline in brain catecholamineergic neurons a close genetically determined conjunction exists.

The study of the role (-aminobutyric acid (GABA) and its receptors in the regulation of negative feedback mechanisms of the integral hypothalamic-pituitary-testicular complex. Pharmacological analysis

on sham-operated and unilateral castrated Wistar rats shown, that central GABAergic system stimulates feedback control, but peripheral GABAergic system, on the contrary, inhibits the process of testosterone compensation. Both types of GABA receptors participate in functioning of feedback mechanism, but GABA-A receptors are prevail. Central GABA realizes its effect to control of endocrine function of testiculars mainly through relationships with serotonergic system of brain.

Subjects of Scientific Collaboration:

Main: Brain monoamines in regulation of social behaviour and feedback control of hypothalamic-pituitary-testicular complex.
The influence of genetics factors on social behaviour, brain catecholamines levels and tyrosine hydroxylase activity in male mice.
Effects of moderate and acute stress on tyrosine hydroxylase (TH) activity and TH gene expression.
The influence of GABA on sexual behaviour during stress.
Role of GABAergic mechanisms in feedback regulation of blood testosterone level.

Group of Genetic Endocrinology.

Leader: Osadchuk A.V., Ph.D.

General Results 1993-1995:

In previous experiments with inbred mice, we found the genetic variations in plasma testosterone to be of great adaptive value, i.e., positively correlated with reproductive success and social dominance. This strain-related diversity can serve as a good model for studying the genetic control of testicular steroidogenesis and clarifying its key determinant factors. Interstrain differences in cAMP-dependent signaling pathway of testosterone production, substrate-dependent of testosterone production and microsomal steroidogenic enzyme activities in Percoll-purified Leydig cells between six inbred mouse strains (A/He, CBA/Lac, C57BL/6J, DD, YT and PT) were studied. Significant interstrain differences were found in the testosterone production in response to increasing concentrations of hCG, cholera toxin, forskolin, d,b-cAMP, pregnenolone and delta4-precursors of testosterone biosynthesis. Similar marked interstrain differences in delta5-3beta-hydroxysteroid dehydrogenase-isomerase, 17alfa-hydroxylase, C17-20-lyase and 17-ketosteroid reductase activities were demonstrated. Based on the principal components analysis, correlative interstrain variability between the investigated characters was established. The results suggest that the revealed correlative variability may be due to major gene effect on steroidogenic activity of Leydig cells.

Maslova L.N., Dr. Sci.

Subjects of Research:

The role of brain neurotransmitters in the regulation of hypothalamic-pituitary-adrenocortical system and cardiovascular system: investigation of mechanisms mediating long-lasting modification of hypothalamic-pituitary-adrenocortical system induced by stressful stimuli or pharmacological treatment in early postnatal ontogeny:

role of glucocorticoids and brain monoamines;
studying of the role of brain catecholaminergic system in forming and maintenance of inherited arterial hypertension on the model of inherited stress-induced arterial hypertension (ISIAH rats);
search for possible ways of long-lasting correction in early ontogeny of inherited arterial hypertension and concomitant neuroendocrine disfunctions.

Lankin V.S., Dr. Sci.

Subjects of Research:

Feeding and avoidance responses to human; behavioural genetics and genetic polymorphism of domestic behaviour; behavioural aspects of stress; stress physiology; physiology of reproduction, biotechnology and selection in sheep.

Subjects of Scientific Collaboration:

Genetic study of domestic behaviour and mechanisms controlling a population diversity of behaviour; Control of reproduction with respect to improving of fertility rate and polycarpy; Ethological and hormonal mechanisms of chronic emotional (motivational) stress; Behavioural selection for ecological adaptability in sheep.

2. Laboratory of Behavioural Phenogenetics.

Staff:

Nina K. Popova, Prof., Dr.Sci., Head of the Laboratory
Natalia N. Kudryavtseva, Dr.Sci.
Ella M. Nikulina, Dr.Sci.
Ninel N. Voytenko, Ph.D.
Lyudmila A. Koryakina, Ph.D.
Alexander V. Kulikov, Ph.D.
Yury N. Shvarev, Ph.D.
Damira F. Avgustinovich, Ph.D.
Yulia A. Skrinskaya, Ph.D.
Tatiana V. Lipina

Subjects of Research:

Investigation of genetic control of brain mediators and participation of mediators in genetic determination of behaviour.

General Results 1993-1995:

Mendelian analysis of predisposition to pinch-induced catalepsy performed on CBA/Icg and AKR mice agreed with the hypothesis that the pronounced predisposition to catalepsy in CBA mice was determined by a single autosomal locus in homozygous recessive condition. The role of brain serotonin in expression to genetic predisposition to catalepsy was studied on two animal models. It was shown that the activity of the rate-limiting enzyme of serotonin biosynthesis, tryptophan hydroxylase, in the striatum but not in the hippocampus and midbrain of rats bred for predisposition to catalepsy was higher than in nonselected rats. Mice of the highly susceptible to catalepsy CBA strain also differed from other noncataleptic mouse strains by the highest tryptophan hydroxylase activity in the striatum. Inhibition of tryptophan hydroxylase with p-chlorophenylalanine and p-chloromethamphetamine drastically decreased immobility time in hereditary predisposed to catalepsy animals. A decrease in the 3H-ketanserin specific binding in the striatum of cataleptic rats and CBA mice was found. It was suggested that this decrease in 5-HT_{2A} serotonin receptor density represented a down regulation of the receptors due to an activation of serotonergic transmission in striatum. It is suggested that hereditary catalepsy may be resulted from genetic changes in the regulation of serotonin metabolism in striatum.

Quaking mice (qk/qk), autosomal recessive mutants with central nervous system dysmyelination, characterized behaviorally by abnormal locomotion and tremor, are found to have altered brain dopaminergic system parameters, in comparison with phenotypically normal heterozygous littermates. Dopamine metabolism is enhanced in structures of both nigrostriatal and mesolimbic systems, as revealed by increased metabolites content (that of homovanillic acid in striatum and concentration of 3,4-dihydroxyphenylacetic acid in nucleus accumbens with tuberculum olfactorium) along with unchanged neurotransmitter levels in qk/qk mice. D1 and D2 receptor analysis via radioligand binding using (3H)-spiperone, correspondingly, showed an increase of D2 receptor density with decreased affinity to D2 ligand in striatum of mutants: both B_{max} and K_d were markedly higher. D1 and D2 receptor sensitivity in the quaking mouse was also altered. The alterations found in the brain dopaminergic system of qk/qk mice may be responsible for the behavioral expression of this neurologic mutation.

The influence of a genotype of inbred mice on the aggressive behavior induced by clonidine and the role dopamine D1 and D2 receptors in that behavior were studied. The obtained results indicate that the potency of the clonidine-induced aggressiveness depends upon genotype of mice; moreover, the presence of a physiological function of D1 receptors is necessary for its occurrence.

Repeated experience of social victories or defeats in daily agonistic confrontations led to different changes of brain neurotransmitter activities in male mice with the alternative types of social behaviors (winners or losers, received in technique of sensory contact model (Kudryavtseva, 1991)). Significant differences in emotionality, exploratory activity, locomotion, pain sensitivity, ability to

demonstrate catatonic immobility reaction to tactile stimuli, immunoresponsiveness, alcohol motivation, reactivity to social pheromonal stimuli as well as in susceptibility to the transplanted Krebs-2 tumor growth and to the gastric mucosa damage were found between winners and losers. Expression of behavioral and physiological changes depended on mouse strains and on duration of social agonistic experience. Long social stress produced by defeat experiences induced dramatic changes in social and individual behaviors of submissive mice, (losers), of the C57BL/6J strain, as well as in their somatic state, which were similar to symptoms of human depression with respect to etiology, susceptibility to treatment, and symptomatology. Chronic unavoidable social stress is considered a pathogenic factor, which leads to the development of depressive pathology and anxiety in mice. The study on brain monoaminergic activity in losers in different stages of the experimental disorder showed that the development of depression is accompanied by dynamic changes in brain serotonergic and catecholaminergic activity, (metabolism, reception), depending on the duration and depth of the pathological depressive processes.

Participation in State and International Programs:

ISF

Foundations "University of Russia" and "High Education in Natural Sciences"

Russian State Programm "New Trends in Genetics"

RFBR

Subjects of Scientific Collaboration:

Head: Doctor of Medical Sciences, Professor Popova Nina K.

The main problem: The role of the brain neurotransmitters in genetic control of behaviour.

- a) Serotonin metabolism, tryptophan hydroxylase activity and serotonin 5-HT_{1A}, 5-HT_{2A} receptor specific binding in rats selected for low aggressiveness to man.
- b) Serotonin metabolism, serotonin 5-HT_{1A}, 5-HT_{2A} receptor specific binding in rats selected for predisposition to freezing (catalepsy).
- c) The role of genotype in expression of anxiety and genetic correlation of anxiety with tryptophan hydroxylase activity and the sensitivity to agonists and antagonists of 5-HT_{1A}, 5-HT_{1B}, 5-HT_{2A}, 5-HT_{2B}, 5-HT_{2C} and 5-HT₃ receptors in inbred mouse strains.
- d) The role of dopamine metabolism and dopamine D₁ and D₂ receptors in the control of different kinds of genetically defined defensive behavior-fear-induced passive defense (freezing) and active defense (aggression).
- e) The role of specific interaction between 5-HT and DA receptors mechanisms in the mediation of neurological mutations in mice.

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3. Laboratory of Physiological Genetics.

Staff:

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Tatjana V. Yakovleva

Subjects of Research:

Molecular and genetics mechanisms of hormone regulation of functional systems in ontogenesis of mammals.

Physiological and genetics mechanisms of maintenance of agouti locus polymorphism in the water vole.

The functional role of corticosteroid-binding globulin in the corticosteroid regulation of adaptive and developmental processes.

General Results 1993-1995:

The development of mechanisms of vasopressin action were investigated. We have found that expression of coupling Gs-protein alpha-subunit mRNA in the rat renal papilla revealed the specific developmental pattern with maximal level during the first week after birth and at the end of weaning. Binding and catalytic activity of papillary cytosolic cAMP-dependent protein kinases display similar ontogenetic changes. Resembling age-related changes were demonstrated also for actin gene expression in rat renal papilla. We conclude that the development of the different components of VP signal transduction mechanism follows the common pattern, the complicated character of which may reflect the complexity of the process of the formation of integrated system of VP stimulus realization.

Mapping of the vasopressin gene in Rattus Norvegicus was carried out. We have established the position of the gene in the fourth linkage group of the Rattus Norvegicus. Using the in situ hybridization we have mapped the vasopressin gene to chromosomal region 3q41-q42 in the rat karyotype.

Hyaluronate hydrolases of the amphibian urinary bladder were demonstrated to involve to the hydroosmotic effect of vasopressin. An exposure of isolated frog urinary bladders to AVP was found to increase the net water flow simultaniously with the enhancement of the hyaluronate hydrolases (HH) activities. The activities of other lysosomal enzymes (beta-galactosidase and acid phosphatase) remained unchanged. Cytochalasin B and glutaraldehyde blocked the hydroosmotic response to AVP. It suggested that VP induces the specific activation of HH and their release out of epithelial cells by cAMP-dependent mechanism.

We investigated the level of glucocorticoids and corticosteroid-binding globulin (transcortin) in blood during starvation, increase of blood pressure, and reperfusion under heart surgery. It is established that transcortin have adaptive significance independently on adrenocorticoid level.

The effects of food deprivation on day 15 and again on day 18 of the pregnancy on the reproduction of the water vole females and their female and male progeny were examined. In the group of deprived mothers fecundity was diminished and litter sex ratio was skewed toward males. Maternal food deprivation in late pregnancy had no effect on the reproductive performance of male young, but it increased reproductive potency of female young.

The effects of maternal food deprivation on day 3 and again on day 5 of the pregnancy on the development of gonads and adrenals in female young were examined in the water voles. It was demonstrated that maternal food deprivation before implantation had adverse effect on the overall development and postnatal maturation of endocrine function of gonads and adrenals in female young.

Families, the residents of the Altai territory exposed to radionuclides pollution, in which cases of hyperbilirubinemia (HBN) in children have been registered, and healthy families were examined. Variation was detected in the level of thyroid hormones in parents (decrease) and in children with HBN (upper norm level) compared to healthy families, as well as decrease of cortisol excretion and excretory function of kidney in children with HBN and in their sibs without it. Changes in the hormonal status correlate with the changes in psycho-physiological parameters. HBN is supposed to be one of pleiotropic effects of somatic mutations expressed by disturbances in the system which controls the neuroendocrine mechanisms of ontogenesis.

Participation in State and International Programs:

State programmes:

Physical-chemical bases of vital activity

Polygon-Altai

New Trends in Genetics

The University of Russia

RFBR

International programs:

International Science Foundation

Subjects of Scientific Collaboration:

Investigation of the development of molecular mechanisms of kidney responsiveness to vasopressin.

Investigation of functions and development of aquaporin system in kidney.

The role of free fatty acids released in response to stress in modulating binding activities of corticosteroid-binding globulin (CBG).

Molecular mechanisms underlying adaptive and developmental changes in

binding activity of CBG. Functional implications of adaptive and developmental changes in the activity of CBG.

Maintenance of agouti locus polymorphism.

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Iurii A. Trusov
Tanya A. Skripkina

The last updated version of Pisum sativum Genetic Map
Links to other Organizations, Scientists and Services Concerning Pisum
Genetics

1. University of Tasmania , Department of Plant Science
+ Ian Murfet
+ James Reid
2. New York State Agricultural Station at Cornell University ,
Horticultural Science Faculty
+ Norman Weeden
+ CoolGenes DataBase
3. UK Plant Genetic Resources Group , Biotechnology and
Biological Sciences Research Council , John Innes Center ,
Department of Applied Genetics
4. Nordic Gene Bank

PLANT (CROSS) - Computer package for Genetic Linkage computations

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**31. Siberian Regional Center for Gene Informatics (SROG)
of the INSTITUTE OF CYTOLOGY AND GENETICS**
of the Siberian Division of the Russian Academy of Sciences

The SRCG is responsible for building, maintaining, and distributing the molecular biology
databases, tools and Software Packages.

Database entry points

TRRD Rel.3.3 (4/09/96) - database of transcription regulatory regions on eukaryotic
genomes
TRRD - database of transcription regulatory regions on eukaryotic genomes

Database on composite regulatory elements Release 1.2, November 1995
TARD - Translational Active Regions Database

Software for molecular data analysis

Protein Structure Alignment by Conformational Likeness (Development by IC&G and San Diego Supercomputer Center)

Site Video - software for functional site analysis and recognition

Activity - a computer system to generate activity-predicting programs

B-Video - a computer system to predict B-DNA responsibilities for biochemical processes

Mutations - a computer system to investigate the nucleotide context of spontaneous mutations

Oligoselector - a computer system

Optimization of transgene expression in plants

AutoGene - computer system for automatic molecular genetic analysis }



32. Central Siberian Botanical Gardens in Akademgorodok.

Koropachinskii, Igor Iu. D. Bio. S. Born in 1928. Biologist and Dendrologist. Corresponding member of the General Biology Department of the Russian Academy of Sciences and of the Siberian Department since December 1987, and academician since 1992. He has authored and co-authored 85 scientific works of which 12 are important monographs. He graduated from the Siberian Forestry Technology Institute in 1951. He was an aspirant, assistant, docent, and held the chair in Forest Culture at that institute. He was a senior researcher at the V. N. Sukachev Forestry and Timber Institute (in Krasnainersk) from 1960 to 1962. From 1962 to 1976, he was Deputy Director of that institute and from 1977 to 1983, he was Director of that institute. In 1983 he was named the Director of the Central Siberian Botanical Garden in Novosibirsk that was started in 1958 in order to exchange seeds and plants with other botanical gardens in Russia and abroad to enrich Siberian flora. He has been a professor at the Siberian Technological Institute since 1982 where he has guided the work of 13 aspirants for the candidate degree. He is deputy chairman of the Scientific Council on the environmental problems.

Administration of the Central Siberian Botanical Garden SB RAS

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Established in 1946 to enrich the Siberian flora with new plants and to exchange seeds and plants with other botanical gardens in the Russia and abroad. Institute scientists investigate the plant kingdom of Siberia, introduce and acclimatize plants. The building of a collection stock of the flora of Siberia and the Far East. The collection in 1987 held some 24 thousand species, sorts, ecotypes and forms of wild plants and cultivated plants. The gardens are the leading botanical institutions in Siberia and the Far East. Director: I. Iurii Koropachinskii, D. Bio. S. Academician Secretary is Alevtina G. Valutskaya (aya), C. Bio. S.

1997 update

History of The Central Siberian Botanical Garden

Central Siberian Botanical Garden (CSBG) was founded in the structure of the West Siberian Branch of the USSR Academy of Sciences in 1946. A status of Research Institute was conferred on it in 1961. Until 1964 CSBG was located in Zael'tsovsky District of Novosibirsk and occupied the area of 232 ha.

In 1964 in the vicinities of Academgorodok, an area of 1060 ha was given to CSBG in which, in accordance with the plan, different experimental plots - dendrarium, systematicum, those of useful, rare, and endangered plant species were arranged.

In 1971 the construction of the main laboratory block and technical facilities was finished, and all the staff of CSBG moved to Academgorodok.

In 1982 the formal opening of Central Siberian Botanical Garden took place. During the last decade the Botanical Garden has developed as a center of integration of botanical research in Siberia. Scientific Council of Botanical Gardens of Siberia, Dissertation Committee, Committee on botanical problems, Botanical Society, Council on protected plant subjects, rare and endangered species, nature reserves and refuges have been established and work successfully at the Institute. Its scientific potential increases steadily. At present 1 academician, 8 professors, doctors of sciences, 7 doctors of sciences, 60 candidates of sciences, and 59 research workers without degree work at the Institute.

Over the course of 50 years, more than 150 big monographs and books, including the monograph "Flora of Siberia" (9 volumes have already been published) have been written, over 4000 scientific articles have been published in different journals and collections, 46 author's certificates and patents for new plant varieties and cultivars, drugs, and inventions have been obtained, and scores of practical proposals have been used in industry.

The Botanical Garden has close relations with all Botanical Gardens of Russia and CIS and with 250 foreign Botanical Gardens of all the continents. There are 450 thousand dried herbarium specimens.

(1997 update) The main lines of the research CSBG :

- * Study of the diversity of the plant life of Siberia: composition, structure, plant resources, and dynamics of vegetation cover; development of the scientific bases for rational use of biological resources.
- Introduction and acclimatization of the representatives of natural and cultural floras of Siberia and different regions; enlargement of the assortment of economically valuable plants of various groups with the use of achievements in genetics, biotechnology, physiology, and biochemistry of plants.
- Preservation of the gene pool of valuable food, forage, medicinal, ornamental, and woody plants, rare and endangered species by means of foundation of the collection stock and experimental plots of living plants, formation of the herbarium and seed bank, development of data-base management systems.
- Biological monitoring of the status and conservation of ecosystems, the most valuable populations and species; development of proposals for establishment of protected areas.
- Propaganda of botanical knowledge and ecological education of population through excursions, lectures, and exhibitions.



33. Economics and Organization of Industrial Production Institute in Akademgorodok was established in 1958 as the first Academy-level economics institute east of the Urals.

Granberg, Aleksandr G., D. Econ. S. Born in 1936. Specialist in planning for the national economy and the development of modeling of economic research. Academician of the Economics Department of the Academy since 1992. He graduated from the Moscow State University in 1960 and began working at the Computer Center of GOSPLAN, and at the Moscow Institute of the National Economy. From 1963 to 1969, he was at the Novosibirsk State University, and from 1965 he has held the chair on applied mathematical methods for economic planning. In 1969, he joined the Economy and Organization of Industrial Production Institute of the Siberian Department, heading the sector on economic-mathematical modeling and methods of optimizing territorial planning, becoming its Deputy Director in 1975 and its Director in 1985. He has been on the Siberian Presidium since 1986. He has been head of the Scientific Council of the Academy on the Economic Sciences since 1985. In 1988, he became Chief editor of the journal Economics and the Organization of Industrial Production. He received the Lenin Komsomol Prize in 1968. In the early 1990s the Siberian Department established the Siberian International Center for Regional Studies in Novosibirsk that had as its Scientific Research Director Professor Granberg. The Center's base institution is the Institute of Economics and Industrial Engineering of the Siberian Department in Akademgorodok-Novosibirsk of which Dr. Granberg is also the Science Director. In the process of being organized at present, the center will involve the Siberian Department, the International Regional Science Association and Geographic Union will be its founders and its activities will involve research groups from universities and research centers from the United States, Germany, Canada, Sweden, Israel, Hungary in research into regional economics.

In 1967, the laboratory on the application of statistical and mathematical methods in the economy of the Siberian Department was merged with this institute. Its first Director was G. A. Prudenskii (1958-66). A. G. Aganbegian was its Director from 1967 until 1984, and from 1985 to 1991 it was headed up by A. G. Granberg, a corresponding member of the Russian Academy of Sciences. The current Director

is Valerii V. Kuleshov, corresponding member of the RAS. The staff of the institute numbers 277 researchers of whom 21 hold the doctorate and 147 hold candidate degrees. There are two corresponding members of the Russian Academy of Sciences on the staff. In the 1970s the institute had over 600 persons in 35 sections and laboratories. These scientists do research in economics and sociology and provide data and make recommendations to state planning organizations. The institute maintains a Laboratory of Economics in Barnaul that studies the problems of the social-economic development of the Altai territory. The institute has provided a base for the development of the Tuva Complex Department in Kysyl that studies the economic and social problems of the production forces of the Tuva Autonomous Soviet Socialist Republic, and studies problems of the management and protection of natural resources of plants and animals. Since 1966, the institute has worked with the Central Economics-Mathematical Institute and with the Institute of Economics of the national academy. Structure of the institute: The institute is organized into 11 departments--three of which are located in Kemerovo, Irkutsk and Krasnoyarsk:

**the rates and proportions of industrial production department;
the planning of multibranch complexes and branches
department;
the territorial systems department;
the integrated regional planning department,
the industrial enterprise management department,
the social problems department,
the economic information department,
the applied economic problems department,
the Krasnoyarsk forecasting for economic development of the region
department,
the regional economy and location of productive forces in Eastern Siberia
(Irkutsk) department, and,
the Kemerovo economic research department.**

Studies on the machine-building complex are being supervised by V. V. Kuleshov and V. A. Bazhanov; the building complex by V. V. Kuleshov and E. B. Kibalov; regional problems of scientific-technical progress by V. V. Kuleshov and V. E. Seliverstov and A. M. Pozdnyakov; an integrated program of scientific-technical progress for Russia by A. G. Granberg, N. G. Shishatskii, and A. V. Evseenko; an integrated forecast of the utilization of natural resources and the development of productive forces in the Northern Zone under A. G. Granberg and A. M. Pozdnyakov. The institute has established relationships with its counterparts in the academies of sciences of Bulgaria, Poland, Cuba, Hungary, Mongolia, and Czechoslovakia, and with the University of Pittsburgh in the United States and with the Economic Research Center in China. The institute publishes the Proceedings of the Siberian Division of the Russian Academy of Sciences and since 1970 "The Economics and Organization of Industrial Production." Its library houses 31, 000 Russian-Soviet journals of some 146 titles, 10, 000 foreign journals of 216 titles, and 45, 000 Russian-Soviet books and 6, 000 foreign books. Academician Secretary is Liudmila A. Sergeeva, C. Econ. S. The Siberian Department was planning in the early 1990s to establish a Siberian International Center for Regional Studies in Siberia at this institute. Its research will form part of the international research programs and projects of the International Regional Science Association--RSA--and the International Geographic Union relating to regional policies, the location of production and the development of the northern territories, and to study the economic foundations of federalism within the framework of the International

Association of Centers for Federal Studies. Academician A. Granberg is science Director of this new center and Dr. V. Seliverstov is its Executive Director. (See: "A Scholars' Guide. . .")

In 1989, Scientific structure and Personnel: Director Granberg, Aleksandr G., since '86; Deputy Director Kazakevich, David M., since '73; Scientific Secretary Shemetov, P., since '74;

External Affairs Department: Head Zverev, Valerii A., since '79; **Economic Model Building and Regional Industrial Planning Department:** Head Valtukh, Konstantin K., since '76;

Economic and Sociological Investigations of Labor Resources Department: Head Zaslavskaya (aya), Tatiana I., since '72;

Optimal Long-Term Planning Methods Department:

Siberian Development Department:

Irkutsk Branch: Angara-Enesey Region Department: Head Filshin, Gennadi I., since '79;

Baikal Amur Mainline Railway Department:

Territorial Production Complexes Department: Head Bandman, Mark K., since '76;

Urban Planning Department:

Kemerovo Branch:

Krasnoyarsk Branch:

Tyumen Branch:

(See: Ruble, Vol. I, pp. 116-117. Listed as Institute of the Economics and Organization of Production.)

1997 update

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Main scientific directions of IEIE:

- * investigation of dynamics, structural and economical changes in Russia**
- * problems of industrial development in terms of multiindustrial complexes, groups of interrelated industries and enterprises in forming market economics**
- * problems of government regional politics of regional management and complex development of Siberian economics**
- * social problems of changes in society and economics**
- * theoretical and applied problems of economical informatics**

The Institute consists of the following 12 research departments located mainly in Academgorodok (Novosibirsk Academic Center) and also in some other Siberian cities:

- * Rates and Proportions of Industrial Production;**
- * Planning of Multi-Industry Complexes and Industries;**
- * Territorial Systems;**
- * Administration of Socioeconomic Processes of a Region;**
- * Management of Industrial Enterprises;**
- * Social Problems;**
- * Applied Economic Problems;**
- * Economic Information Science;**
- * Forecasting of Regional Economic Development (Krasnoyarsk);**
- * Regional Economy and Location of Productive Forces of Eastern Siberia (Irkutsk);**
- * Economic Studies (Kemerovo);**
- * Economic and Social Studies (Barnaul);**
- * 3 economic laboratories (Novosibirsk, Omsk, Abakan).**

Two economic journals are being published by the Institute: "Economics and Industrial Engineering" (EKO) founded in 1970 and "Region: Economics and Sociology" (publication of the Siberian Branch of the Russian Academy of Sciences).

IEIE is the core academic organization for the Department of Economics of Novosibirsk State University; Siberian Branch of the Sociological Association of the Russian Academy of Sciences; Association of Siberian Cities; Club of Directors of Industrial Enterprises.

Training of academic cadres is carried out through post-graduate and doctorate studies.

The Institute took part in the development and expertise of several government programs and documents: Federal Program of Social and Economic Development of the Russian North, the Law of Local Self-Administration in Russia, government programs of economic reforms, privatization, trade policies with countries of the former Soviet Union.

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Doctor of Economics
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History of the Institute

Institute of economics and industrial engineering is the first academical scientific organization of economical profile to the East of Ural.

Institute of economics and Statistics was organized by the decree of Presidium of USSR Academy of Sciences from 7 June 1957. In May of 1958 Institute was renamed to the Institute of Economics and Industrial Engineering.

First Director was Corresponding Member of USSR Academy of Sciences Prudenskij German Alekseevich. In 1967 Academician Aganbegjan Abel Gezevich was appointed as a director. From 1985 to 1991 director was Academician Granberg Aleksandr Grigorjevich. From 1991 till now director is Corresponding Member of Russian Academy of Sciences Kuleshov V.V.

The total staff of the institute as of 1.01.96 was 393 employees, including 213 research workers, of these 20 are Doctors of Sciences, 108 Candidates of Sciences.



34. The Budker Nuclear Physics Institute in Akademgorodok.

Established in 1957, it was built on the laboratory of new methods of acceleration of the I. V. Kurchatov Institute of Atomic Energy.

The Budker Nuclear Physics Institute in Akademgorodok conducts research on thermonuclear reactions (colliding beams and high energy physics), particularly on magnetic confinement fusion, and accelerator technology. It develops new methods of charged particle acceleration and creates new types of accelerators for the scientific and industrial purposes (the development of superhigh energies), and conducts research in controlled thermonuclear fusion. The Theoretical Studies Department of the institute is comprised of about 40 leading theoreticians who work with the institute experimental personnel in developing experiments.

Theoretical Studies at the Budker INP

The scope of investigations conducted in the Theoretical Department of the Institute is very diverse, ranging from the fundamental problems of matter structure to applied problems of statistical physics. Their studies have gained the recognition throughout the world. At the Theoretical Department of Budker INP, the general theory of dynamic chaos in the classical and quantum systems has been developed. The method of the quantum chromodynamics sum rules advanced and developed at BINP proved to be a powerful technique for calculating the hadron parameters. The theorists of the Institute have made a great contribution to quantum electrodynamics of high energies, to plasma physics, to solution of the bound state problem, and to the experimental study of the fundamental symmetry violation.

Synchrotron radiation is a major study within the laboratories of the institute. The Budker Nuclear Physics Institute is the leading nuclear research facility in Siberia and has achieved worldwide recognition. Dr. Lev. M. Barkov, academician, and Drs. Gennadii Dimov, Dmitrii D. Riutov, Boris V. Chirikov, and Veniamin A. Sidorov--all corresponding members of the Russian Academy of Sciences--are on the staff of this institute. The staff of the institute numbered 400 persons in 1989 of whom 50 held doctorate degrees and 160 the candidate degree. Since 1958, five scientists of the institute have been elected academicians and seven have been made corresponding members of the national academy. Postgraduate work in theoretical and mathematical physics, nuclear and elementary particle physics, experimental physics, physics and chemistry of plasmas, and the physics of charged particle beams and acceleration techniques is offered in the institute.

Plasma Physics

The researches on high-temperature plasma physics at the Budker Institute of Nuclear Physics are aimed at the solution of the problem of controlled thermonuclear fusion. For this purpose, some original schemes of the so called open magnetic traps for hot plasma confinement were proposed

GDT,
GOL-3,
AMBAL.

Seven Scientific Councils oversee the development of research for some 300 researchers in the institute. The institute itself has a Scientific Council comprised of department and laboratory heads and leading scientists that meets weekly with the Director of the institute to report on and monitor research in the establishment. The institute has established the **Center of Synchrotron Radiation at which about 100 different groups from research and industrial institutions in Russia and from Eastern Europe, Great Britain, France, and India come to research.** The institute maintains a powerful and important infrastructure including a well-managed design office, machine shops, a number of computer centers, and an effective engineering service for its scientists. Director: Skrinkii, Aleksandr N., D. PM. S., since 1977. Academician Secretary is Stanislav G. Popov, D. PM. S. The Institute was recently named after one of its most eminent physicists of the past: Academician G. I. Budker.

(1997 update)

The Budker Institute of Nuclear Physics of the Siberian Branch of the Russian Academy of Science

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Skrinskii (Skrinsky), Aleksandr N., D. PM. S. Born in 1936 in Orenburg. Russian physicist. Corresponding member since 1968, and academician of the Nuclear Physics Department of the AN SSSR of the AN SSSR from 1970. He graduated from Moscow State University in 1959. He joined the staff of the Institute of Nuclear Physics of the Siberian Department of the AN SSSR in 1959, becoming Deputy Director in 1972 and Director in 1977. He has been a professor at the University of Novosibirsk since 1969, holding the chair in nuclear physics. Since 1977, he has been head of the Storage Rings Laboratory and Director of the Nuclear Physics Institute in Novosibirsk that is subordinate to the academy's Siberian Department. The institute was created in 1957 and is the leading nuclear research facility in Siberia. It studies controlled thermonuclear reactions, particularly magnetic confinement fusion, and accelerator technology. The institute is located on the shores of Lake Ob in Akademgorodok which is 35 km south of Novosibirsk. There are 21 research institutes and the Novosibirsk University located in Akademgorodok. The institute employs approximately 3,000 scientific workers. His work includes high energy physics and physics and technology of charged-particle acceleration. In 1980, he was named to the Presidium of the Siberian Department of the Academy. Since 1988, he has served as Academician Secretary to the Nuclear Physics Department of the AN SSSR and of the Russian Academy of Sciences. He developed, with others, a method of colliding beams. Lenin Prize, 1967. (GSE 23, p. 513.)

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Field of interest: Design and construction of High energy accelerators.

Corresponding member of the Nuclear Physics Department of the Academy. Senior Researcher in Veniamin A. Sidorov's Department of the Budker Nuclear Physics Institute in Akademgorodok-Novosibirsk in 1970. Currently a Deputy Director of the Budker Physics institute in Akademgorodok-Novosibirsk.

**E. P. Krugliakov, Deputy Director,
E-mail: E.Kruglyakov@inp.nsk.su**

Krugliakov (Kruglyakov), Eduard P., D. PM. S. Born in 1934. Russian physicist. Specialist in Plasma Physics and in the research problems associated with Thermonuclear Synthesis. Corresponding member of the General Physics and Astronomy Department of the Russian Academy of Sciences and of the Siberian Department since December 1987. He graduated from the Moscow Physico-Technical Institute in 1958. He began work in 1958 at the Budker Nuclear Physics Institute of the Siberian Department, and in 1976 he has headed the Plasma Physics Laboratory of the Budker Nuclear Physics Institute in Novosibirsk and has been Head of "Krugliakov's Department." The institute is the leading nuclear research facility in Siberia. He was one of the principal organizers of the physics and mathematics "school" at the University of Novosibirsk--for which students are carefully screened, tested, and selected from across all of the former Soviet Union for entrance. He is on the Scientific Council on Plasma Physics of the national academy, and a permanent member of the national standing commission on atomic energy of the national government. He received the State Prize in 1986. (LDA 89-11378.)

Gennadii N. Kulipanov, Deputy Director, Head of laboratory, Doctor of Science, Professor

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Field of interest:

Design and Construction of Synchrotron Radiation Installations, Free Electron Lasers.

Veniamin A. Sidorov, Deputy Director of the Budker INP Corresponding Member of Russian Academy of Sciences, Doctor of Science, Professor

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Field of interest: High energy physics, Automation of experimental studies.

Sidorov, Veniamin A., D. PM. S. Born in 1930 in Vladimir Oblast. Russian physicist. Corresponding member of the Nuclear Physics Department of the Academy and of the Siberian Department since 1968. He graduated from Moscow State University in 1953 and joined the staff of the Institute of Atomic Energy. In 1962, he affiliated with the Institute of Nuclear Physics of the Siberian Department of the AN SSSR. Since 1970, he has been Head of the Particle Physics Laboratory and of "Sidorov's Department" and since 1977, he has been Deputy Director of the Budker Nuclear Physics Institute in Novosibirsk established in 1957. He helped to develop the colliding beam technique. He has investigated quantum electrodynamics, fast-neutron spectrometry, vector mesons, multihadron annihilation, and colliding beams of electrons and positrons. He is an Honored Scientist of the former Soviet Union, and member of an editorial board of a scientific journal. Lenin Prize, 1967. (GSE 23, p. 437.)

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Field of interest: Thermonuclear Fusion, Plasma Physics, Advanced Accelerators

Structure of Budker Institute of Nuclear Physics:

The Budker Institute for Nuclear Physics (BINP) includes the scientific laboratories and design offices, the International Siberian Center of Synchrotron Radiation and the BINP Branch in Protvino. It has a powerful experimental workshop and other supplementary offices.

Such leading physicists of Russia as academicians L. M. Barkov, D. D. Ryutov, A. N. Skrinsky (skii) and B. V. Chirikov, the Corresponding Members of Russian Academy of Sciences V. E. Balakin, N. S. Dikansky (skii), G. I. Dimov, E. P. Krugliakov and V. A. Sidorov are working at the Institute.

The heart of the Institute is the Scientific Council (so called "Round Table"), which governs the Scientific and Manufacturing activity of the Institute. In addition, with the aim of attracting more researchers, especially younger members of the scientific staff, to an active participation in solving the current problems of the Institute, sections of the Scientific Council in the main directions of the Institute's interests were formed up.

Total amount of employees is 3200. It includes:

500 scientists and engineers-researchers,
400 engineers,

900 technicians and assistants,
900 workers and staff at the experimental workshop.

The Budker's History And Achievements

Elementary particles and nuclear physics
Theoretical physics
Accelerator physics and techniques
Plasma physics and thermonuclear fusion
Synchrotron radiation and free electron lasers
Collaborations with other institutions

The Budker Institute of Nuclear Physics of the Siberian Branch of the Russian Academy of Science was founded in 1958. It came from a laboratory for new methods of acceleration headed by G. I. Budker at the Institute of Atomic Energy at that time under I. V. Kurchatov.

Academician G. I. Budker was the founder and first Director of the Institute. From his death in 1977 to the present time, the Institute's Director has been Academician AN. Skrinsky (skii) . The "Round Table"-the Scientific Council of the Institute-governs the research and other activities of the Institute.

Staff: There are three thousand two hundred members of the Institute's staff. There are five hundred researchers, four hundred engineers, nine hundred technicians and workers, and nine hundred machinery shop personnel. Four researchers are full members and five are corresponding members of the Russian Academy of Science, while fifty are Doctors of Science and one hundred and sixty are candidates of Science.

New Status: In November 1994, the Russian Government granted the Institute the status of being a **State Scientific Center of the Russian Federation** with the title of "The G. I. Budker Institute of Nuclear Physics". This honor signifies the worldwide recognition of the Institute's research achievements.

Some of the main achievements of our Institute are given in the following list.

In the field of elementary particles and nuclear physics: We made the pioneering work in the development of the colliding beam method (being presently the main method in the high energy physics). We conducted the first electron-electron colliding beam experiments in the world in 1965; we made the first experiments in the world on the electron-positron interactions in 1967; we discovered the double bremsstrahlung process and made the pioneering work in two-photon physics. We performed a study of vector meson characteristics on the electron-positron colliders VEPP-2, VEPP-2M, and VEPP-4. In 1970 we discovered the phenomenon of multiple production of hadrons in electron-positron annihilation. From 1975 to 1985 we developed the resonant depolarization method for the precise measurements of masses of elementary particles, and attained the record accuracy in the measurements of the masses of the K-, rho-, omega-, phi-, psi- and upsilon-mesons. In 1978 we discovered effects of parity violation in atomic transitions, which was a confirmation of a unified theory of electroweak interaction. We developed a method for carrying out experiments on the super-thin internal targets at storage rings. We conducted a study of the electromagnetic structure of a deuteron in polarized beam experiments. We developed a method for producing intense fluxes of the marked gamma-quanta at high energy using inverse

Compton scattering. We developed new methods for detecting charged and neutral particles at high energies, We developed the following unique detectors for colliding beam facilities: OLYA, KMD-1, MD-1, KMD-2, ND, SND, KEDR. We developed X-ray detectors which permit medical diagnostics with super low doses of irradiation.

In the field of theoretical physics: We invented a qualitative chaos theory in classic mechanics and a pseudo chaos theory in quantum mechanics. We made the first calculation of beta-function in the Yang-Mills theory. We developed the QCD sum rule method. We predicted a large magnification of parity violating effects in the neutron resonance of heavy nuclei. We developed a theory of exclusive reactions in QCD. We formulated an operational approach to quantum electrodynamics in external fields. We developed quantum electrodynamics in periodical structures including laser waves. We developed the theory of radiation effects for high energy charged particles and photons passing through oriented monocrystals. We obtained an evolution equation in QCD theory for the distribution of partons over energies (BFKL-equation) We predicted a coherent effect in the gluon irradiation in QCD and studied its influence on hadron distributions.

In the field of accelerator physics and technology: We have thirty years of experience in producing storage rings and devices with colliding beams. From 1965 through 1990 we invented, tested, and developed the method of "electron cooling" for beams of heavy particles. This method is used presently in all high energy physics laboratories throughout the world. We invented and developed novel, powerful FF-generators including the Gyrocon, the relativistic klystron, and the magnicon. From 1968 to 1992 we invented and developed the method of linear electron-positron colliding beams which aims at producing super high energies; At Protvino in the Moscow region we established the INP Branch to accomplish the VLEPP project; at present, the Branch activity focuses on finishing the most critical portions of the project. We developed components and power supply sources for strong field pulse magnetic optics systems used presently in various laboratories. We invented and tested (1960-1964) the charge exchange injection method used presently at all large proton accelerators. We made theoretical and experimental studies of the stochastic instability and "collision effects" which limit the luminosity of colliding beam facilities. We developed the physical concept of the so-called "electron-positron factories"- a new generation of electron-positron colliders with very high luminosity. We developed and produced powerful electron accelerators of low energy for various technological applications including environmental protection problems.

In the field of plasma physics and thermonuclear fusion: We invented mirror for plasma confinement and for the development of thermonuclear reactors. We discovered collisionless shock waves in plasma. We invented and developed new types of mirrors: the multi-mirror, the rotational plasma mirror, the ambipolar mirror and the gas dynamic mirror. We developed the highly intense sources of surface-plasma with negative ions. These source are widely used through out the world. We designed a powerful thermonuclear source of neutrons for the solid state studies.

In the field of synchrotron radiation and free electron lasers: We use synchrotron radiation of the INP storage rings for various research and technological purposes. At present, the Siberian International Center of Synchrotron Radiation was established and functions within the INP. We make theoretical and experimental studies of particles in periodic structures (undulators,

wigglers, crystals). We develop and fabricate dedicated sources of synchrotron radiation. We develop and produce one- and two coordinate detectors for experiments with synchrotron radiation. We invented and developed the optical klystron, for obtaining the generation of coherent radiation ranging from the infra-red to the ultra-violet region of the spectrum. We are developing the most promising approach to the generation of a powerful free electron laser for photochemical studies and other technological applications such as the energy transfer from the Earth to satellites in space.

The Institute is involved in mutually beneficial collaborations with many laboratories and industrial enterprises: over one hundred experimental groups from various research Institutions of Russia and many other countries use our facilities; we are closely related to and actively collaborate with the European Center for Nuclear Research CERN, National Laboratories and Universities of the USA, Germany, France, Japan, the Netherlands, Finland, Sweden; at present, we perform contract work on the development of novel research apparatus for large foreign laboratories; we carry out mutual design and industrial work with many Russian enterprises which have novel technologies - especially with AU ZVI (Moscow); over one hundred and twenty of our powerful electron accelerators are operating at various technological centers in Russia, Ukraine, Belorussia, Germany, Japan, China, Poland, Czech Republic, Hungary, Romania, South Korea, Italy, India. The Institute is a reliable partner in carrying out joint research and developments in the field of physics and has a good reputation in the world as a supplier of high technological equipment for research and industrial purposes.

We have not escaped the problems encountered presently by Russian science. However, despite this fact, we remain one of the largest Russian physics centers with an indisputably high reputation in the world scientific community.

Powerful accelerators for industrial applications

One of the basic principles of research activity at the Budker INP is the fruitful combining of the fundamental and applied investigations. Using the results of the fundamental investigations, various types of accelerators applicable to the national economy have been developed at the Institute. At present, two types of industrial accelerators are manufactured: ILU and ELV. They are applied to different fields of the national economy for the radiation treatment of polyethylene cable insulation to improve heat resistance, radiation modification of heat-shrinkable tubes, radiation desinsectization of grain, the treatment of sewage, etc. The accelerators designed and manufactured at the Budker INP are successfully used in a lot of other countries.

Accelerators Physics

The Budker Institute of Nuclear Physics is one of the inventors of the colliding beam method which provides the major part of fundamental information in high energy physics. The theory of quantum electrodynamics was validated on the first installation VEP-1 (2 x 160 MeV) down to distances of 6×10^{-14} cm (in 1965). Using the first-in-the-world experimental installation VEPP-2 (2 X 670 MeV) with colliding electron - positron beams, the main characteristics of rho- and phi-mesons were obtained (1967).

Now there are two working colliding beams installations at the Budker INP:

VEPP-2M,
VEPP4.

Elementary Particle Physics at the Budker INP

Several detectors for the experiments in High Energy Physics are working now or being under construction:

CMD-2 - Cryogenic Magnetic Detector
SND - Spherical Neutral Detector
KEDR - universal magnetic detector for Upsilon Physics

Electrophotonuclear Physics at the Budker INP

The Budker Institute of Nuclear Physics was first to perform the experiments on scattering the accelerated electrons over a superthin nuclear target inside the storage ring. This technique is advantageous as compared with the traditional experimental technique with an extracted beam.

In addition, a back scattering of laser photons on an intense electron beam from the storage ring (various modifications of the ROKK facility) provides a sufficiently intense beam of polarized gamma-quanta with controllable energy for setting up a wide range of experiments in the field of photo nuclear physics.

Here one can see some details about the working installations in this field at the Budker INP:

Deuteron - superthin target,
ROKK-1M - back scattered Compton quanta.

Synchrotron Radiation and Free Electron Lasers at the Budker INP

The Colliding beam installations of the Budker Institute of Nuclear Physics are the source of the so called synchrotron radiation which possesses a majority of unique peculiarities, such as continuous spectrum from the infrared region to the X-ray one, low angular divergence, high intensity, etc. This made it feasible to use the synchrotron radiation in physics, chemistry, biology, materials technology, and to solve the applied problems in microelectronics, geology and medicine.

The VEPP-2M, VEPP-3, and VEPP-4 storage rings have become the basis of organizing the International Siberian Center of Synchrotron Radiation, where more than a hundred groups from different countries perform the research work. The synchrotron radiation (SR) is applied to precision spectroscopy, X-ray photography, and X-ray fluorescence elementary analysis. For the Russian Research Center "Kurchatov Institute", the "Siberia-1" and "Siberia-2" storage rings being the specialized and more effective SR sources have been developed at the Institute.

In recent years, an interest has been aroused throughout the world, to a new type source of coherent radiation - Free Electron Lasers (FEL). At the Institute, a version of a FEL was proposed in 1977 - the optical klystron (OK). The advantages of OK are recognized world wide. After the installation of the OK at the VEPP-3 the OKs were installed at the electron storage ring ACO (Orsay, France) and on the beam of

recyclotron at the Stanford University (SLAC, USA). Work with OK is being performed at VEPP-3 with the specially designed device "BYPASS".

Detectors for medical applications

Studies aimed to meet the needs of medicine take an important part in the Institute's activity. This work is focused on the use of radiation technology, development of digital radiography for medical diagnostics and construction of the "TRAPP" accelerator intended for cancer therapy with proton beams. In particular, a digital radiographic scanning installation using a multiwire proportional chamber has been developed. This enables us to reduce the exposure dose by a factor of 30-100 per shot. The first installation of this type has been successfully operating since 1984 at the Russian Center for Mother-and-Child Health Protection (Moscow). **Secondly, the Angiography station was presented at the Budker INP. Our institute has also the Siberian Synhrotron Radiation Center (SSRC).** The Angiography station is working with Synhrotron Radiation (SR) from VEPP-3 storage ring. The main component of the station are the double-beam X-ray monochromator, the object scanner and the double one-coordinate X-ray detector ("Medical detector"). On the Angiography station some medical studies may be carried out: angiography, limphography, computer tomography and mammography. These are very important studies of human body.

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Colliding Beams
Accelerators for Applications
Elementary Particle Physics
Plasma Physics
Automation

"Colliding Beams"

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35. Siberian Synchrotron Radiation Center under the Budker Institute of Nuclear Physics

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Introduction
Stations on the VEPP-3 storage ring
Status
Staff of SSRC
Other SR facilities in the world

If you have some questions or comment, please contact to Maksim V. Kuzin , E-Mail kuzin@inp.nsk.su

The Siberian Center for Synchrotron Radiation was established in the 1990s by the Siberian Department of the Russian Academy of Sciences as an international center for SR research. Over 100 international research groups are involved in the fundamental studies in physics, chemistry, catalysis, biology, material sciences, and on the development of new technologies for the solution of applied problems in microelectronics, medicine, and geology being undertaken in the center. The Director of the center is Dr. G. Kulipanov, and it is located in Akademgorodok-Novosibirsk. The center is involved in studies on SR generation and utilization with British scientists, SR sources, and industrial electron accelerators with scientists from India, and studies on the fundamental properties of matter with scientists from the United States. The industrial INP accelerators developed at the institute have been used in applications ranging from the radiation disinsectization of grain to sewage treatment, in modification of heat-shrinkable tubes and artificial leather. The proton beams from these accelerators are also used in cancer treatments.

(Older material on the Budker)

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Phase Changes Theory Department: Head Aleksandr Z. Papashinskii, since '69; (*Institute of Nuclear Physics, Novosibirsk: Siberian Division of the AN SSSR, 72 PP.*) Also see: *Novosibirsk Science Center of the Siberian Division of the USSR Academy of Sciences. Novosibirsk: Vieshtorgizdat No. 1702H, 1987. 154 pp. In Russian and English. pp. 36-40.*

Detectors for medical applications

Studies aimed to meet the needs of medicine take an important part in the Institute's activity. This work is focused on the use of radiation technology, development of digital radiography for medical diagnostics and construction of the "TRAPP" accelerator intended for cancer therapy with proton beams. In particular, a digital radiographic scanning installation using a multiwire proportional chamber has been developed. This enables us to reduce the exposure dose by a factor of 30-100 per shot. The first installation of this type has been successfully operating since 1984 at the Russian Center for Mother-and-Child Health Protection (Moscow). **Secondly, the Angiography station was presented at the Budker INP. Our institute has also the Siberian Synhrotron Radiation Center (SSRC).** The Angiography station is working with Synhrotron Radiation (SR) from VEPP-3 storage ring. The main component of the station are the double-beam X-ray monochromator, the object scanner and the double one-coordinate X-ray detector ("Medical detector"). On the Angiography station some medical studies may be carried out: angiography, limphography, computer tomography and mammography. These are very important studies of human body.



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36. Mining Institute in Novosibirsk.

Kurlenia, Mikhail V. D. Tech. S. Born in 1931. Engineer. Specialist in mining mechanics. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department and of the Siberian Department since December 1987, and academician since 1990. He has written 24 scientific works and co-authored 105 others. He has 95 inventions and of his scientific writings, seven are major monographs--all on aspects of mining. He graduated from the Tomsk Polytechnical Institute Imeni S. M. Kirov in 1953 and worked there until 1960. In 1960, he joined the Mining Institute of the Siberian Department in Novosibirsk where, in turn, he was a senior researcher, head of a laboratory and a Department, and in 1988, he was named Director of that institute. He became a member of the Presidium in that year. He has been a professor since 1986. He has supervised the work of two doctoral and 16 candidate aspirants. He edits a mining journal.

Established in 1944 as the Mining Geological Institute as part of the West-Siberian Branch of the AN SSSR. It took its present name in 1957 when the Siberian Division of the AN SSSR was founded. The Mining Institute was the first "academic science" institute in Siberia and is the largest research mining institute in Siberia and in the Far East. In 1991, the Mining Institute was comprised of some 28 laboratories, a design office, experimental electromechanical workshops and departments in Krasnoiarsk and Novokuznetsk. In 1983, the Coal Institute of the Siberian

Department was set up from personnel from the Mining Institute in the city of Kemerovo. The Mining Institute in Novosibirsk in 1991 had a total of 290 research professionals, of whom 25 held doctorates and 110 held candidates degrees. Other personnel in the institute included 139 supporting professionals, 172 technicians, and 41 nonprofessionals. Total personnel amounted to some 642 persons. Its principal fields of research are in rock mechanics, soil mechanics, the mechanics of free flowing bulk materials, mining geophysics, underground and open mining of mineral resources and their processing, ecology, mining and construction machinery engineering. Initially the institute was staffed by specialists from Moscow, Tomsk, Kemerovo and Leningrad. Currently young researchers from the Novosibirsk University, the ElectroTechnical Institute and others send personnel to the institute. In 1990 some 54 post graduates attended courses at the institute with 10 working to defend their theses. The institute has two councils to preside over the defense for doctoral and candidate theses in five specialties each year. Since 1980, the institute has produced 30 doctoral degree and 110 candidate degree holders.

Scientific Personnel: Director Mikhail V. Kurlenia, corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department and the Siberian Department of the Russian Academy of Sciences has been Director of the institute since December 1987. (E. I. Shemiakin, D. Tech. S., was the Director of the Institute from 1975 to 1987); Scientific Secretary of the institute: Oleg B. Kortilev, D. Tech. S., since 1991. Academician Secretary is Oleg B. Kortelev, D. Tech. S.

(Information provided by letter dated 21 November 1991 from M. V. Kurlenya, Director of the Mining Institute. 44-page Brochure entitled, *Mining Institute. Novosibirsk: USSR Academy of Sciences, Siberian Division, 1990, 44 pages.*)



37. Solid-State Chemistry and Mineral Processing Institute in Novosibirsk.

Boldirev, Vladimir V., D. Chem. S. Born in 1927. Inorganic Chemist. Specialist in the field of Solid State and Kinetic Heterogeneous Reactions. Academician since 1990 of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy. He pioneered in the classification of physical reactions of solids. He graduated from the Tomsk State University in 1948 and joined its faculty. From 1958 to 1963 he held the chair of radiation chemistry at the Tomsk Polytechnical Institute. From 1964 to 1975, he worked at the Chemical Kinetics and Combustion Institute in Akademgorodok, heading the Laboratory of Chemical Kinetic Reactions in the Solid State. In 1967, he was named Deputy Director of that institute, and in 1975 he became its Director. In 1976, he became director of the Physico-Chemical Institute's Foundation for the Recasting of Mineral Raw Materials. He has been a professor since 1963, holding the; chair of Solid State Chemistry at the Novosibirsk State University. Since 1971, he has chaired the Scientific Council on the problems of solid state chemistry of the Siberian Branch. From 1976 to 1988, he was head editor for the chemical series scientific journal *Izvestia* of the Siberian Department of the SSSR. He has authored 78 scientific works, co-authored another 450, been credited with 95 inventions and holds eight patents.

Established in 1944 as the Chemical Metallurgical Institute. It researches powder and extractive metallurgy, ore enrichment, foundry technology, and the development of new techniques for the synthesis of inorganic materials. Synthesis of a wide range

of new materials such as nitrides, oxides and others are being developed at the institute. It was formerly called the Physical Chemical Principles of Processing Mineral Raw Materials Institute. The detoxification of industrial sewage, and the extraction of metals from diluted solutions using well drained porous electrodes has been developed. Experimentation on the extraction of valuable components from underground water, of noble metals from hydrochemical solutions, and the use of industrial wastes for the production of new construction materials are ongoing. Synthesis of a wide range of new materials such as nitrides, oxides and others are being developed at the institute. Director: Boldirev, Vladimir V. , D. Chem. S., since 1977. Academician Secretary is Rakhmatilla K. Tukhtaev, C. Chem. S.



38. Biological Institute in Novosibirsk.

Evsikov, Vadim I. Corresponding member of the General Biology Department of the Academy in 1993. Since 1980, he has been the Director of the Biology Institute in Akademgordok-Novosibirsk, which dates back to 1944. In 1958 the institute was transferred to the newly created Siberian department. On the national level scientists at the institute participate in the USSR insect census. They are also concerned with public health and the productivity of crops and animals in the region.

The Institute was founded in 1944 and, thus, is one of the oldest of the biological institutes of the Siberian Branch of the Russian Academy of Sciences. The staff of the institute numbered 314 persons in 1991, of whom 118 were research scientists--9 of whom held doctoral degrees, 66 candidate degrees, and 32 research fellows without advanced scientific degrees.

Structure and Scientific Personnel: Director Dr. Vadim I. Evsikov, D. Bio. S., since 1980; Deputy Directors for Science: Dr. Mikhail P. Moshkin, Dr. Bio. S., and, Dr. Anatolii Iurii Kharitonov, Dr. Bio. S.; Deputy Director for General Questions: Mikhail T. Khriakov, and Scientific Secretary: Dr. Sofia V. Skorova, D. Bio. S. The institute has nine laboratories and five scientific thematic research groups.

- (1.) **The Zoological Museum** is under Viacheslav G. Mordkovitch, Dr. Bio. S., and has full "laboratory status." Dr. Mordkovitch graduated from the institute in 1964 and became Head of the museum in 1987. His major interests are in the evaluation of zoological diversity. The institute is charged with the creation of the zoological collection of Siberia, and ranks second only to the Zoological Institute of the Russian Academy in Moscow. The collections hold more than a million card-indexed specimens.
- (2.) **The Laboratory of Zoological Monitoring** under Dr. Iurii S. Ravkin, D. Bio. S., is responsible for developing methods of animal monitoring, studying the distribution of populations of representative zoological groups, and the estimation of their numbers of their sustainability in their habitats in West Siberia. Population numbers for various species are computerized and available through the main computer center of the Siberian Branch in Novosibirsk. Dr. Ravkin received his degree from the institute in 1960 and has worked at the institute since 1963. He is a specialist in ecologic zoogeography.
- (3.) **The Laboratory of Animal Protection and Rational Use of Zoological Resources** under Vasili I. Faleev, C. Bio. S., studies the influence of natural and

anthropogenic factors on mammalian population variabilities and describes their evolutionary regularities.

- (4.) **The Laboratory of Population Ecology and Animal Genetics** under Dr. Vadim I. Evsikov, D. Bio. S., studies the genetical-physiological mechanisms of mammalian reproduction as factors responsible for evolutionary-determined hereditary variability. Studies of the water vole population from 1979 to 1989 were conducted with good results. Dr. Evsikov, Director of the institute is also Head of this laboratory. He graduated from the institute in 1958, began working at the institute in 1978, and became Director in 1980. His principal scientific interests are in the genetic evolutionary aspects of problems in relation to the fecundity homeostasis of mammals.
- (5.) **The Laboratory of Ecological Prediction** is under Dr. Mikhail P. Moshkin, D. Bio. S., who graduated from the institute in 1970 and joined the staff of the institute in 1972. His interest is on the role of stress in the maintenance of the mammalian population homeostasis.
- (6.) **The Laboratory of Insect Ecology** is under Anatoli Iurii Kharitonov, C. Bio. S., who graduated from the institute in 1972 and joined the staff in 1979. His work in general zoogeography, systematics and Odonata ecology. The laboratory focuses its work on regulatory mechanism responsible for the population densities of economically important insect species. Chemical treatment perniciously influences the insect community and the methods of insect structural renewal are of theoretical and practical interest.
- (7.) **The Laboratory of Microbiology** is under Vasili M Sharapov, C. Bio. S., and deals with the development of microbiological methods of plant protection.
- (8.) **The Laboratory of Virology** is under the direction of Gennadii V. Larionov, C. Bio. S., who graduated from the institute in 1960 and joined the staff in 1970. His principal interest is in the development and use of viral preparations in forest protection.
- (9.) **The Laboratory of Cytology and Apomixis of Plants** is under Viktor A. Sokolov, C. Bio. S., who graduated from the institute in 1967 and joined the institute in 1987. His main interest is in the genetic control of heterosis.

The five Thematic Research Groups are:

- (1.) Bird Ecology is led by Aleksandr K. Yurlov, graduate of the institute in 1975 and on the staff since 1977--his specialization is the population ecology of birds.
- (2.) Ichthyology and Hydrobiology is led by Vladimir A. Sukhachev, C. Bio. S., a 1976 graduate of the institute who joined the staff in 1983 and whose principal interest is in the ecology of fish and water invertebrates.
- (3.) Biotechnics is led by Vladimir A. Shilo, C. Bio. S., a 1969 graduate of the institute who joined the staff in 1974 and whose interest is in the development of systems for the rational use of nature.
- (4.) Helminthology is led by Konstantin P. Fedorov, C. Bio. S., a 1953 institute graduate who joined the staff in 1966 and whose work is principally in the population ecology of helminths.
- (5.) Automation of Ecological Investigations is led by Romashov, Nikolai.

Other distinguished research scientists at the institute include: V. I. Baranovskii, who graduated from the institute in 1967 and joined the staff in 1972, and whose interest is in the development and use of viral preparations in forest protection; A. V. Barkalov whose work in systematics and faunistics of dipterans is well-known; Professor Bugrov, a 1980 graduate of the institute who joined the staff in 1982 and whose specialty is the cytogenetics of orthopterans; L. I. Burtzeva, a 1959 graduate of the institute who joined the staff in 1985 and whose work is in the selection of entomopathogenic microorganisms; L. I. Galkina, a 1954 graduate of the institute

who joined the staff in 1961 and whose work has concentrated on morphology, paleontology, and rodents' fauna; L. A. Gerlonskaia (aya) who graduated in 1973 and who joined the staff in 1979 specializing in the variability of animals on stress reaction and its adaptive role; V. D. Gulyaev, a graduate of 1971 who joined the staff in 1985 and who studies evolution morphology and the systematics of cestodes; V. Dubatolov, who graduated from the institute in 1980 and who joined the staff in 1982, and whose work is in systematics, faunistics of Lepidoptera, and faunistics of Coleoptera; Professor Solotarenko, a 1951 graduate of the institute who joined the staff in 1961 and whose specialities include systematics, faunistics and the ecology of Lapidoptera; T. K. Kalvisch, a 1957 graduate of the institute who joined the staff in 1962, and who specializes in microbial plant protection methods; M. I. Reznikova, who graduated from the institute in 1972 and joined the staff in 1976 and whose work in communication, behavioral ontogenesis, and population structures of social insects; Professor Romashov, a 1972 graduate who joined staff in 1979 to assist in the development of technologies of investigations, and, N. I. Yurlova, a 1973 graduate of the institute who joined the staff in 1976 and who is a specialist in the population ecology of heminths.

The institute maintains a number of field stations in different parts of West Siberia. Works at:

the field station at the Chany Lake deals with the ichthyology, hydrobiology, ecology and protection of water-associated vertebrates and invertebrates.

the Karasuk station, situated in a transitional zone between the steppe and forest steppe landscapes of Kulunda, conducts studies on the organization of living collections of mammals and birds, basing the work on the ecology and reproduction of captured animals.

the Cherga station in the foothills of the Altai deals with the fauna and ecology of small mammals as well as with parasitology and protection of ungulates.

The institute has a specialized scientific council for defense of the Ph. D. degree at the institute that is headed by Professor Anatolii Iurii Kharitonov. Academician Secretary is Sof'ia V. Skorova, C. Bio. S.

(Information provided in an undated letter--probably in January 1992--that included information on institute scientists, and a small brochure in English: Biological Institute: Reference Book. Novosibirsk: Siberian Branch of the USSR Academy of Sciences, 1990, 32 PP.) (See: Ruble, Vol. I., p. 276.)



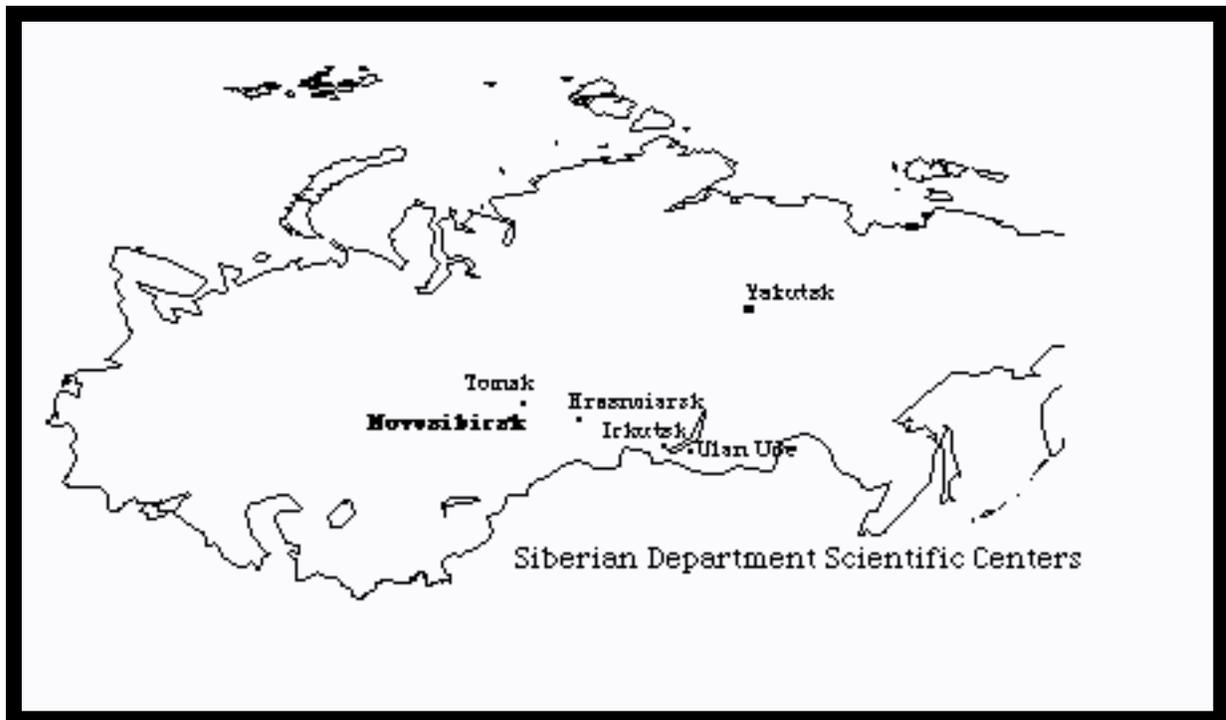
39. Soil Science and Agrochemistry Institute in Novosibirsk.

Established in 1968. It was founded from personnel from the Department of Soil Science of the Institute of Biology. Researches soil genesis, agrochemistry, microbiology, and geochemistry. Its scientists work on the problem of increasing soil fertility. It does soil mapping. The institute maintains stations in Novosibirsk, Kemerovo, Tomsk regions and in the Gorno-Altai Autonomous Region, in the Buriat Soviet Autonomous Republic, and it operates a Soil Evaluation Laboratory in Tomsk. Director J. M. Gadgiyev. Academician Secretary is Natal'ia A. Tikhomirova, C. Bio. S. (See: Ruble, Vol. I., p. 278.)

40. The State Public Scientific Library in Novosibirsk was originally organized in 1958 from the USSR Ministry of Higher Education State Scientific Library in Moscow, that had been established in 1918 in Moscow. In 1961-1963, it was

transferred to Novosibirsk. In 1987, its collections numbered some 12 million volumes, covering all scientific fields, various technical documents and patents, and a unique collection of manuscripts and early printed books. The library grows at a rate of some 300 to 400 thousand books a year that includes some 40 thousand foreign publications. Scientific Technical literature translations are done at the request of organizations, institutes, and individual readers. Director: B. S. Elepov, C. PM. S. Academician Secretary is Irina A. Guzner, C. Info. S.

Scientific Centers of the Siberian Department



The Scientific Centers of the Russian Academy of Sciences are in the early phase of attaining departmental status. In each of them an administrative unit is given the responsibility for coordinating research, obtaining money, and recruiting the scientists needed to perform the research missions of the increasing number of research institutes being developed under the Centers' administrative authority. From 1944 to 1957 there was a "Western Siberian Branch or Center", and from 1949 to 1957 an "Eastern Siberian Branch or Center." Both of these became departments of the newly-established Siberian Branch of the AN SSSR and evolved into the Far Eastern Center (now the Far Eastern Department) and the Urals Center (now the Urals Department). It may be expected in the future that the centers listed below may someday reach department status.

Buryat Research Center

Republic Buryatia, the capital of which is Ulan-Ude, occupies a mountainous area east of Lake Baikal, known as Transbaikalia (its area is 351 thousand sq.km, its population 1049 thousand people). Four fifth of its territory is covered with forest. Mining industry, production and processing of non-ferrous metals and non-metallic

minerals, machine-building, air-craft, woodworking, pulp-and paper, food and consumer goods industries, as well as agriculture, fishery, fox and mink farms are the main sources of economy of Buryatia.

The Buryat Research Centre (BRC) of RAS SB includes:

An open-air museum

Buryat Institute of Social Sciences

Buryat Institute of Natural Sciences

Buryat Institute of Biology

Baikal Institute of Environmental Management

Buryat Institute of Geology

Department of the Problems of Strength and Reliability

RAAS SB

Buryat Research Institute of Agriculture

Higher Education:

Branch of Novosibirsk State University
and other 4 institutes

Buriat (Buryat) Scientific Center in Ulan Ude--presently under Vasilii T. Naidakov, D. PM. S. was founded in 1966. From 1966 to 1969, the center was under the Chairmanship of O. V. Makeev, D. GM. S., and from 1969 to 1975 under V. R. Filinnov, D. Vet. S. In 1975, corresponding member of the AN SSSR M. V. Mokhosoev was made Director. In addition to the institutes that are described below, the branch maintains a Department for Social-Economic Studies. In 1992, the personnel of the center's institutes had a total of 1251 persons of whom 489 were scientific researchers and of whom 32 hold doctorates and 235 held the candidate of science degrees. In 1992, Larisa D. Bazarova, C. Geo. S. was Scientific Secretary of the center.



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The Social Sciences Institute (1966) in Ulan-Ude traces its beginnings back to the early 1920s with the organization of the Buriat Mongol Scholarly Committee whose Director was B. B. Baradin. The Buriat Mongol State Institute of Culture was founded on the basis of the works of this committee in 1929 and local history museums of Ulan-Ude and Kiakhta were made part of that institute. In 1944, following the addition of a sector on economics and the Botanical Garden the institute was renamed the Buriat Mongol Scientific Research Institute of Culture and Economics. From 1949 to 1958 the institute was headed by P. T. Khaptaev, P. I. Khadalov, and Ts. B. Tsydendambaev. In 1958, the institute became part of a Buriat Interdisciplinary Scientific Research Institute headed by D. D. Lubsanov. In 1966, with the establishment of the Buriat Affiliate of the Siberian Branch, the present institute was established and D. D. Lubsanov was made its Director. Since 1980, the Director has been Kuz'ma A. Nikiforov, D. Tech. S.

Structure of the institute: the institute is organized into six departments:
history,
ethnography and archeology;
philosophy and sociology;
literary study, folklore, and art studies;
oriental studies;
linguistics, and relics of oriental written languages.

The staff numbers 230 persons of whom 89 are scientific researchers and of whom two held doctorates and 56 held candidate degrees. The institute maintains relations with institutes of the Mongolian Academy of Sciences and with Jilin University in China. Its archives hold some 8, 000 manuscripts and xylographs that include rare Tibetan and Mongolian collections. Its library collection holds over 125, 000 volumes and it publishes Trudy. Academician Secretary is Susana S. Palitsina, C. Chem. S. (See: Ruble, Vol. I., p. 409, also see: Vol. III, p. 114.)

(1997 update)

History of Institute

Buryat Social Sciences Institute (1966) traces its beginnings back to 1922, July with the organization of the first buryat science establishment - Buryat Scholarly Committee (headed by B. B. Baradin), its objectives being - study the history, language and culture of the peoples of Buryatia.

In May 1929 it was reorganized in the Buryat-Mongolian State Institute of Culture, including sectors on the history, linguistics, art and productive forces, science library and a museum (headed by I. P. Khabaev). In 1936 it became the Buryat-Mongolian State Institute of Language, Literature and History and in 1943, added with the sector of economy and the Botanical Garden, it was renamed into the

Buryat-Mongolian Scientific Research Institute of Culture and Economy. After transmission of the sector of economy to the Eastern-Siberian Branch of the USSR Academy of Sciences in November 1949, it became the Buryat-Mongolian Scientific Research Institute of Culture (below as BMSRIC). From 1936 throughout 1958 the Institute was headed successively by G.Ts.Belgaev, B.S.Sanzhiev, M. P. Shulukshin, P. T. Khaptaev, P. I. Khadalov, Ts. B. Tsydendambaev.

In 1958 on the base of BMSRIC, the Buryat Interdisciplinary Scientific Research Institute of the Siberian Division of the USSR Academy of Sciences was established, it consisted of departments of humanities and natural sciences. In 1966 it was reorganized into the Buryat Affiliate of the Siberian Division, which included two institutes - of Social Sciences and Natural Sciences. In 1958-1980 D. D. Lubsanov was Director of the Institute. Since 1980 prof. V. Ts. Naidakov, D. Sc. (Philology) is Director.

The main science trends are:

regularities of social-economic and politic developments of the peoples of Buryat Republic and of Siberia;

interdisciplinary historical investigation of Buryatia since ancient times;

comparative-historical studies of the past and modern situation of public ideas, culture, language, art of mongolian peoples from Russia, Mongolia and China;

buddhism and culture interaction of the Central Asia peoples.



42. Buryat Institute of Natural Sciences, SB RAS, Ulan-Ude.

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The Buriat Institute of Natural Sciences in Ulan Ude was established in 1966 to study the synthesis of new materials, the processing of raw materials from Buriatia mineral deposits, and to study radio physics, and radio geophysics. The staff of the institute totaled some 133 persons of whom 91 were researchers and of whom 12 held the doctorate and 50 the candidate degree. Director: Vasilii Ts. Naidakov, D. PM. S. Academician Secretary is Aleksandr S. Aharganov, C. PM. S.

(1997 update)

History of the Institute

The Buryat Institute of Natural Sciences of the Siberian Department, of the Russian Academy of Sciences was established in 1966.

The following branches are parts of the Institute: radiophysics, coal-chemical and polymer synthesis, biology, soil science and agrochemistry, indotibetan medicine and geology. In 1972 the geological research formed an independent Institute. In 1981 the Biology Institute was formed. Since 1981 the Institute is being developed in the main research frame work mentioned above.



43. Buryat Geological Institute, SB RAS, Ulan-Ude.

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The Geology Institute in Ulan Ude was established in 1973 to study the development, structure and material composition of the Earth's crust, the disposition of the most important mineral resources in the territory of pre-Baikalia and trans-Baikalia, the development of prospecting methods, and geological mapping of the region and its resources. In 1992, the institute had a total of 219 persons on its staff, of whom 97 were scientific researchers and of whom 10 held the doctorate and 42 the candidate degree. Director: Eduard G. Konnikov, D. GM. S. has been replaced by Anatolii G. Mironov. Academician Secretary is Nina G. Karmanova, C. GM. S.

(1997 update)

History of Institute

The Geology department was founded as a part of Buriat complex scientific Institute (BCAI) in 1958. Then BCSi was transformed in Buryat Department of Siberian Division of the USSR Academy of Sciences. The Buryat Geological Institute of Siberian Branch of Russian Academy of Sciences was established in April 1973 on the base of the Geology department.

The first director of the Institute was F. P. Krendelev. In 1980 noted scientist professor N. L. Dobretsov (now is the academism) was assigned as a director, then E. G. Konnikov - from 1989 up to 1985 and A. G. Mironov - from 1995 up to now.

(Dobretsov, Nikolai L., D. GM. S. Born in 1936. Corresponding member since 1984, and academician of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the RAN and of the Siberian Department since December 1987. He graduated from the G. V. Plekhanov Mining Institute in St. Petersburg in 1957. He worked in the geological field party on the Altai Geological Expedition of 1957-1960. He joined the Geology and Geophysics Institute of the Siberian Department in 1960, working in the Metamorphic Formation Laboratory from 1972 to 1980. From 1971-72 he worked in the chemistry laboratory of the Tectonics and Geophysics Institute of the National Academy. From 1980 to 1988, he served as Director of the Geology Institute of the Buriat Scientific Center in Ulan Ude that was established in 1973. Since 1988, he has been the chairman of the Ulan Ude Scientific Center. In 1988, he was named Director of the Institute of Geology and Geophysics of the Siberian Branch of the National Academy. He has been designated a professor since 1972. He has chaired the commission on metamorphosis and metamorphogeny of mineral deposits and head of the Petrography Committee of the national academy. Following the untimely death of Dr. Koptuyug in January of 1997, Dobretsov was elected President of the Siberian Branch of the Russian Academy of Sciences.)

(1997 update)

Major scientific research of BGI CD RAS is:

Study of structure, history of development and matter composition of earth crust on territory of Buryatia and Chita region by geological, geophysical and geochemical methods.

Study of conditions of formations and regularities of location of the most valuable mineral raw materials deposits in there regions.

Prospecting methods of mineral deposits, geological mapping and substance analysis.

Seismology and seismoprognois of Baikal rift.

Ecology and radioecology of natural water and deposits.

Numeral and experimental modelling of natural processes.

The most important projects is:

Genesis end evolution of high-metals (about 0,1 m) solutions, which are forming rich big-skail ore deposit.

Genesis of rare-earth mineralization in in endogenous carbonaceous and carbon-bearing rocks of regional crush zone.

Genesis of syenite magmas from the anorogenic granitoid series (A-type granitoids).

Petrogenetic model of the low sulphide platinum mineralization.

Paleontology of small mammals from Transbaikalia and Pribaikalia.



44. Buryat Institute of Biology, SB RAS, Ulan-Ude.

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The Biology Institute in Ulan Ude was founded in 1981 to study the biological resources of the Trans-Baikal region, investigate biologically active substances and the medicinal benefits of oriental medicine. In 1992 there were 206 persons on the staff of this institute of whom 111 were research scientists and of whom four held the doctorate and 57 the candidate degree. Director is Vladimir M. Korsunov, D. Bio. S. Academician Secretary is Grigorii M. Ivanov, C. Bio. S.

History of Institute

The Buryat Institute of Biology SD RAS was established in 1981 on the base of the Department of Biology of the Buryat Branch of the SD RAS. Eduard Leonardovich Klimashevsky, corresponding member of the All-Union Academy of Agricultural Sciences Named after V. I. Lenin, D. Sc. (Biology), was appointed the first director of the Institute.

Our Institute is engaged in research on significant problems of ecology, soil studies, agrochemistry, zoology, parasitology, forest studies, microbiology, and Tibetan medicine.

(1997 update)

The main directions of scientific activity of the BIB SD RAS:

Research of biological resources of Zabaikalye and elaboration of methods for their protection and rational use.

Development of techniques (technologies) for the conservation of biological diversity in the Baikal region.

Study of the Tibetan medicine heritage and elaboration of medicinal preparation on its basis.

The most important projects, implemented with the BIB SD RAS staff participation:

Development of principles of cartography, zoning, and documentation of soils of Zabaikalye, and evaluation of their ecological functions.

Evaluation of plant resources of Zabaikalye, their use and protection.

Fauna and ecology of terrestrial vertebrates and invertebrates of Zabaikalye.

Organic matter and humus of agrolandscapes of Zabaikalye.

Estimation of the state and monitoring of biological diversity of the Baikal region.

Chemical and pharmaceutical study of species of medicinal raw material with good prospects, development of methods of control and technologies for obtaining phytopreparations.

(Academician I. Yu. Koropachinsky as the project coordinator)

[**Koropachinskii, Igor Iu.** D. Bio. S. Born in 1928. Biologist and Dendrologist. Corresponding member of the General Biology Department of the Russian Academy of Sciences and of the Siberian Department since December 1987, and academician since 1992. He has authored and co-authored 85 scientific works of which 12 are important monographs. He graduated from the Siberian Forestry Technology Institute in 1951. He was an aspirant, assistant, docent, and held the chair in Forest Culture at that institute. He was a senior researcher at the V. N. Sukachev Forestry and Timber Institute (in Krasnoyarsk) from 1960 to 1962. From 1962 to 1976, he was Deputy Directory of that institute and from 1977 to 1983, he was Director of that institute. In 1983 he was named the Director of the Central Siberian Botanical Garden in Novosibirsk that was started in 1958 in order to exchange seeds and plants with other botanical gardens in Russia and abroad to enrich Siberian flora. He has been a professor at the Siberian Technological Institute since 1982 where he has guided the work of 13 aspirants for the candidate degree. He is deputy chairman of the Scientific Council on the environmental problems.]

(Prof. V. M. Korsunov as the project manager)

Information resources

The Buryat Institute of Biology SD RAS has elaborations on principles of cartography of soils, agroecological and agrochemical foundations of soil melioration in Zabaikalye, ways of improvement of eroded soils by organics; plant resources; fauna and ecology of wildlife of Zabaikalye; microbiological synthesis of low-

molecular components of nuclein acids; composition of medicinal preparation on the base of Tibetan formulas.

Information resources, information-data system and data base of the BIB SD RAS are being worked out.



45. Baikal Institute for Nature Management, SB RAS, Ulan-Ude.

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The Baikal Institute for the Rational Use of Nature in Ulan Ude under Arnol'd K. Tulokhonov. In 1992, there were 89 persons in this institute of whom 53 were scientists and of whom two held the doctorate and 21 the candidate degree. Academician Secretary is Tat'iana I. Nikolaeva, C. Bio. S.

(1997 update)

History of the Institute

Baikal Institute for Nature Management, SB RAS was founded according to the Decree of the Prezidium of Siberian Branch the Academy of Science of USSR, signed on 27 March, 1991, on the basis of Baikal Department of Nature Use Problems and the Department of Socio-Economic Researches of the Buryat Scientific Center SB AS USSR combined.

According to the Decree of the Buryat Republic Government in 1995 the Institute was identified as a host institution for the coordination and scientific provision of the issues, related to ecology, nature resources management and international cooperation within the Republic of Buryatia.

Main fields of scientific activities of Baikal Institute for Nature Management SB RAS:

Monitoring and prognosis of natural and anthropogenic changes of the nature environment;

Socio-economical monitoring;

Economical problems of nature use;

Ecological cartography;
Regional economics;

Environmental education;

Social ecology and health;

Indigenous (nomadic) cattle-breeding;

International cooperation in the field of nature resources management and sustainable development.

Basic research work of BINS SB RAS:

Synthesis and new material investigation on the basis of inorganic compounds, nitrogen containing cycloliner and spatial polymers.

Development of scientific basis for the complex processing of mineral raw of Buryatia deposits.

Study of electromagnetic wave process in heterogeneous media (such as atmosphere, earth's crust, complex division boundaries).

Research in the field of radiophysical methods of functional diagnostics and correction methods of physiological state of biological objects.

Federal objective programs being fulfilled by the BINS SD RAS:

Protection guarantee and rational nature use of the lake Baikal basin.

Seismoprevention of Buryatia. Electromagnetic monitoring of seismotectonic processes.

Regional program: Science and Technology: Buryatia 1996-97.



46. The Department of Problems of Stability and Reliability in Ulan Ude under Aleksandr A. Oksogoev, C. Tech. S. The staff totaled 64 persons of whom 18 were scientific researchers and of whom five held the candidate degree.



Irkutsk Scientific Center 664000.

Siberian Branch of Russian Academy of Sciences, Novosibirsk

Irkutsk Research Center

WWW: <http://www.icc.ru/>

The Irkutsk Region is situated in the south of East Siberia (its area is 768 thousand sq.km., and the population 2847 thousand people). Forest occupying 75 per cent of its territory, hydro-energy, large deposits of oil, salts, and Irkutsk Lake Baikal are its main natural resources. The library of Irkutsk State University

The Irkutsk Region is known for the Angara cascade of giant hydro-power plants, pulp-and-paper and aluminium plants, for chemical, aircraft and machine-building industries.

The Irkutsk Research Centre

(IRC) of RAS SB includes:

Limnological Institute Baikal Ecological Museum

Siberian Institute of Plant Physiology and Biochemistry

Irkutsk Institute of Organic Chemistry

Institute of Geography

Vinogradov Institute of Geochemistry

Institute of the Earth's Crust

Institute of Solar-Terrestrial Physics

Melentiev Siberian Energy Institute

Irkutsk Computing Center

RAAS SB

Irkutsk Research Institute of Agriculture

East-Siberian Affiliated Branch of RAMS SB includes:

Institute of Surgery

Institute of Epidemiology and Microbiology

Institute of Traumatology and Orthopedics

Institute of Pediatrics
Institute of Industrial Hygiene and
Occupational Diseases (Angarsk)

Higher Education:

Irkutsk State University
and 6 other institutes

In 1992, the Scientific Secretary of the center was Larisa D. Bazarova, C. Geol. S. The Irkutsk Eastern Siberian Branch was organized in 1949. In 1992, the Russian Academy officially recognized it as the Irkutsk Scientific Center. The total personnel of the center was 5254 persons of whom 1696 were research scientists and of whom 129 held the doctorate and 845 the candidate degree. Three academicians and nine corresponding members of the Russian Academy of Sciences worked in institutes of the center. The Center has under its jurisdiction 13 major scientific units including independent research institutes, one department of a Novosibirsk institute, and a widespread Pilot Plant for the collection of scientific information at astrophysical observatories, geographic stations, and seismic stations. Institute scientists work closely with the higher educational institution, the industrial scientific research centers, and the design institutes in the region. The Institute of Economics and Industrial Engineering in Novosibirsk maintains a Department of Regional Economics and Deployment of Productive Forces of Eastern Siberia in Irkutsk for the purpose of developing approaches to and methods of building long range regional development programs, particularly in areas such as Angara-Yenisei, the Baikal-Amur Railway, the Irkutsk, Bratsk-Ust-Ilimsk, and the Verkhne-Lensk Territorial Production Complexes, and other regional productive formations in East Siberia. Chairman: Zherebtsov, Geli A., Deputy Chairman: Saliaev, Rurik K. ,

Zherebtsov, Geli A., D. PM. S. Born in 1938. Atmospheric Physicist. Specialist in atmospheric physics, solar-terrestrial radiation physics. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the AN SSSR from 1990. Author of eight scientific works and co-author of 130. Director of the Terrestrial Magnetism, Ionosphere, and Radio Wave Propagation Institute in Irkutsk. He was on the Scientific Council on widespread radiation and "Sun--Earth" of the AN SSSR; head of the Scientific Council on Cosmic-physical Research of the Siberian Department of the academy, and on the Coordinating Committee of the Ministry of the Radio Industry of the Soviet Union. In 1990, the Siberian Department of the Russian Academy of Sciences established the Siberian Center of Solar-Terrestrial Physics in Siberia--a new international research center that combined the work of scientists in two major institutes: the Terrestrial Magnetism, Ionosphere and Radio Wave Propagation Institute in Irkutsk and the Institute of Cosmophysical Research and Aeronomy in Yakutsk in the establishment of this new international thrust. As Director of the Siberian Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation, Dr. Zherebetsov will play a large role in the development of this new international research center.

(1996 update)

Irkutsk Scientific Center of the Siberian Branch of the RAS

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6:56PM 8/18/96 Fedor Babanine (webmaster@icc.ru)



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Academician
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[**Logachev, Nikolai A.**, D. GM. S. Born in 1929. Geologist. Specialist in studies of the Geology of the Continental Shelf. Corresponding member since 1979, and academician of the Geology, Geophysics, and Geochemistry Department and of the Siberian Department since 1984. He graduated from the Irkutsk State University in 1952. He began work upon graduation at the Eastern Siberian Branch Geology Institute that became the Earth's Crust Institute. In 1976 he was named Director of that institute that was established in 1949 and is subordinate to the academy's Siberian Department. Research at the institute includes geology, geophysics, and seismology. Since 1977, he has served as chairman of the Irkutsk Scientific Center. He was named to the Presidium of the Siberian Branch of the Academy in 1980. He has been a member of the American Geophysical Society since 1984. He was a delegate to the 26th National Congress. Winner--with others--of the 1978 State Prize in Science and Technology for "The History of the Development of the Relief of Siberia and the Far East" 15 Vols. In 1988, he received the Soviet Ministerial Prize. He has also received other medals and recognitions for his work in scientific research. (1964-76).]

The Earth's Crust Institute in Irkutsk was established in 1949 and under Dr. Zherebtsov's direction until replaced by Dr. Logachev in the 1990s.

Zherebtsov, Geli A., D. PM. S. Born in 1938. Atmospheric Physicist. Specialist in atmospheric physics, solar-terrestrial radiation physics. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy and of the Siberian Department since 1990. Author of eight scientific works and co-author of 130. Director of the Terrestrial Magnetism, Ionosphere, and Radio Wave Propagation Institute in Irkutsk. He was on the Scientific Council on widespread radiation and "Sun--Earth" of the AN SSSR; head of the Scientific Council on Cosmic-physical Research of the Siberian Department of the academy, and on the Coordinating Committee of the Ministry of the Radio Industry of the Soviet Union.

In 1990, the Siberian Department of the Russian Academy of Sciences established the Siberian Center of Solar-Terrestrial Physics in Siberia--a new international research center that combined the work of scientists in two major institutes: the Terrestrial Magnetism, Ionosphere and Radio Wave Propagation Institute in Irkutsk and the Institute of Cosmophysical Research and Aeronomy in Yakutsk in the establishment of this new international thrust. As Director of the Siberian Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation, Dr. Zherebetsov will play a large role in the development of this new international research center.

Institute scientists study the structure and geodynamics of the Earth's crust and the upper mantle of the basic geological structures of continents; the composition and formation laws of various geological formations and minerals, the seismic processes and forecasts of earthquakes, the role of water in geological processes, underground water, and the protection of the geological environment. Its scientists study the continental and rift zones of the Earth. Since 1977, Nikolai A., Logachev, D. PM. S., has been the Director of this institute. He was born in 1929. A Russian geologist, he has been an Academician since 1984. From 1980 to 1991, he served as Chairman of the East Siberian Scientific Affiliate. Personnel of the institute total some 675 persons of whom 204 are research scientists and of whom 23 hold the doctorate and 112 the candidate degree. One Academician and two corresponding members of the RAS serve on the staff. The institute includes 17 structural subdivisions, laboratories, and a network of 18 seismic stations. It also maintains a fleet of expedition vessels. Logachev was a winner--with others--of the 1978 State Prize for Science and Technology for "The History of the Development of the Relief of Siberia and the Far East" 15 Vols. (1964-76). The Scientific Secretary was Vladimir A. San'kov. . (Also see: Ruble, Vol. I., p. 256.)



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The Solar Physics Institute in Irkutsk is under corresponding member of the RAS Geli A. Zherebtsov.

The institute in Irkutsk was established in 1960 on the site of the magnetic observatory. Pioneers in its establishment were V. E. Stapanov, and member of the Turkmen Academy of Sciences N. M Erofeev. Its scientists study the physics of the Sun and

solar-terrestrial interactions, ionospheric propagation of radio waves, and investigate the Earth's electromagnetic field. The institute creates physical models of the ionosphere, studies the complex processes of the solar activity influence on the upper atmosphere. Studies on the Earth's electromagnetic field began in Irkutsk in 1886. In 1992, the personnel of the institute numbered 762 of whom 220 were research workers and of whom 16 held the doctorate and 93 the candidate degree. Three corresponding members of the RAS are on the staff. Its Director was recently elevated to the Chairmanship of the Irkutsk Scientific Center. Director: Zherebtsov, Gelli A., D. PM. S., since 1986. Academician Secretary is Vladimir I. Poliakov, C. PM. S. In June 1990, the Siberian Department established the regional Center for Solar-Terrestrial Physics in order to operate better within international programs and base it upon the former Siberian Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation in Irkutsk--now called the Solar Physics Institute. In this reorganization of research thrust, scientists from this institute have been joined by those of the Institute of Cosmophysical Research and Aeronomy in Yakutsk in joint research. A large number of other institutes of the Siberian Department are also doing research on related topics. The activities of this new center will be to participate in the international programs on "Solar-Terrestrial Energy Programme", "Flare Studies in the Current Maximum of Solar Activity," and in the international Geosphere-Biosphere Program projects such as STEP, INTERBALL and INTERMENT. Observation and data gathering bases include: Kotelny, Tiksi, Zhigansk, Yaakutsk, Norilsk, Zuii, Irkutsk, Patrony, Uzur, Lisivyanka, Tory, Mondy, and Badary. In 1989, personnel included: Director Zherebtsov, Geli A., C. PM. S., since '86; Deputy Directors: Mishin, Vilen M., C. PM. S., since '77; and, Smolkov, Gennadi Ia., since '77. Organization of the Institute was as follows:

Cosmic Ray Division;
Ionospheric Physics Division;
Aeronomy and Physics Laboratory;
High Frequency Radio Propagation Laboratory;
Incoherent Scatter Laboratory;
Inonspheric Dynamics Laboratory;
Magnetics Division;
Magnetic Instrumentation Laboratory;
Magneto-spheric Research Laboratory;
Telluric Currents Laboratory;
Solar Physics Division;
Astrophysical Equipment Laboratory;
Optics Department;
Astro-spectroscopy Laboratory;
Radio Astronomy Laboratory;
Solar Hydromagnetics Laboratory

(1996 update)

**Institute of Solar-Terrestrial Physics of the Siberian Division of the
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**All the members of the institute can be reached by this E-mail with notice
To: Addressee in the subject, if no e-mail specified.**

The Director of the Institute:

Gelii Alexandrovich Zherebtsov, Corresponding member of the Russian Acad. Sciences.

The main fields of research:

Solar physics and solar-terrestrial relationships; research on the Earth's magnetosphere and electromagnetic field; studies of the atmosphere, ionosphere and ionospheric propagation of radio waves.

List of laboratories

Radio Wave Propagation Division,
Middle and Upper Atmospheric Physics Division,
Solar Physics Division,
Magnetospheric and Interplanetary Medium Research Division,
Radio Astronomy Division.

Experimental research facilities:

Saian solar observatory,
Baikal astrophysical observatory,
Radio astrophysical observatory,
Magnetic observatory,
Baikal magneto-telluric station,
Norilsk integrated magneto-ionospheric station,
Integrated radio physical observatory,
Ionospheric observatory,
Radio physical atmospheric diagnostics observatory,
Cosmic-ray station.

At the said observatories, research is being done in the following areas:

Optical solar research, solar research in the radio range, recording of the Earth's magnetic field variations and absolute geomagnetic measurements, recording of telluric currents and short period geomagnetic field variations, ionospheric research by radio physical and optical methods, recording of cosmic-ray intensity variations, and upper atmospheric research by the radio wave incoherent scatter method.

The observatories are equipped with unique instruments:

Siberian solar radio telescope,
Large solar vacuum telescope,
Incoherent scatter radar,
Automated solar telescope,
Problem-oriented solar telescope,

Solar coronagraph,
Cosmic-ray spectrograph,
Complex of three chromospheric telescopes,
Complex of problem-oriented radio telescopes.

(1997 update)

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[Zherebtsov, Geli A., D. PM. S. Born in 1938. Atmospheric Physicist. Specialist in atmospheric physics, solar-terrestrial radiation physics. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy and of the Siberian Department since 1990. Author of eight scientific works and co-author of 130. Director of the Terrestrial Magnetism, Ionosphere, and Radio Wave Propagation Institute in Irkutsk. He was on the Scientific Council on widespread radiation and "Sun--Earth" of the AN SSSR; head of the Scientific Council on Cosmic-physical Research of the Siberian Department of the academy, and on the Coordinating Committee of the Ministry of the Radio Industry of the Soviet Union. In 1990, the Siberian Department of the Russian Academy of Sciences established the Siberian Center of Solar-Terrestrial Physics in Siberia--a new international research center that combined the work of scientists in two major institutes: the Terrestrial Magnetism, Ionosphere and Radio Wave Propagation Institute in Irkutsk and the Institute of Cosmophysical Research and Aeronomy in Yakutsk in the establishment of this new international thrust. As Director of the Siberian Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation, Dr. Zherebetsov will play a large role in the development of this new international research center.]]



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Organic Chemistry Institute in Irkutsk was established in the 1957 to study the elemento-organic compound chemistry of acetylene and its derivatives, the chemistry of high-molecular and nutral compounds.

Initially headed by Mikhail G. Voronkov, it is now headed by Boris A. Trofimov.

[**Trofimov, Boris A.**, D. Chem. S. Born in 1938. Chemist. Specialist in general chemistry and in hetero-atomic substances--such as acetylene. Corresponding member of the Academy and of the Siberian Department since 1990. Deputy Director of the Organic Chemistry Institute in Irkutsk. He has authored and co-authored some 397 scientific works. Four of his six monographs are considered to be important contributions. He has directed the postgraduate work of four doctoral students and of 45 aspirants for the candidate degree. He was on the Scientific Council on chemistry and technology of organic substances for the GKNT; on the coordinating committee of the Radio Industry Ministry of the SSSR; on the Scientific Council on the chemical sciences for the Siberian Department ; an inspector on the Committee for Dissertations for the candidate of science degree for the Irkutsk Institute of Organic Chemistry, and on the editorial boards of several major journals: "Sulphur Reports," "Sulphur Letters," and the Organic Chemistry Journal of the Russian Academy of Sciences.]

[**Voronkov, Mikhail G.**, D. Chem. S. Born in 1921 in Orel. Organic chemist. Corresponding member of the General and Technical Chemistry Department of the Russian Academy of Sciences and of the Siberian Department since 1970, and academician since 1989. He graduated from the University of Sverdlovsk in 1941. From 1944 to 1945 he worked at the Leningrad State University; from 1954 to 1961, at the Institute of Silicate Chemistry of the AN SSSR, and from 1961 to 1970, at the Institute of Organic Synthesis of the Latvian Academy of Sciences. Since 1970, he has been Director of the Organic Chemistry Institute at Irkutsk that was established in the 1950s to study polymer chemistry, synthetic fibers and silicon organic compounds. It is subordinate to the academy's Siberian Department. His work is in the areas of organo-silicate compounds and organic sulfur compounds. From 1973 to 1983, he headed the Eastern Affiliate of the Siberian Department. He is general Director of "Chemistry." He is a professor at the Irkutsk Polytechnical Institute. He has guided the work of 16 doctorate students and 90 aspirants for the candidate degree. He heads the Scientific Council on the problems of "Chemistry and Technology of Organic Compounds." He has written 50 scientific works that included two significant monographs, and has co-authored another 1000 among which there are 20 major monographs. He is credited with some 400 inventions and holds 300 patents. He received an honorary doctorate from the Gdansk Polytechnical Institute in 1975. He received the State Prize in 1981. He was named an Honored Scientist in 1983, and holds several medals honoring his scientific accomplishments. (GSE 5, p. 600.)]

The institute also conducts research in polymer chemistry, synthetic fibers and silicon organic compounds. In 1992, personnel in the institute numbered 580 of whom 331 were scientific researchers and of whom 19 held the doctorate and 148 the candidate degree. One Academician and one corresponding member of the Russian Academy were on the staff of the institute. The institute also has a Department of Woodpulp Chemistry. Director M. G. Voronkov, D. Chem. S. since 1970. corresponding member of the Russian academy. The Scientific Secretary was

Margarita L. Al'pert. In 1989, personnel included: Director Voronkov, Mikhail G., D. Chem. S., since '70; Scientific Secretary Mirskov, Rudolf G., since '72; High Pressure Laboratory: Head (Unknown); Micro-analytical Laboratory: Head (Unknown); Physical Chemistry Laboratory: Head (Unknown) .

(1996 update)

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One of the leading Russian schools of organic chemistry was formed based on the Irkutsk Institute of Organic Chemistry, Siberian Branch of the Russian Academy of Sciences (RAS). The Institute was founded in 1957 in the course of reorganizing the Siberian Branch of the Academy of Sciences of the USSR. To date the Irkutsk Institute of Organic Chemistry has been one of the leading institutes dealing with fundamental aspects of organic chemistry in the Eastern Region of Russia from Novosibirsk to Vladivostok. Industries concentrated over the territory of the Irkutsk Region are either completely based, or considerably dependent on, advances in organic chemistry. This gives rise to very serious ecological problems and the radical solution of these problems lies within a sphere also controlled by organic chemistry. The East-Siberian school of organic chemistry provides in essence the scientific basis for sustainable development of the Region.

The Irkutsk Institute of Organic Chemistry was created under the supervision of Professor M. F. Shostakovskiy (skii) , Corresponding Member of the Academy of Sciences of the USSR. He was a close disciple of Academician A. E. Favorsky (skii) , the founder of the large, world-renowned Russian school of organic chemists, first Director of the Institute of Organic Chemistry of the Academy of Sciences of the USSR, one of the creators of the State Institute of Applied Chemistry, flagship of Russian applied chemistry. The body of the Institute was formed by specialists of leading scientific institutions of Moscow and Leningrad, as well as by talented graduates from the Irkutsk State University where they undertook studies under the guidance of Professors V. A. Larina, A. V. Kalabina and P. F. Bochkarev. Very soon the Institute occupied leading positions in the chemistry of acetylene and its derivative, a traditional area of Favorsky (skii) 's school.

From 1970 to 1994, the Institute was headed by Academician M. G. Voronkov, a world-renowned scientist in the field of the organic chemistry of silicon and sulfur and a former Ph.D. Student of Academician Favorsky (skii) . M. G. Voronkov persisted in creating the East-Siberian school of organic chemistry and brought it into a number of world-recognized leaders in the field of chemistry of organic compounds of hypervalent silicon and sulfur. At that time he invited to the Institute a large group of specialists from Moscow, Leningrad, Riga and Gorky.

In 1994 Professor B. A. Trofimov, Corresponding Member of the RAS, was elected Director of the Institute. He is recognized throughout the world as a distinguished specialist in the field of the chemistry of acetylene, heterocyclic compounds, unsaturated compounds of sulfur, selenium, tellurium and phosphorus. He has offered a new and efficient approach to vinylation and ethynylation reactions carried out using of super base reagents and catalysts. A fresh contribution has been made

by him and his research team to the theory of reactions of electrophilic addition to unsaturated heteroatomic fragments. Adhering to the best traditions of the classic Russian chemical school of Academician A. E. Favorsky (skii), making use of its methodology and approaches and developing its main trends, the Institute now presents the most active and integral part of this school to the whole of Russia.

The Institute deals with basic and applied research in the following areas: chemistry of acetylene and its heteroatomic (oxygen, nitrogen, sulfur, phosphorus, selenium, tellurium, fluorine, etc.) derivatives including heterocycles; chemistry of organic compounds of silicon, germanium, tin; chemistry of wood and natural compounds of the Siberian flora; chemistry of macromolecular compounds. Over the last four decades, more than 50 scientists of the Institute, mainly graduates from the Irkutsk Higher Education Institutions, have been awarded the degree of Doctor of Sciences and 250 have obtained a Ph.D. degree.

Many well-known specialists in the fields of chemistry of silicon, organometallic compounds, acetylene and diacetylene and their derivatives (vinyl ethers and sulfides, acetylenic alcohols, N-vinyl derivatives of nitrogen heterocycles) such as Professors A. S. Atavin, N. V. Komarov, G. G. Skvortsova, N. A. Tyukavkina, V. A. Usov, A. N. Volkov, N. S. Vyazankin, S. V. Amosova, V. A. Babkin, E. N. Deryagina, E. S. Domnina, Iurii L. Frolov, N. K. Gusarova, N. A. Keiko, A. S. Medvedeva, A. N. Mirskova, R. G. Mirskov, V. A. Pestunovich, A. A. Semenov, have worked and continue to work at the Institute.

At present the main body of the school is represented by one Academician, one Corresponding Member of the Russian Academy of Sciences, 26 Doctors of Sciences and 143 Ph.D.

The staff of the Institute is about 400.

There are 24 laboratories and 4 research groups combined into departments based on the main trends of investigation, a high-pressure building, mechanical and electromechanical workshops and a pilot plant at the 'Ussolie KhimProm' Company. The chemistry of acetylene and its heteroatomic derivatives. This research unfolds the traditions and ideology of the distinguished classic Russian chemical school of Academician A. E. Favorsky (skii) (Moscow, St. Petersburg). Studies in this field are directed towards further development of the chemistry of triple and double carbon-carbon bonds and fundamental aspects of organic synthesis based thereon. Novel general reactions of acetylene and its derivatives leading to promising monomers and building blocks for fine organic synthesis have been found and elaborated: new general route to pyrroles and N-vinylpyrroles from ketoximes and acetylene and its synthetic equivalents (Trofimov's reaction); direct vinylation of sulfur, selenium, tellurium and phosphorus; metallation of N-vinylpyrroles by super basic reagents, synthesis of new functional pyrroles and annelated heterocyclic systems therefrom; one-step synthesis of vinyloxy-1,3-dienes from acetylene and water (hydration trimerization of acetylene), aldehydes or acetylenic alcohols; synthesis of the acetylenic hydroxycarboxylic acids esters by direct copper-palladium-catalyzed reaction of acetylenic alcohols with carbon monoxide; new reactions of esters and nitriles of acetylenic hydroxycarboxylic acids with nucleophilic reagents (new fundamental approaches to syntheses of polyfunctional unsaturated and heterocyclic compounds); eliminating vinylation of 1,2-diols and polyatomic alcohols (divinyl ether from ethyleneglycol, 1,2-divinyloxypropene from glycerol, etc.) Classical Favorsky (skii) reactions have been radically modified (based on fundamental studies of complex superbase

catalysts) and now they are being carried out without pressure at moderate temperatures: vinylation of alcohols, nitrogen heterocycles, thiols; ethynylation of aldehydes and ketones; acetylene-allene-1,3-dienic isomerization (synthesis of allenyl and 1,3-dienic ethers). A large series of investigations on the structure and acid-base properties of unsaturated ethers, sulfides, sulfoxides and pyrroles has been performed.

The chemistry of organic compounds of silicon, germanium, tin is being developed in the following directions: compounds of penta- and hexacoordinate silicon (silatranes, dragonoids, etc.); carbofunctional organosilicon compounds, adsorbents, ion-exchangers and complex-forming agents thereof; macrocyclic highly unsaturated silicon-containing hydrocarbons; organosilicon compounds for use in microelectronics; organosilicon heterocycles; chemistry of siloxanes and silanones; biologically active organosilicon compounds for use in medicine and agriculture; chemical reactions of elemental sulfur with arylhaloalkanes leading to thiophene or 1,2-dithiolene-3-thione derivatives (Voronkov's reaction). The following have also been studied: high temperature synthesis of organic compounds of sulfur, thermal reactions of thiyl and selenyl radicals; synthesis of organic phosphorus compounds from elemental phosphorus; unsaturated organic compounds of chlorine and fluorine; unsaturated compounds of sulfur, selenium, tellurium.

Chemistry of wood and natural compounds of the Siberian flora: bioactive compounds extracted from wild-growing plants are studied and, based on this research, new medicines for the treatment of chronic and difficult to cure diseases (antipsoriatic drugs, non-steroid agents for birth control, immunomodulators) are being examined; innovative processes for wood delignification, cellulose pulping which are based on a comprehensive utilization of wood raw material are being worked out. New technologies for the preparation of efficient medicines, vitamins, food additives, intermediates for use in drug manufacture (dehydroquercetin, arabinogalactan, vanilin, syraldehyde, polyphelan) are being developed.

In the field of macromolecular chemistry innovative effective methods for the synthesis of polymers possessing a number of technically valuable properties have been developed: water-soluble, hydrophilic and bioactive polymers; sulfur-containing aromatic (heteroaromatic) electro-conducting polymers and copolymers; vinylchloride and vinyl ether copolymers (new PVC-materials). Interpolymer interactions of polyelectrolytes in aqueous media (efficient methods of waste water purification) have been studied. Investigations in the chemistry of substituted acrylic systems are in progress. The fundamental research carried out at the Institute has laid the basis for further developments in the following fields: industrial organic synthesis, oil-, gas- and coal-processing (modification of the existing methods and introduction of innovative technologies); pharmaceutical industry (new medicines, modified methods for the preparation of known drugs and vitamins); wood chemistry (new approaches to comprehensive utilization of renewable feedstock); agricultural chemistry (ecologically benign pesticides, pesticide activators, growth regulators, products for use in animal farming); mining and enrichment industry (new flotations agents, adsorbents and metal extractants); building industry (new materials, sealants, putties, binders); perfumery, vitamin and food industries (technology for manufacturing fragrance and flavor compounds, intermediates for vitamins A and E, food additives and food preserving agents); metal treatment (lubricant-coolants and quenchers); energetics and ecology (ecologically friendly fuel from low-grade coals, low pollutant gasoline of increased efficiency, ion-exchange resins for water cleansing, adsorbents for industrial wastes and decontamination in the case of emergency spillage of oil products); electronics and

electrical engineering (semiconductors, photoconductors, insulating compounds, lacquers, adhesives, resists); advanced materials and innovative technologies (silver-free photosensitive materials, recording media, components for ceramics, highly strong, super hard and heat-resistant materials).

Innovative technologies for the preparation of a number of original products with no analogues elsewhere in the world, such as ethylene glycol vinylglycidyl ether ('vinylox'), tetrahydroindole and N-vinyltetrahydroindole, divinylsulfide, vinyloxyethylmetacrylate, pentaerythrol tetravinyl ether, 2- vinyloxymethyl-1,3-dioxolane, glycerol trivinyl ether, 1,2- divinylxypropene, methyl ester of 4-hydroxy-4-methyl-2-penta-1-carboxylic acid and potassium N-[2-(vinyloxy)ethyl]-dithiocarbamate (pesticide 'Vinditat') have been developed at the Institute.

Over 30 monographs by the Institute's scientists have been published. Annually about 100 papers and 15 reviews are published in leading foreign and Russian journals. The total number of inventions (Inventor's Certificates and patents) is over 1,500.

The Institute fruitfully cooperates with universities, institutes, companies and organizations in the USA, Germany, France, the Netherlands, Belgium, Denmark, Israel, Japan, Korea and Mongolia. At present collaborative research with foreign scientists becomes a first priority in the Institute's policy. Under the conditions of reform being currently carried out in this country, the Institute should retain its scientific potential and high level research in traditional fields. Following the inevitable cutting down of the staff, retainment of the main body (doctors of sciences and potential Ph.D.) with simultaneous formation of a youth 'wing' of talented graduates and post-graduates from the Irkutsk State University is of vital importance for the Institute. The prospects for the development of the Irkutsk Institute of Organic Chemistry are linked with further basic research in the fields of chemistry of hypervalent organosilicon compounds and of acetylene derivatives - unsaturated (including heterocyclic) compounds of oxygen, nitrogen, sulfur, selenium, tellurium, phosphorus, silicon, lithium, sodium and potassium. The research will be carried out with the emphasis on novel methods of synthesis, reactions and rearrangements. Even more attention will be given to theoretical aspects, new types of chemical bonds, unusual molecular structures and the reactivity of unstable intermediate species (ions, radicals, radical ions, carbenes with unsaturated fragments and heterocycles). The applied aspect of basic research is supposed to be directed towards the most important problems to be solved in the East-Siberian Region - development of optimal and less hazardous technologies for oil-, gas- and coal-processing, comprehensive utilization of wood, synthesis and extraction of drugs and other valuable products from natural resources, solution of ecological problems, especially in the Baikal Lake area.

6:09PM 8/17/96 Fedor Babanine (webmaster@icc.ru)



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[**Vorob'ev (Vorobev) (Vorobiev), Vladimir V. D.** Geog. S. Born in 1929. Geographer. Specialist in the field of economic geography. Corresponding member since 1981, and academician of the Oceanology, Atmospheric Sciences and Geography Department since 1992. He graduated from the Moscow State University in 1952. From 1952 to 1955, he worked in the Eastern Branch of the AN SSSR. From 1955 to 1958, he was an aspirant there. In 1958 he began work at the Geography Institute of the Siberian Branch in the Far East as a junior and then a senior researcher, and eventually headed a sector of the institute. From 1967 to 1976, he was its Deputy Director and in 1977, he became Director of the institute. He has been a professor at the Irkutsk State University since 1977. He became editor of the journal Geography and Natural Resources in 1980. In 1981, he was named to head the Scientific Council on the difficulties of the assimilation of the Taiga.]

The institute was established in 1957 and in 1992 had some 286 scientists of whom 121 are research scientists and of whom 15 hold the doctorate and 63 the candidate degree. There is one Academician on the staff. The institute is comprised of 14 laboratories. The institute maintains the Altai Laboratory of Ecology and Rational Management of Nature that develops environmental protection measures for the Altai territory and adjacent regions and studies land reclamation and water redistribution. Structure and Scientific Personnel: Director Vorob'ev, Vladimir V., D. Geog. S., since 1978; Deputy Directors: Snytko, Valerian A., Professor and D. Geo. S. since 1991, and, Misevich, Korney N., D. Geo. S., since 1991; Scientific Secretary Dudenko, Sergei V., C. Geo. S., since 1991.

Glaciology Laboratory under Vladimir R. Alekseev, D. Geo. S., since 1991;
Geomorphology Laboratory under Aleksandr V. Pozdniakov, D. Geo. S., since 1991;
Complex Physical-Geographical Problems Laboratory;
Methods of Space Research Laboratory under Valerii S. Mikheev, D. Geo. S., since 1991;
Geography of Soils and Landscapes Geochemistry Laboratory under Valerian A. Snytko, D. Geo. S., since 1991;
Hydrology Laboratory under Aleksandr N. Antipov, C. Geo. S., since 1991;
Biogeography Laboratory under Aleksei V. Belov, C. Geo. S., since 1991;
Regional Use of Nature Laboratory under Bairon M. Ishmuratov, D. Geo. S., since 1991;
Population Geography Laboratory: Korney N. Misevich, D. Geo. S., since 1991;
Economic-Geographic Problems Laboratory under Iurii S. Nikulnikov, C. Geo. S., since 1991;
Natural Resources Laboratory under Leonid M. Korytny, C. Geo. S., since 1991;
Medical Geography Laboratory under Sergei V. Ryashchenko, C. Med. S., since 1991;
Regional Climatology Laboratory under Vitold V. Bufal, C. Geo. S., since 1991, and,
Cartography Laboratory under Aleksandr R. Batuyev, C. Geo. S. since 1991.

The institute publishes *Geography and Natural Resources* quarterly. The Scientific Secretary was Ekaterinburg P. Bessolitsina. (**Information provided by letter dated 23 October 1991 from Vladimir V. Vorobev, Director of the Geography Institute in Irkutsk.**)



51. A. P. Vinogradov Institute of Geochemistry, SB RAS, Irkutsk.

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Corr.-member of RAS

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[**Kuz'min (Kuzmin), Mikhail I.**, D. GM. S. Born in 1938. Geochemist. Director of the Geochemistry Institute imen A. V. Vinogradov. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy and of the Siberian Department since 1990. He is the author of 11 scientific works of which one is a monograph of importance. He has co-authored 140 pieces of which eight are lengthy monographs of which two bear mentioning: "New Global Tectonics, Magmatism and Metallogeny" (1976) and "The Tectonics of the Lithosphere's Plate in the Territory of the Soviet Union" (1990.) In his research he has conducted comparative studies of the geochemistry of magmatic ocean rocks. He has headed expeditions for collecting samples for study from the Atlantic, Indian, and Pacific Oceans. He is a member of a working group on "Paleoreconstruction." He is also on the Russian Committee on the "Lithosphere" program and the program on "Geodynamics," and others. (LDA 89-11378.)]

The institute was established in 1958 by A. P. Vinogradov who was its founding Director. From 1960 to 1989, the institute was headed by Academician L. V. Tauson. Since 1989 it has been headed by Dr. M. I. Kuz'min. In 1992, institute personnel totaled 362 persons of whom 115 were research scientists and of whom 15 held the doctorate and 63 the candidate degree. Institute scientists research in the physical mathematical modeling of geochemical processes and the institute manufactures helium for use in cryogenic research. The institute is comprised of two departments:

Department of Applied Geochemistry headed by Dr. Pavel V. Koval;

Department of Single Crystals Physics headed by Professor Aleksandr I. Nepomnyaschikh; an X-Ray Analysis Group chaired by G. G. Afonina, and a Computer Processing Group that processes geochemical data and is headed by Valerii I. Lozhkin.

Research is conducted in eleven laboratories:

- (1.) **Isotope Geochemistry Laboratory:** Dr. Mikhail I. Kuzmin, D. GM. S., since 1989;
- (2.) **Granite Formation and Granitoid Magmatism Laboratory:** Professor Valerii D. Kozlov;
- (3.) **Pegmatite Geochemistry Laboratory:** Professor Boris M. Shmakin;
- (4.) **Physical-Chemical Modeling Laboratory:** Professor Igor K. Karpov;
- (5.) **Experimental Geochemistry Laboratory:** Aleksandr I. Almukhamedov;
- (6.) **Regional Geochemistry Laboratory:** Dr. Viktor S. Antipin;

- (7.) **Basic and Ultrabasic Rocks Geochemistry Laboratory:** Dr. Oleg M. Glazunov;
 (8.) **Alkaline Rocks Geochemistry Laboratory:** Dr. Aleksandr E. Vorontsov;
 (9.) **X-Ray Analysis Laboratory:** Professor Valerii P. Afanin;
 (10.) **Optic Spectral Analysis and Reference Samples Laboratory:** Dr. Lev I. Petrov;
 (11.) **Chemical Analysis Laboratory:** Dr. Viktor D. Tsykhanskii.
 (Information provided by letter dated 4 November 1991 from Dr. M. I. Kuzmin, Director of the Geochemistry Institute.)



52. Siberian Energetics Institute imeni L. A. Melent'eva in Irkutsk was created in 1960 by Academician L. A. Melentiev.

Merenkov, Anatolii P., D. PM. S. Born in 1936. Mathematician. Specialist in mathematical modeling, optimization and systems research in energetics. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy and of the Siberian Department since 1990. He is the Director of the Siberian Energetics Institute of the Siberian Department of the RAN located in Irkutsk. He is the author of 10 scientific works of which one is a major monograph on linear programming methodology. He has co-authored another 80 works of which six were monographic in nature. He has advanced the theory and method for estimating and optimizing the synthesis of the hydraulic chain. His work is in the direction of the decisive development or evolution of a synthesis of scientific-technical disciplines of a universal mathematical and automated system of research, planning, and remote control, for the functioning of heat, water, oil and gas supplies and other hydraulic systems. He is a leader in the development of mathematical modeling that has had practical applications in the economy. As a professor at the Irkutsk State University he has guided the work of 112 aspirants for the candidate degree. He is on the scientific council of the RAN on complex problems of energetics, on the scientific councils for mathematics, informatics, and for the mechanics, energetics and mining sciences of the Siberian Department of the RAN. He is on the review board for the doctorate of science degree for the Siberian Energetics Institute and for the Irkutsk Computer Center and is on the Presidium of the Irkutsk Scientific Center.

Its scientists research and develop the electrification of Siberia, including power generation and transmission. Its studies include the power complex of the whole country and its large regions, the integrated electric power and gas supplying systems, the coal, oil and heat supplying systems and their components, as well as the country's water economy. In 1992, there were 562 persons on the staff of this institutes of whom 235 were scientific researchers and of these 128 held the doctorate and 101 held the candidate degree. Director: Merenkov, A. P., D. PM. S., since 1989. Academician Secretary is Georgii G. Lachkov, C. Tech. S.

(1996 update)

Siberian Energy Institute of the Siberian Division of the Russian Academy of Sciences

(1997 update)

(Melentiev Siberian Energy Institute, SB RAS, Irkutsk.)

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Siberian Energy Institute named after L. A. Melentiev in 1995

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All the members of the institute can be reached by this E-mail with notice
To: Addressee in the subject, if no e-mail specified.

[**Merenkov, Anatolii P.**, D. PM. S. Born in 1936. Mathematician. Specialist in mathematical modeling, optimization and systems research in energetics. Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy and of the Siberian Department since 1990. He is the Director of the Siberian Energetics Institute of the Siberian Department of the RAN located in Irkutsk. He is the author of 10 scientific works of which one is a major monograph on linear programming methodology. He has co-authored another 80 works of which six were monographic in nature. He has advanced the theory and method for estimating and optimizing the synthesis of the hydraulic chain. His work is in the direction of the decisive development or evolution of a synthesis of scientific-technical disciplines of a universal mathematical and automated system of research, planning, and remote control, for the functioning of heat, water, oil and gas supplies and other hydraulic systems. He is a leader in the development of mathematical modeling that has had practical applications in the economy. As a professor at the Irkutsk State University he has guided the work of 112 aspirants for the candidate degree. He is on the scientific council of the RAN on complex problems of energetics, on the scientific councils for mathematics, informatics, and for the mechanics, energetics and mining sciences of the Siberian Department of the RAN. He is on the review board for the doctorate of science degree for the Siberian Energetics Institute and for the Irkutsk Computer Center and is on the Presidium of the Irkutsk Scientific Center.]

The institute owes its creation to the idea of comprehensive study of energy and to Academician Lev A. Melentiev, a prominent scientist in the energy field.

The Siberian Energy Institute was established in August, 1960 within the Siberian Branch of the USSR Academy of Sciences. L. A. Melentiev, its first Director, succeeded in attracting the best graduates of institutes and collaborators of different organizations from Moscow, Leningrad (St. Petersburg), Novosibirsk and Irkutsk who formed the scientific core of the Institute. The atmosphere of democratism,

publicity and collectivism was typical of the Institute from the very beginning. Later on it was called "a spirit of SEI".

For the past 35 years the following known schools in different areas of the energy science have emerged and evolved at the Institute. They are theory and methods for systems studies in energy; interactions and interrelations between the economy and energy; control of operation and development of electric power systems; mathematical modeling and optimization of heat water, oil and gas-supplying systems; optimization of flow charts and parameters of thermal power plants; methods for control of reliability, survivability and safety of energy systems; regional problems of the fuel and energy complex; optimization methods and their applications. Tens of doctors and professors who work in different towns of Russia, CIS and abroad defended their theses at SEI.

At present the general scientific direction of SEI studies is stated as "Scientific grounds of sustainable energy development and operation in Russia and Siberia" as applied to new socio-economic conditions and requirements of the transition period in the economy and energy of Russia and the world. The Institute is engaged in analyses and forecasts of the main trends in energy development of the world, Russia, Siberia; energy programs of different levels; concepts and general schemes for development of the fuel and energy complex industries; new information technologies for studies and control of the energy sector; problems in creation of interregional and international systems of fuel and energy supply.

SEI has extensive international contacts with different institutions of the European countries and CIS, Japan, China, the USA and is in fact a center of energy studies in both Russia and the Asian-Pacific region.

Despite the difficulties of the transition period the Institute keeps its scientific and methodological potential and is ready to solve complex, sectoral and regional problems in transformation and further development of the fuel and energy complex.

Professor Anatolii P. Merenkov
Director of SEI

INFORMATION ABOUT SCIENTIFIC DEPARTMENTS:

Department of Technological Progress in Energy (Dept.10)

Head of Department - Professor Lev S. Belyaev

Laboratory 11 "Perspective Energy Sources and Systems"

Head of Laboratory - Professor Lev. S. Belyaev
Staff - 8 including 1 professor and 4 doctors

Laboratory 12 "Thermodynamics and Forecasting of Energy Technologies"

Head of Laboratory - Professor Boris M. Kaganovich
Staff - 10 including 1 professor and 3 doctors

Division 13 "Perspective Methods of High-Temperature Energy Conversion"

Head of Division - Dr. Vladimir M. Zubtsov
Staff - 4 including 1 doctor

Key scientific problems:

Systems studies in energy under new socio-economic conditions. Methods for substantiation and taking decisions under information uncertainty and multi-objectiveness. Comprehensive substantiation of the efficiency of energy objects. Development of the equilibrium dynamics on the base of mathematical programming, impact of emissions from energy plants on the biosphere, analysis of perspective energy technologies on fossil fuels on the models. Study of directions in the world energy development, formation of the interstate interconnections, regional problems in the electric utility industry. Directions in nuclear energy development in the country and its regions, development of hydro power, potential role of space energy systems, problems in the closed-cycle MHD conversion of energy. General problems of control on the base of the homeostatic approach.

The collaborators of the department (Iurii M. Gorsky (skii), Lev N. Volkov) are at the Head of the International Workshop on Homeostatics of the World Association of Systems and Cybernetics. The Department is the main executive of works on the project "Methodological grounds, principles and conditions of formation of a world energy system" which is under way in 1993-1995 with support of the Russian Foundation of Fundamental Researches.

Department of Studies on Energy and Economy Interrelations (Dept. 20)

Head of Department - Professor Iurii D. Kononov

Laboratory 21 "Energy and Economy Problems"

Head of Laboratory - Professor Iurii D. Kononov
Staff - 13 including 1 professor and 3 doctors

Laboratory 22 "Problems and Trends in Energy Consumption"

Head of Laboratory - Professor Elena A. Medvedeva
Staff - 4 including 1 professor

Key scientific problems:

Scientific principles of price, investment and export policies in the fuel and energy complex at a transition to the market economy.

Methods for evaluation of macroeconomic, social and environmental impacts of different strategies of the national energy development.

Study on the energy consumption trends, long-term forecasting of demand for energy resources considering the clusters of technologies, standard of living and price indicators.

Methods for study on the inertia and financial-economic constraints on the growth rate of fuel and energy resources.

The Department participates in large-scale international projects:

EURO Project - the project of the European Community on adaptation of the energy and economic models created at the West to Russia and their improvement

Environmentally Compatible Energy Strategies (ECS) Project - the project of the International Institute for Applied Systems Analysis (Austria)

Department of Survivability and Safety of the Fuel and Energy

Complex and Energy Systems (Dept. 30)

Scientific Leader of Department - Professor Leonid D. Krivorutsky (skii) ,
Professor Nikolai I. Voropai

Division 31 "Energy Risk Problems"

Head of Division - Dr. Valerii V. Lesnykh
Staff - 5 including 1 doctor

Laboratory 32 "Energy Safety"

Head of Laboratory - Dr. Mikhail B. Cheltsov
Staff - 10 including 1 professor and 2 doctors

Laboratory 33 "Survivability and Technical Safety of
Energy Systems"

Head of laboratory - Dr. Sergei M. Senderov
Staff - 8 including 3 doctors

Division 34 "Tools for Support of Energy Studies"

Head of Division - Professor Ludmila V. Massel
Staff - 5 including 1 professor

Division 35 "Forecasting of Natural and Climatic Processes"

Head of Division - Professor Anatolii P. Reznikov
Staff - 3 including 1 professor and 1 doctor

Key scientific problems:

Integral risk estimation of energy technologies, plants and systems.

Simulation of critical situations and determination of possibilities of the fuel and energy complex for the most complete provision of consumers with energy resources in different conditions of operation.

Study and substantiation of rational strategies in development of the fuel and energy complex considering survivability and energy safety.

Estimation of environmental safety of energy objects.

Study on the efficiency of insurance and other methods for compensating losses due to emergencies of potentially dangerous energy objects.

Long-term forecasting of natural and climatic processes.

Development and creation of new information technologies to study the fuel and energy complex with regard to survivability and safety.

The Department was founded by Academician Iurii N. Rudenko who was at its Head for a long time and was guiding the energy reliability studies. The Department participates in development of the comprehensive program on energy safety of Russia and its regions which includes technical, economic, legal and institutional aspects.

Department of Electric Power Systems (Dept. 40)

Head of Department - Professor Nikolai I. Voropai

Laboratory 41 "Problems in Development of Electric Power Systems"

Head of Laboratory - Dr. Viktor V. Trufanov
Staff - 12 including 6 doctors

Laboratory 42 "Reliability of Bulk Electric Power Systems"

Head of Laboratory - Dr. Aleksei E. Ushakov
Staff - 12 including 1 professor and 3 doctors

Laboratory 43 "Problems in Control of Electric Power System Operation"

Head of Laboratory - Professor Aleksandr Z. Gamm
Staff - 16 including 2 professors and 5 doctors

Laboratory 44 "Study on Dynamic Properties of Bulk Electric Power Systems"

Head of Laboratory - Professor Nikolai I. Voropai
Staff - 12 including 1 professor and 1 doctor

Special design office "Electric Instrument Engineering"

Head of SDO - Dr. Nikolai A. Chernyshev
Staff - 14 including 1 doctor

Department performs studies on the following directions:

Theory, mathematical models and methods to control development and operation of local, regional, interconnected, state and interstate electric power systems.

Scientific and methodological principles of the system of computerized design, computerized systems of dispatching control, computerized systems of scientific research in the electric utility industry and their implementation on the base of advanced software and information technologies.

Concepts and alternative scenarios of the long-term development of electric utility industry of Russia and its regions, trends and regularities of its development considering the economic, social, environmental and other factors.

Potentialities, efficiency and problems of creation and operation of the interstate interconnections, the euro-asian and world electric power systems.

The Department cooperates with many federal, regional and local organizations dealing with electric power. Some theoretical works of the Department are supported by the Russian Foundation of Fundamental Researches. The Department has stable links with many foreign institutions in Germany, Great Britain and the USA, actively participates in the work of CIGRE, PSCC and so on.

Dr. Iurii N. Kucherov, a leading research worker of the Department, is at the Head of the International Energy Research Laboratory in Budapest, Hungary.

Department of Systems for Heat, Water, Oil and Gas Supply (Dept. 50)

Head of Department - Professor Anatolii P. Merenkov

Laboratory 51 "Pipeline and Hydraulic Systems"

Head of Laboratory - Dr. Nikolai N. Novitsky (skii)
Staff - 10 including 4 doctors

Laboratory 52 "Problems in Development of Gas Industry in the Fuel and Energy Complex"

Head of Laboratory - Dr. Nikolai I. Ilkevich
Staff - 4 including 3 doctors

Laboratory 53 "Heat-Supplying Systems"

Head of laboratory - Professor Elena V. Sennova
Staff - 8 including 1 professor and 3 doctors

Key scientific problems:

Theory of hydraulic circuits and methods of mathematical modeling, calculations and optimization of pipeline and other hydraulic systems of different types and purposes.

Methodological principles, algorithms and information support to solve problems of development and computerized dispatching control of heat, water, oil and gas supplying systems.

Methods for coordination of decisions taken in the energy industries with the general strategies of fuel and energy supply to individual areas, regions and the country as a whole.

The unique scientific-methodological and computational base has been created in the Department to study and control operation and development of pipeline and hydraulic systems of different types and purposes including the Unified Gas-Supplying System, systems of main oil pipelines, water supply and the heat economy of Russia and its regions which includes data bases on the objects of

heat supply, a system of reliability standards and a complex of dialog software. The Department participates in works on energy strategies for Russia, Siberia, Far East and individual areas using the results of studies, substantiation of projects on development of real objects.

Department of Regional Problems in Development of the Fuel and Energy Complex (Dept. 60)

Head of Department - Professor Boris G. Saneev

Laboratory 61 "Regional Energy Sector"

Head of Laboratory - Professor Boris G. Saneev
Staff - 16 including 1 professor and 6 doctors

Division 64 "Fuel and Energy Complex of Siberia"

Head of Division - Dr. Aleksandr D. Sokolov
Staff - 7 including 4 doctors

Division 65 "Environmentally Compatible Energy Supply of the Baikal Zone"

Head of Division - Dr. Aleksandr A. Koshelev
Staff - 3 including 1 doctor

Department performs scientific-methodological and practical works on the following problems:

Scientific principles of the regional energy policy.

Methodological approaches, systems of models and data bases to forecast regional energy consumption.

Principles, methods and models to study and select rational directions in development of the fuel and energy complex of the country and its regions including areas of new development.

Principles, methods and models to study the environmental effect of energy and to take into account environmental requirements, when the rational structure of regional fuel and energy complexes are selected.

Assessment of possible and efficient utilization of alternative renewable sources of energy supply including application of prototype plants.

Generation of forecasts, the concept and alternative scenarios for development of the national fuel and energy complex and the regional energy sector in Siberia and Far East.

The Department actively participates in some large-scale international and russian projects:

the mongolian-russian project "Development of the Complex Program for Technological Progress of Mongolian People's Republic till the Year 2005";

the russian-japanese project "Study of Comprehensive Energy Plan in East Siberia and Far East of Russian Federation";

the federal project "Kansk-Achinsk Fuel and Energy Complex";

the state program for development of the Lower Angara area.

Besides, the Department takes part in elaboration of interregional and regional projects concerning development of the energy sector and productive forces, solution of environmental problems of Siberia, Republics of Buryatia and Yakutia, Irkutsk region.

Department of Studies on the Perspective Energy Plants (Dept. 70)

Head of Department - Dr. Iurii V. Naumov

Laboratory 71 "Study of Energy Plants"

Head of laboratory - Professor Aleksandr M. Kler
Staff - 8 including 1 professor and 4 doctors

Laboratory 72 "Study of the Systems Efficiency of
Energy Plants"

Head of Laboratory - Dr. Iurii V. Naumov
Staff - 5 including 1 professor and 4 doctors

Laboratory 73 "Dynamics of Steam-Generating Systems"

Head of Laboratory - Dr. Emir A. Tairov
Staff - 6 including 1 doctor

Key directions in scientific research:

Methods for mathematical modeling and optimization of parameters and flow charts of different thermal power plants.

Methods for estimation of energy and economic efficiency of energy plants and production processes.

Generation of the complete energy balance of production processes, creation of the data bank on chemical energy and exergy values of substances and fuels.

Methods and means for thermophysical studies on dynamic processes in the components of energy plants.

An original approach and a procedure for automated construction of mathematical models of thermal power plants of different types have been developed in the Department. They underlie the creation of software for PCs which allows automatic construction of mathematical models for static and dynamic calculations including formation of a graphic image of the calculated scheme, planning of calculations, generation of computer programs.

Nonstationary thermohydrodynamic processes at impact loads in the water-cooled channels are studied on the experimental high-temperature installation in the Department. A training simulator has been created for personnel of boiler and turbine rooms of thermal power stations.

Department of Information Technologies (Dept. 80)

Head of Department - Dr. Iurii A. Grishin

Laboratory 81 "Information Technologies"

Head of laboratory - Samat R. Safarov
Staff - 5 including 1 doctor

Laboratory 82 "Information-Computer Networks"

Head of Laboratory - Iurii A. Grishin
Staff - 15 including 2 doctors

Scientific and practical activity of the Department is aimed at development of the information-computer network of the Institute and intelligent tools for studies in the energy field.

Main problems solved in the Department:

Scientific principles and professionally oriented computerized tools of researchers and technologists on the base of expert systems.

Development and operation of information-computer networks with distributed heterogeneous work stations for scientific studies, computerized designing and real-time control of energy plants.

Mathematical methods and algorithms based on the new technology and parallel computations using transpires and computer networks to solve problems in electric power systems.

The Department is involved in supply with hard- and software to the Institute's computer base (about 150 different modifications of PCs) and its local computer network including training simulators. The Department comprises a group of school informatics that is engaged in development of procedures for training pupils in algorithmic languages and work with PC.

Department of Applied Mathematics (Dept. 90)

Head of Department - Professor Valerii I. Zorkaltsev

Laboratory 91 "Operations Research"

Head of Laboratory - Dr. Oleg V. Khamisov
Staff - 4 including 2 doctors

Laboratory 92 "Unstable Problems of Computational Mathematics"

Head of Laboratory - Dr. Anatolii S. Apartsyn

Staff - 6 including 2 doctors

Laboratory 93 "Problems in the Fuel and Energy Complex Management"

Head of Laboratory - Professor Valerii I. Zorkaltsev

Staff - 8 including 1 professor and 1 doctor

Main directions of research in the Department:

General theory of a global search in optimization problems; projective algorithms for problems of mathematical programming and optimal control.

Application of optimization methods for solving applied problems of thermodynamics and energy.

Numerical methods for regularization of weakly incorrect integral equations of the first kind and methods for solving inverse problems of mathematical physics.

Mathematical modeling of nonlinear dynamic systems by the Volterra series; methods and algorithms of the computerized tomography.

Software for construction and analysis of dynamic models expressed by the systems of differential equations.

Methods for the fuel and energy complex management at transition to the market economy, formation of prices and tariffs of energy carriers as well as for the assessment of efficiency and risk of the investment projects.

The Department has organized and regularly holds the mathematical workshops in Irkutsk. It performs works on the projects "Theory and methods of the global search in problems of mathematical programming" and "Methods for the analysis of inflation processes and price control of energy carriers" with the support of the Russian Foundation of Fundamental Researches.

Council on theses defense

The Council on theses defense has been operating at SEI since 1977. The theses are defended in two specialities:

Energy systems and complexes.

Application of computers, mathematical modeling and mathematical methods in scientific research (energy).

In total 149 theses have been defended at the Council. Among them 12 theses have been submitted by foreign scientists from Bulgaria, Viet Nam, China, Mongolia.

Conferences, Schools, Workshops

Directorate and collaborators of the Institute organize and actively participate in a number of schools, workshops, conferences:

Scientific-methodological and practical conferences (with international participation) on the key problems in energy development of the world, CIS, Russia and its regions is held every 3-4 years since 1965.

International workshop "Methodological Aspects of Reliability Studies of Large Energy Systems" (65 sessions were held since 1973) headed by Academician Iurii N. Rudenko and beginning with 1995 by Profs. A. P. Merenkov and N. I. Voropai.

International Baikal school-seminar "Optimization Methods and Their Applications" (10 sessions were held since 1969) headed by Professor V. P. Bulatov.

International workshop "Information Processing at the Computer-Aided System of Dispatching Control of Power Systems" (is held once in two years since 1974) headed by Professor A. Z. Gamm.

International workshop "Mathematical Modeling, Optimization of Development and Control of Pipeline Systems" (6 sessions were held since 1986) headed by Professor A. P. Merenkov.

Russian workshop with international participation "Risk and Insurance" (is held since 1992 once in two years) headed by Professor V. I. Zorkaltsev, Dr. V. V. Lesnykh.

Russian workshop "Simulation Approach and New Information Technologies in Energy System Studies" (is held since 1980 once in two years) headed by Dr. I. P. Sher, Professor V. Massel.

Well-Known Scientists Who Worked at SEI

Academician Lev A. Melentiev

(09.12.1908-08.07.1986)

Founder and Director of SEI from 1960 to 1973

Essential dates of life: December 9, 1908- born in Petersburg; 1926-1930 studies at the Leningrad Polytechnical Institute (Economic Faculty); 1936-1959 senior instructor, reader, Head of chair, Deputy Director of the Leningrad Engineering-Economic Institute; 1960-1973- Director of SEI, Chairman of Presidium of the Siberian Branch of the USSR Academy of Sciences; 1973-1985-Head of department of complex energy problems at the High-Temperature Institute of the USSR Academy of Sciences, Chairman of the Scientific Council on complex energy problems of the USSR Academy of Sciences, Deputy of Academician-Secretary of the Department of Physico-Technical Problems in Energy of the USSR Academy of Sciences; 1985-1986- founder and Director of the Energy Research Institute (ERI of RAS). Lev A. Melentiev was Hero of Socialist Labor (1969), Deputy of the Supreme Soviet of the USSR (in 1962 and 1970), Krzhizhanovsky (skii) Prize Laureate twice (1960 and 1981), author, co-author and editor of 33 monographs and more than 100 papers, was awarded with many orders and medals. Lev A. Melentiev was buried at the Novodevichie cemetery in Moscow.

Academician Iurii. N. Rudenko (30.08.1931-07.11.1994)

Director of SEI from 1973 to 1988

Essential dates of life: August 30 1931-born in Makeevka town of Donetsk region; 1937-repression of Iurii N. Rudenko's foster-father, shortly after arrest of his mother; 1937-1944-life in Feodisiya (Crimea); 1944-1950 - studies at Orsk secondary school on speciality "Electric Facilities for Industrial Plants"; 1950-1956-work in

the of Orsk-Khalilovsk metallurgical combine with parallel studies at the Leningrad Correspondence Industrial Institute; 1956-1960- post-graduate studies at the Leningrad Polytechnical Institute, defense of the doctoral thesis; 1960-1963- leader of the group and then Head of the operating conditions department of the regional dispatching center of West Siberia (Kemerovo); 1963-1988- Head of laboratory, Deputy Director, Director of SEI (since 1973); 1988-1994- academician-secretary of the Department of Physico-Technical Problems in Energy of RAS. Iurii N. Rudenko was awarded with many orders and medals. He was buried at the Kuntsevo cemetery in Moscow.

Scientists widely known in the areas of energy, economics, mathematics who worked at the Institute in different years and made essential contribution to formation and development of SEI are as follows:

Academician Vladimir M. Matrosov, Academician Igor P. Druzhinin, Corresp. Member of RAS Aleksei A. Makarov, Corresp. Member of RAS Lev S. Popyrin, Academician of the Estonian Academy of Sciences Lembit A. Krumm, Corresp. Member of Russian Academy of Electrical Sciences Mikhail N. Rozanov, Academician of Russian Academy of Natural Sciences Valerian P. Bulatov, Professor Viktor Ya. Khasilev, Professor Grigory B. Levental, Professor Leonid T. Ashchepkov, Professor Veniamin A. Khanaev, Professor Stanislav V. Sumarokov, Professor Leonard S. Khrilev, Professor Aleksandr S. Nekrasov et al.

Commercial Activity and Introduction of the Results

In order to stimulate introduction of the results of studies and to improve the Institute's financial state SEI has been the founder or co-founder of some scientific-production and commercial organizations.

Siberian-Far-Eastern scientific, educational and training center Representative of the Institute-Professor Nikolai I. Voropai

Sphere of activity: preparation and improvement in professional skills of specialists and operating personnel at the enterprises of electric utility industry in Siberia and Far East; scientific-applied and commercial activity.

Irkutsk Energy Center

Manager - Professor Viacheslav M. Nikitin

Sphere of activity: feasibility study and introduction of energy saving technologies into the systems of heat and power supply to residential, public and industrial consumers, study of potentialities of consumers and realization of energy supply patterns.

Commercial center of SEI

Manager - Dr. Sergei P. Popov

Sphere of activity: introduction of the Institute's results of scientific studies, commercial activity.

Joint-stock company "Teploschetchik"

Manager - Dr. Aleksandr N. Gusev

Sphere of activity: introduction of instruments for measurement, account and control of heat energy, installation of heat and hot/cold water meters, supply and installation of water-heating facilities, equipment of heat terminal points of buildings and premises with advanced facilities, installation of temperature controllers and other measuring devices for heat, water and gas supply.

Center for regional economic studies "EKOR"

Manager - Professor Valerii I. Zorkaltsev

Sphere of activity: applied economic works in the area of tariffs, insurance and investment processes.

Research and commercial center "Energofizika"

Manager - Dr. Anatolii F. Lashin

Sphere of activity: development, implementation and introduction of electron-beam technology for cleaning chemically polluted waste waters; treatment of materials and coatings.

International Contacts:

Germany	Technische Hochschule Aachen Universitaet Stuttgart Universitaet Dortmund Juelich Research Center (KFA) Kernforschungszentrum Karlsruhe
USA	Global Energy Network International Institute of Space Systems Operations Illinois University
Austria	International Institute for Applied Systems Analysis
Switzerland	Institute of Operations Research (Baden) Polytechnical University (Losanna) ABB High Voltage Technologies, Ltd. (Zurich)
Great Brit.	University of Strathclyde
Hungary	International Energy Laboratory (Budapest)
Japan	Institute of Energy Economics Tokyo University
China	Electric Power Research Institute (Beijing)
Mongolia	Institute of Mathematics (Ulan-Bator)

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The Plant Physiology and Biochemistry Institute in Irkutsk was established in 1961.

Saliaev, (Salyaev), Rurik, K., D. Bio. S. Born in 1931. Biologist and physiologist. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the AN SSSR from 1984. He graduated from the Leningrad Forest Technical Academy imeni S. M. Kirov in 1966. From 1956 to 1958, he as an aspirant of the chair of plant physiology of that academy. From 1958 to 1963, he worked as a junior researcher a Laboratory of Plant Physiology of the Forestry Institute of the Karelian branch of the AN SSSR. From 1963 to 1971, he was Deputy Director of the Siberian Institute of Plant Physiology and Biochemistry of the Siberian Department in Irkutsk. From 1971 to

1974 and in 1983, he was deputy chairman of the Eastern Siberian Branch--now the Irkutsk Scientific Center. From 1974 to 1976, he was the Director of the Soil Biology Institute of the Far Eastern Scientific Center and deputy chairman of that center. In 1977, he became Director of the Siberian Department's Institute of Plant Physiology and Biochemistry. He is on the staff of the Irkutsk Science Center which, in 1987, had some 1300 research workers of whom 70 held doctorates and 670 held candidate degrees.

In 1992 institute personnel totaled 290 persons of whom 120 were scientific researchers and of whom 10 held the doctorate and 47 the candidate degree. One corresponding member of the RAS was on the staff. Scientist at the institute Study plant physiology and biochemistry with reference to East Siberian climate and soil conditions. Since 1977, Rurik K. Salyaev (Saliaev), D. Bio. S. has been the institute Director. The Scientific Secretary was Rosa T. Polikarpochkina. (See: Ruble, Vol. I., p. 255.)

(1996 update)

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The Director of the Institute:

Professor Salyaev (Saliaev) Rurik Konstantinovich, doctor of biol. sci., corresponding member of the Russian Acad. Sci., member of the Ecological Russian Acad.

(1997 update)

History of Institute

The Institute was established in March 1961 according to the Resolution of the Presidium of the USSR Academy of Sciences on the basis of the Biology Department of the East Siberian Division of the Siberian Branch of the USSR Academy of Sciences. Its first name was the East Siberian Biological Institute of the Siberian Branch of the USSR Academy of Sciences. Prof. F.E Reimers, Doctor of Biol. Sci. (corresponding member of the USSR Academy of Sciences since 1970) was its organizer and the first director (1950-1976).

The Institute consisted of 6 laboratories and an experimental field, the staff was 112 persons including 3 doctors and 17 candidates of sciences. The main fields of research of that period involved physiology and biochemistry of plants, microbiology and soil science, entomopathology, botany, geobotany and forest science.

Since 1963 the Institute started a large cycle of research on physiology of the plant cell, genetic regulation of biochemical process in it and elucidation of the mechanisms of phytohormone effects on the main structural and metabolic processes in plants.

In 1966 according to the Decision of the Presidium of the USSR Academy of Sciences the East Siberian Biological Institute was reorganized into the Siberian Institute of Plant Physiology and Biochemistry of the Siberian Branch of the USSR Academy of Sciences. Its main field of research was the development of physiological and biochemical bases for regulation of life processes in higher plants regarding their growth, development and productivity under conditions of Siberia.

In 1969 the Institute put into operation the first in the east of our country station of artificial climate, a phytotrone consisting of 30 climatic chambers, greenhouses and installations. This made it possible to conduct extended investigations of the effect of different environmental factors on plants, to develop new methods of diagnostics of plant resistance to low temperature and perform selection of agricultural plants.

Since 1976 the Institute is run by prof. R.K.Salyaev, doctor of biological sciences, corresponding member of the Russian Academy of Sciences. He headed further extension of studies and new research in the field of physiology, ecology, biochemistry and molecular biology.

At present the staff of the Institute includes about 230 persons including one corresponding member of the Russian Academy of Sciences, 10 doctors, 38 candidate of sciences and about 50 young researchers (no older than 33).

A specialized Scientific Council for defending candidate theses in the field of "Plant Physiology" functions at the Institute.

There are 11 laboratories at the Institute: physiology of plant cell, genetic engineering of plants, physiological genetics, biochemistry of phytohormones, phytoimmunology, applied biochemistry, physiology of plant resistance, physiology of plant productivity, agroecology, bioindicator of ecosystems, entomopathology of wooden plants, "Herbarium" team and two service teams: Chromatographic methods of analysis and Physical methods of investigations. There is a radioisotopic room, a photolaboratory and a computer room.

The Institute has an experimental field with vegetable greenhouses, and a greenhouse for subtropic and interior plants and field stations.

The main fields of research:

structure and function of biological membranes of plants and mechanisms of membrane transport;
problems of genetic and cellular engineering of plants;
physico-genetical mechanisms of plant resistance to stresses;

metabolism and functions of phytohormones;
genetico-biochemical bases for improving the quality of cereal grain
and development of new forms of cereals raising in the Eastern Siberia;
physico-biochemical bases of optimization of plant nutrition in order
to obtain high quality and ecologically pure yields;
scientific bases for predicting adverse ecological situations in vast
areas.

List of laboratories

The Laboratory of the Plant Cell Physiology

Professor Rurik K. S A Y A E V, Corresponding Member of the Russian Acad.
Sci., Doctor of Biol. Sci.,
room No 225, tel. 46-17-80, 46-07-21 (secretary)

The studies of the structure and functions of biological membranes of plants
and mechanisms of membrane transport; development of physiologo-biochemical bases of
somatic hybridization of cells; growth of morphogenic callus and regenerants of
cereals in order to create transgenic plants with new properties; the study of
physiological bases of optimization of plant
nutrition in order to obtain high quality and ecologically pure yields.

The Laboratory of Genetic Engineering

Iurii M. K O N S T A N T I N O V Doctor of Biological Sciences
room No 112, tel. 46-09-03

Studies of structural and functional organization of the plant mitochondrial
genome in order to elaborate the principles of its changes.

The Laboratory of Physiological Genetics

Professor Victor K. V o i n i k o v, Doctor of Biological Sciences
room No 115, tel. 46-16-69

The study of the mechanisms of genetic determination of plant resistance to
stresses (hypo- and hypothermia, water deficit and weak doses of radiation).
Shock proteins of plants: physiological and biochemical functions in the cell.
Sequence of proteins determining the resistance of plants to stresses.

The Laboratory of Biochemistry of Phytohormones

Professor Kim Z. G A M B U R G, Doctor of Biological Sciences
room No 213, tel. 46-09-92

The study of the metabolism and functioning of phytohormones in normal and bacterium
transformed plant cells. Growth of plant cell cultures of different plant families,
analysis of the content of phytohormones, precursors of their synthesis and the
products of their inactivation in the cultures of normal and transformed cells.

The Laboratory of Phyto-immunology

Anatoli S. R O M A N E N K O, Doctor of Biological Sciences

room No 128, tel. 46-14-92

Cytophysiological and biochemical mechanisms of plant immunity. The study of plant (potato) responses to pathogenesis, in particularly, bacteriosis causing a ring rot. The study of the role of pH-homeostasis of plant cells in the specific and non-specific resistance, reception of the bacterial toxin by the host-plant cells and the mechanism of its penetration into the cells.

The Laboratory of Applied Biochemistry

Vitali A. T R U F A N O V, Candidate of Chemical Sciences
room No 321, tel. 46-15-51

The study of genetical and biochemical bases of the formation of the set of storage proteins in the endosperm of Siberian wheat varieties and other cereals and the search of the ways of increasing the protein productivity and improving the grain quality.

The Laboratory of Physiology of Plant Resistance

Anatoli K. G Y A N K O Candidate of Biological Sciences
room No 302, tel. 46-09-51

The development of the elements of the theory of resistance of plant organisms on the basis of the study of the regulatory mechanisms of plant responses to low above- and below zero temperatures. Symbiotic nitrogen fixation in legume plants under low temperatures. The interaction between plants and microorganisms. Carbon and nitrogen metabolism in regard to plant-rhizobium interactions. The ways of increasing the nitrogen fixating ability of legume cultures under low temperatures.

The Laboratory of Physiology of Plant Productivity

Iurii F. P A K I N, Doctor of Agricultural Sciences
room No 101, tel. 46-16-93 (phytotron)

The expansion of the assortment and improving technique of vegetable raising in open field and greenhouse conditions in order to increase productivity and quality of the product obtained.

The Laboratory of Agro-ecology

Luybov V. P O M A Z K I N A, Doctor of Biological Sciences
room No 102, tel. 46-24-78

Monitoring of soil fertility. Transformation (cycles) of carbon and nitrogen in agro-ecosystems, optimization of regimes of their functioning under intensive agricultural practice in the conditions of the Middle Siberia. The integral assessment of the state of agro-ecosystems under different cultures in the rotation fields depending on agrotechnical methods and ways of reclamation of industrially polluted soils.

The Laboratory of Entomopathology of Wooden Plants

Andrei S. P E S H A N O V, Doctor of Biological Sciences
room No 328a, tel. 46-03-02

The development of scientific bases of the prediction of adverse ecological situations in vast areas (e.g. Middle Siberia). Pathology and resistance of conifers damaged by industrial emissions, dendrophagous insects and fungi. Mapping provision of monitoring of forest insects in the drainage basin of the lake Baikal. The compiling of a cadaster of dendrophagous insects of coniferous forests in the protected zone of the lake Baikal.

The Laboratory of Bioindication of Ecosystems

Victor I. V O R O N I N Candidate of Biological Sciences
room No 117. tel. 46-06-92 (phytotron)

Bioindication of the state of ecosystems. The indication of the climatic changes according to the dynamics of the radial growth of conifers in the Baikal region. The study of the mechanism of tolerance of pine and larch needles to industrial toxic substances. The assessment of the state of generative sphere of the pine under industrial pollution. The interaction between photosynthetic activity of the crown to xylogenesis.

The Herbarium Team

Leonid V. B A R D U N O V, Doctor of Biological Sciences
room No 323. tel. 46-25-02

Ecology, distribution, species composition and protection of vascular plants, mosses and fungi in the Eastern Siberia. Regional cadaster of flora.

The Team of Mineral Nutrition of Plants and Prediction of Crop Yields

Victor T. K O E S N I C H E N K O, Candidate of Biological Sciences
room No 122, tel. 46-16-69

The study of the nutritive soil regime in the forest-steppe zone in the Eastern Siberia. The development of the system of fertilizers applied in winter wheat. Scientific bases of optimization of plant nutrition and development of the methods of prediction of crop yields of the main raising crops.

The Team of Chromatographic Methods of Analysis

Ivan S. E M E I A N O V, Candidate of Chemical Sciences room No 108, tel.
46-26-79

Synthesis and investigation of properties of neutral sorbents for gas- and gas-liquid chromatography. Chromatographic studies of the nature and biochemical composition of biological objects.

(1997 update)

The Institute is involved in the programs of the Siberian Branch of the Russian Academy of Sciences entitled "Physico-chemical basis of biology and evolution of living systems, problems of genetics and selection, plant physiology and biotechnology" and "Ecological, genetic and evolutionary bases of efficient use, reproduction and protection of biological resources".

Main fields:

structure and functions of plant biological membranes and mechanisms of membrane transport;

problems of genetic and cellular plant engineering; physiologo-genetic mechanisms of plant resistance to stresses;

metabolism and functions of phytohormones; genetic-biochemical bases for improving grain quality and development of new forms of cultivated cereals for Eastern Siberia; physiologo-biochemical bases for optimization of plant nutrition to obtain high quality and ecologically pure production; development of scientific bases for preventing crisis ecological situations in large regions (illustrated by Middle Siberia).

Projects carried out by the Institute according to other programs:

Expression of bacterial and plant genes of metabolism of triptophane and synthesis of indolyl-3-acetic acid (IAA) in plant cells (State Research Programme of Russia "Novel methods of bioengineering", section "Genetic and cellular engineering", leader of the project, K.Z.Gamburg, doctor of biological sciences).

Transfer and investigations of expression of genes *trp*, *tprcm* and *iaglu* to control growth and development of plant cells (State Research Programme of Russia "Novel methods of bioengineering", leader of the project, N.I.Rekoslavskaya doctor of biological sciences).

Cartographic inventarization of refuge zones (State Research Programme of Russia "Biodiversity", leader of the project, prof. A.S.Pleshanov doctor of biological sciences).

To create a genetic stock of wild cereals of Eastern Siberia as a source of unique genes of enhanced cold resistance in order to transfer them to the wheat genome (the programme "Siberia", leader of the project, prof. R.K.Salyaev, corresponding member of the Russian Academy of Sciences).

Assessment of the regimes of functioning and state of agroecosystems in industrially polluted soils of Eastern Siberia (Irkutsk region), a search for melioration methods (programme "Siberia", leader of the project, L.V.Pomazkina doctor of biological sciences).

Reconstruction of the mitochondrial genome of higher plants (Russian Foundation for Basic Research, leader of the project, Yu.M.Konstantinov doctor of biological sciences).

Obtaining drought resistant plants by the transfer of a tryptophanracemase gene enhancing root formation (Russian Foundation for Basic Research, leader of the project, N.I.Rekoslavskaya, doctor of biological sciences).

The Institute is involved in international collaboration with a number of research institutions of England, USA, Sweden, Italy, Australia, Germany and China.



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Lake Studies Institute (Limnological Institute) in Irkutsk was established in 1961 on the basis of the Baikal Limnological Station of the AN SSSR.

[Grachev, Mikhail A., D. Biochem. S. Born in 1939. Corresponding member of the Bichemistry, Biophysics, and Chemistry of Physiologically Active Compounds of the Academy since 1987. Biochemist. Specialist in bioorganic chemical fermentation and analytical chemistry. He graduated from the Moscow State University in 1961 and began working at the Natural Compounds Institute of the AN SSSR. From 1965 to 1984, he headed a laboratory of the Novosibirsk Institute of Organic Chemistry, heading also a Laboratory in Ultra-microbiochemistry at the Novosibirsk Institute of Bioorganic Chemistry from 1984 to 1987. In 1987, he became Director of the Limnological Institute of the Russian Academy of Sciences located in Irkutsk. He has authored and co-authored some 111 scientific works of which three are major monographs. He has supervised the work of ten aspirants for the candidate degree. He is on the Scientific Council on Analytical Chemistry. He received a State Prize in 1985. In December 1990, the Baikal International Center for Ecological Research was established under Grachev's direction at ceremonies attended by representatives from nine countries. He was made the Executive Director of BICER that is located at the Limnological Institute in Irkutsk, Russia. (LDA 89-11378.)]

In 1992, institute personnel totaled 501 persons of whom 140 were research scientists and of whom six held the doctorate and 66 the candidate degree. One corresponding member of the RAS was on its staff. Its scientists study lakes and man-made seas in the area between the Urals Mountains and the Pacific Ocean, particularly Lake Baikal. Russian lake studies date back to the 1720s with the dispatch of several scientific research expeditions. In 1925 the academy established a research base on Lake Baikal. Lake studies gained permanent status in 1944 in the academy and in 1961 the Baikal unit was upgraded to institute status as the Limnology Institute. In 1990, The Baikal International Center for Ecological Research (BICER) was established at the Institute with the participation of nine countries. Multidisciplinary studies will be conducted at this new international center on the ecological system of Lake Baikal using methods of classical and physico-chemical biology, hydrochemistry, hydrodynamics, climatology, applied mathematics, oceanology and limnology, satellite and other methods of remote sensing. Director: Grachev, Mikhail A., D. Chem. S., since 1988. The Scientific Secretary was Tamara I. Zemskaya (aya). (See: Ruble, Vol. I., pp. 272-273.) In 1989, personnel included: Director Grachev, Mikhail A., D. Chem. S., August '88; Deputy Directors: Babanin, Gennadi P., since '75; Bogdanov, Viktor, since '81; Lut, Boris F., since '74, and, Votintsev, Konstantin K., D. Geog. S., since '73; Unidentified Laboratory: Head Parmuzin, Iurii P., since '74; Senior Researcher Malinina, Tamara I., since '74. (See: Ruble, Vol. I., pp. 272-273.)

(1997 update)

History of the Limnological Institute

The Limnological Institute of RAS SB is founded on the base of Baikal Limnological Station existing since 1925.

340 persons work at the Institute, 190 of them are doing scientific work. There are 5 Doctors and 50 Candidates of Sciences in the Institute.

There are the following laboratories and groups in the Institute:

**Laboratory of Ichthyology
Laboratory of Hydrochemistry
Laboratory of Microbiology
Laboratory of Systematics of Gene
Laboratory of Biocenology
Laboratory of Hydrology and Hydrophysics
Laboratory of Molecular Enzymology
Laboratory of Paleolimnology
Laboratory of Hydrobiology and Water Organisms Systematics
Laboratory of Piniped Biology
Laboratory of Meteorology and Climatology
Group of Electronic Microscopy
Group of Olygonucleotic Synthesis
Group of Liquid Chromatography
Radio-isotopic Group
Group of Molecular Virology
Section of Closed-Cycle technologies.**

Main fields of scientific activity of LIN of RAS SB:

Lake Baikal ecosystem and laws of its functioning;

endemic fauna and flora of Lake Baikal, its origin & evolution;
geological history of Baikal Depression;
assessment of economical activity influence to lake ecosystem;
elaboration and trying methods of physico-chemical ecology.

The Institute is a basic Institution of Baikal International Center for Ecological Research.

Founding Members:

Siberian Branch of the Russian Academy of Sciences.
Royal Belgian Society.
Royal Society of London.
Japanese Association of Baikal International Research Programs.
University of South Carolina.
Swiss Federal Institute of Technology and Water Pollution Control.

Participants:

Russia, USA, Japan, Belgium, Switzerland, United Kingdom, Finland, France, China, Australia, Germany, Netherlands, Italy, Canada, Norway, Israel, Chekhia, Poland, New Zealand.

Information resources of the Limnological Institute

Knowledge Bank on Lake Baikal (being elaborated). Existing databases: "Bibliography", "Hydrochemistry", "Phytoplankton", "Baikal Seal", "Trichoptera Collection".



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The Baikal Ecological Museum on Lake Baikal has a total of 63 persons on its staff of whom 27 are research scientists and of whom four hold the doctorate and 14 the candidate degree. One corresponding member of the RAS is on the staff. The Director was Academician Grigorii I. Galazii until replaced by Fialikov in the 1990s.

Galazii, Grigorii I. D. Bio. S. Born in 1922 in Mechebilovo in Barvenkovo Raion, Kharkov Oblast. Russian botanist and hydrobiologist. Specialist in Limnology, forestry, and geobotany. Corresponding member of the Siberian Department and of the Oceanology, Atmospheric Physics, and Geography Department of the AN SSSR from 1970, and academician since 1992. He graduated from the University of Irkutsk in 1942. In 1949, he joined researchers at the Eastern Siberian Affiliate of the Siberian Department. In 1954, he worked at the Baikal Limnology Station of the AN SSSR, and from 1961 to 1987, he was the organizer-Director of the Limnology Institute in Irkutsk that was created to study the lakes and man-made seas in the area between the Urals Mountains and the Pacific Ocean, particularly Lake Baikal. His research is on the habitat of ligneous vegetation on the shores of Lake Baikal and adjoining mountain ranges in order to reconstruct the postglacial period's climate, water level, and topography as a means to find ways to protect and use the natural resources of Lake Baikal. He has written 287 scientific works that include eight monographs. In 1987, he was named Director of the Baikal Ecological Museum of the Irkutsk Scientific Center. He has served as deputy chairman of the Scientific Council on the problems of hydrobiology, ichthyology and the utilization of biological water resources. He is Vice President of the all union hydrobiological society. He also heads the Eastern Siberian Affiliate's Geographical Society. (GSE 6, p. 48.)



56. Irkutsk Computer Center, SB RAS, Irkutsk.

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Dr. of Phys-math.

Vasiliev Stanislav Nikolaevich

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Matrosov, Vladimir M., D. PM. S. Born in 1932 in Shipunovo, Altai Krai. Russian specialist in theoretical mechanics and applied mathematics. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes Department of the Academy since 1976, and academician since December 1987. He graduated from Kazan' Aviation Institute in 1956 where he taught until 1975, becoming a professor there in 1970. From 1975 to 1980, he was Director of the Siberian Energetics Institute. In 1980, he was named Director of the Irkutsk Computer Center. He has been a professor since 1970 holding a chair in applied mathematics at the Irkutsk State University. He is an honored scientist of the former Soviet Union. He became rector of the V. I. Lenin Kazakh Polytechnical Institute and Director of the Irkutsk Computer Center in 1983. He was the Director of a series of works published from 1962-1981, for which he--among others--received the USSR State Prize in 1984. The work was entitled "The Development of the Method of Lyapunov Vector Functions for the Analysis of the Stability and Other

Dynamic Properties of Nonlinear Systems." His works are in the dynamics of non-linear systems and the stability of motion. (GSE 30, p. 561.)

The computer center was established in 1980 for the purpose of using mathematical methods in the system dynamics and the theory of control, for developing applied programming means in the field of system dynamics and the theory of control, for modeling and forecasting the development of the regional social-economic and natural systems, and for providing automated processing of scientific data capability for scientific institutes in Irkutsk. In 1992 there was a total of 370 persons on the staff of the institute of whom 146 were scientific researchers and of whom six held the doctorate and 58 the candidate degree. Director: Vladimir M. Matrosov, D. PM. S. Academician of the Problems of Machine Building, Mechanics and Automated Processes Department of the AN SSSR from 1987. Scientific Secretary was Nikolai N. Maksimkin, C. Tech. S.

The Department of Automation and Technical Physics in 1992 had a total of 95 persons on its staff of whom 42 were scientists and of whom three held the doctorate and 24 held the candidate degree. The department is under the direction of Sergei V. Eliseev, D. Tech. S.



57. Irkutsk Branch of Laser Physics Institute of Siberian Branch of Russian Academy of Sciences

Established by order of Director of Laser Physics Institute SB RAS N.22 of March 24 1995, on the basis of SB (Siberian Branch) Presidium's Statement N.79 of March 24, 1995.



Krasnoyarsk Scientific Center 660000.

(1997 update)

Siberian Branch of Russian Academy of Sciences, Novosibirsk
WWW: <http://www.krscience.rssi.ru/>

Krasnoyarsk Akademgorodok of the Siberian Branch of the Russian Academy of Sciences (RAS SB).
Memorial of academic Kirensky.

Krasnoyarsk Territory, the largest in the Russian Federation (its area is 2401 thousand sq.km, and the population 3612 thousand people), stretches almost for 3 thousand km on both sides of the Yenisey River from the mountain ranges of South Siberia to the coast of the Arctic Ocean.

Its natural resources like forests, coal (KanskAchinsk Basin) and non-ferrous metals (Norilsk), hydro-power (Sayan-Shushenskaya and Krasnoyarsk Hydro-Power Plants, the greatest in the country), and oil are the cornerstone of the economy of this Territory. Some industries have caused serious environmental problems.

The Krasnoyarsk Research Centre of Siberian Branch of the Russian Academy of Sciences (KRC RAS SB) includes:

Krasnoyarsk The Organ Hall
Institute of Biophysics
Sukachev Institute of Forestry
United Institute of Chemistry and Chemical
Technology involving:

Institute of Chemistry of Natural Organic Materials

Institute of Chemistry and Chemical Metallurgy Processes

Kirensky Institute of Physics
Krasnoyarsk Computing Centre
Department of High-Disperse Materials Physics

Institutes of RAAS SB:

Krasnoyarsk Research Institute of Agriculture
Krasnoyarsk Research Designing Technological Institute of Animal Husbandry

RAMS SB

Institute of Nordic Medical Problems

Higher Education:

Krasnoyarsk State University and 6 other institutes

Chairman: Vasilii F. Shabanov, Corresponding Member of the RAS.

Shabanov, Vasilii F., D. PM. S. Born in 1940. Physicist. Specialist in the fields of optico-electronics and molecular spectroscopy. Corresponding member General Physics and Astronomy Department of the Academy and of the Siberian Department since 1990. In 1988, he was named a member of the Presidium of the Krasnoyarsk Scientific Center of the Siberian Department of the RAN. He is head of a laboratory of the Kirenskii Physics Institute in Krasnoyarsk. He has co-authored 165 scientific works of which three are monographs. His work has contributed greatly to an expansion of knowledge of the physical characteristics of molecular microelectronics. He is a professor at the Irkutsk State University where he has overseen the work of ten aspirants for the candidate degree. He is a consulting specialist to the Technical Construction Bureau "Nauka" of the Siberian Department, heads the council on automation of scientific research in the Krasnoyarsk Scientific Center, and is on the Scientific Council of the RAN on problems of the Spectroscopy of Atoms and Molecules.

The Center was established in 1978 and its first Chairman was corresponding member of the AN SSSR A. S. Isaev. The center today is comprised of five scientific research institutes, a computer center, and several departments and laboratories of Novosibirsk institutes and a specialized design technological office of Biotechnology, Instrumentation and Automated Control Systems. The independent research institutes include: The L. V. Kirenskii Institute of the Physics, the Biophysics Institute, The V. N. Sukachev Wood and Forestry Institute, the Computing Center, and the Chemistry and Chemical Technology Institute. In 1992 the total staff of the Krasnoyarsk Scientific Center totaled 2276 of whom scientific researchers accounted for 899 of whom 64 held doctorates and 431 held candidate

degrees. In 1992 there were two Academicians on the staff of the Center. The Institutes offer candidate degrees in various fields of physics, biophysics, and dendrology. Center scientists work closely with the higher educational institutions in the area. Some of the Novosibirsk-Akademgorodok institutes maintain three departments, one laboratory, and one design technological office in Krasnoyarsk. These units include: the Department of Economical Studies of the Institute of Economics and Industrial Engineering in Novosibirsk; the Department of Magnetic Gas Dynamics of the Institute of Pure and Applied Mechanics in Novosibirsk; the Department of Mining of the Institute of Mining in Novosibirsk, and the Laboratory for the Synthesis of Ultradisperse Materials of the Institute of Hydrodynamics in Novosibirsk. In 1992, the Scientific Secretary of the center was Nikolai S. Chistiakov, C. PM. S.



58. Biophysics Institute, SB RAS, Krasnoyarsk.

Director of the Institute

Dr. of Phys-math

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[Gitel'zon (Gitelzon), Iosif I., D. Bio. S. Born in 1928. Biophysicist. Specialist in biosynthesis, blood regulatory systems, and ocean bioluminescence. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical Chemistry and Biology Department) of the Academy since 1979, and academician since 1992. He graduated from the Moscow State University in 1951 and from the Krasnoyarsk Medical Institute in 1952. He worked at the Krasnoyarsk Agricultural Institute from 1953 to 1957. In 1957, he joined the Physics Institute Krasnoyarsk. In 1961, he headed the Laboratory of Photo Biology of that institute. In 1981 he headed all laboratories and in 1985, he was made Director of the Biophysics Institute of the Siberian Department located in Krasnoyarsk. He is a professor, holding a chair in physiology and biochemistry of animals and humans at the Krasnoyarsk State University. He is an honored scientist of the former Soviet Union. In April 1991, the Presidium of the Siberian Department of the RAN established the International Center for Closed Ecological Systems that is intended to work closely with other scientists throughout the world working on man-made biospheres--something that Russian scientists had developed in BIOS-3 in the 1970s and 1980s. Dr. Gitel'zon, as Director of the Institute of Biophysics is also heading up this new international research institute. He has been replaced as director of the biophysics institute in Krasnoyarsk by Andrei G. Degermendzhi.

Founded in 1981 from the Department of Biophysics of the Kirenskii Institute of Physics. In 1992 its personnel totaled 336 persons of whom 122 were research scientists and of whom ten held the doctorate and 54 the candidate degree. There was one Academician on the staff. Its scientists study the possibility of human extraterrestrial settlements through the use of artificial and closed ecological systems. Director I. I. Gitel'zon, D. Med. S., D. Bio. S. corresponding member of the Russian academy and of the Siberian Department of the academy since 1979. In April 1991, the Presidium of the Siberian Department established the International Center for Closed Ecological Systems, building upon the research that had been

carried out in the institute in the 1970s and in the 1980s--"BIOS--3". The center will participate in international programs such as "Global Change," and "Man and the Biosphere." Director Iosif I. Gitelzon, and since '79 Deputy Director of the L. V. Kirenskii Physics Institute; Deputy Director Boris G. Kovrov, D. Bio. S., since '84. The Scientific Secretary was Iurii V. Zakharov.



59. V. N. Sukachev Institute of Forest, SB RAS, Krasnoyarsk.

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The V. N. Sukachev Wood and Forestry Institute in Krasnoyarsk was established in 1958 when the Moscow Institute of Forestry was transferred to Krasnoyarsk. The institute is the leading institution in the study of dendrology. A. B. Zhukov was the institute's Director until 1977. Its scientists study environmental management of forests and problems of timber production. In 1992, there were 1641 persons on the

staff of the institute of whom 122 were scientific researchers and of whom ten held the doctorate and 54 the candidate degree. One academician was on the institute staff. Director: Petrenko, Evgenii S., since 1989; Deputy Director: Futoimas, Ivan I., since 1975. The institute is the base for the founding of a new Siberian International Center for Ecological Research of Boreal Forests that is in the process of being established to provide collaborative land joint research in projects such as the “Effect of Pollution on Vegetation, including Forest Ecosystems” and the “Development of Methods and Programs on Statistical and Imitational Modeling of Wood Ring Formation”, the “Dendroclimatologic Monitoring of the Northern Borderline of the Forest along the Circumpolar Region of Russian Territory, ” and with other projects of the International Union of Forest Research Organizations. The Scientific Secretary was Petr A. Tsvetkov, .

(1997 update)

History of the Institute

The Institute of Forest of the USSR Academy of Sciences was founded in 1944. It was intended to head and coordinate the theoretical studies which reveal forest nature and are directed to establish the scientific base of forest management. The Academician Sukachev was organizer and the first director of the Institute (1944 - 1958)

In 1958 the Institute was moved from Moscow to Krasnoyarsk and was included to the system of the Siberian Branch of the USSR Academy of Sciences. Being faced with new tasks the Institute was named The Institute of Forest and Wood of the Siberian Branch of the USSR Academy of Sciences.

The Institute of Forest and Wood SB USSR Academy of Sciences was supervised by the Academician A. B.Z hukov (1958-1977), the Academician A. S. Isaev (1977-1988), E. S. Petrenko (1988-1994).

In 1967 was named after its organizer Sukachev.

In connection with the reorganization of the USSR Academy of Sciences the Institute entered the Siberian Branch of the of the Russian Academy of Sciences. In 1992 it was named The V. N. Sukachev Institute of Forest of SB of RAS. Since 1994, the Director of the Institute has been the corresponding member of RAS Evgenii Alexandrovich Vaganov.

The Siberian International Centre for Ecological Research of Boreal Forests was established at the Institute in 1991.

The Institute has 4 sectors which contain 17 laboratories.

The Institute manages a network of field expedition stations in the Siberian area.

There are two specialized scientific-academic councils in the Institute: for the defense of candidate and doctor theses.

The Institute is the leading academic scientific institution of the country in the forest science.

(1997 update)

Main tendencies in scientific work:

developing of production process theory in forest biogeocoenoses;

scientific substantiation of protection regional systems, complete utilization and regeneration of forest resources;

elaboration of assessment methods for biospheric forest role, for scientific bases and technical providing of forest monitoring.

(1997 update)

Information resources

Cartographic information of scales 1:2000000- 1:5000000 in GIS data base "Forests of the Central Siberia" recorded in the format Arc/ Info, EPPL, IDRISI and brought into coincidence with the digitized World Map (DCW):

the map of physical and geographical regioning of the Central Siberia (5 informational layers);

the map of the Central Siberia forest disturbance by fires, cuts, insects, industry emissions, natural calamities.

the map of ecological tension in the forests;

the map of the Krasnoyarsk Territory forests;

the map of soil cover structure in the Central Siberia;

the map of Siberian forest pollution by technogenic emissions;

data base on forest fires in the Krasnoyarsk Territory for the years 1988-1995.

video information archives obtained from satellites NOAA for the Krasnoyarsk Territory area for 1995.

Data base of the local GIS (Bolshemurtinski leskhos of the o Krasnoyarsk Territory - latitude 57 North, longitude 93 East) includes electronic maps in the scale of 1:50000 -1:500000. These are landscape map, forest type map, forest soil map, map of forest disturbance by insects, plans of forest stands and plan-tables for the area 450 000 hectares. Database includes also forest inventory information for 22 000 elementar forest units according to 100 forest cover parameters.

The Institute has numerical and cartographic information in the paper medium as well:

long-term temporal series of the control of tree-ring width variations and tree falling away, of the spatial tree stand structure , of dynamics of certain forest ecosystem components which are obtained on the constant sample plots of forest steppe pine forests as well as in forests of the southern and central taiga (more than 300 sample plots);

data on summer temperature reconstruction in Subarctic region for the last 500 years;

data on regenerative dynamics of soil parameters, of species composition, of phytomass and annual production of plant communities at industrial cuts;

large-scaled ecological static and dynamic maps, maps of forest disturbance by insects, maps of post-fire dynamics of forests, for certain key plots in different natural Siberian zones.

Complex of apparatus and programs of GIS is based on personal computers of Pentium class 90-8-850 (2units), 486 ÅÖ-4-100 (3 (3 units) and 486 ÅÖ-66 (1 unit) which possess peripheral units: digitizer Summa Sketch II, digitizing pad scanner (colour) Scan Jet. Tic 400 dpi, laser printer of white-black and colour print, strimmer AKAI with memory card PC AKVID 20. Software core is formed by two copies of batches PC ARC/INFO 3.4.2 and ARC/VIEV 2/1, and by run-time system of bit-mapped-vector GIS EPPL 7 and IDRISI 4.1. The work in organizing of the local computer network of the Institute is realized.

Besides, the Institute has the American station for information receiving from satellites NOAA, the complex of apparatus and programs for receiving and processing of images in high resolution regime (HPTT) and the complex of aviation landscape survey in infra-red spectrum diapason.



60. Krasnoyarsk Computing Centre, SB RAS, Krasnoyarsk.

Director of the Institute

Dr. of Phys.-math.

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The Computer Center in Krasnoyarsk was established in 1975, and was under the direction of Iurii I. Shokin until 1992 when he became director of the Computer Center in Novosibirsk and was replaced by Dr. Shidurov.

Shokin, Iurii I., D. PM. S. Born in 1943. Mathematician. Specialist in computer and applied mathematics. Corresponding member of the Information Sciences, Computer Technology and Automation Department of the Academy since 1989; academician in 1992. He has authored 30 scientific works of which three are monographs and co-authored 120 publications of which three are significant monographs. He graduated from the Novosibirsk State University in 1966 and worked at the Computer Center of the Siberian Department from 1969 to 1975. From 1976 to 1983, he headed a laboratory of the Theoretical and Applied Mechanics Institute of the Siberian Department. In 1983, he was named director of the Computer Center in Krasnoyarsk subordinate to the Siberian Department. Since 1983, he has been a professor at the Krasnoyarsk State University where he has held the chair of applied mathematics and mechanics and supervised the academic research of 15 aspirants for the candidate degree. He is a commission member of the GKNT, and on the natural sciences committee for developing research methods into the dynamics of fluids, and on the working group of the natural sciences federation on information processes. In 1991, he was named the Director of the Computer Technology Institute of the Siberian Department of the RAN in

Novosibirsk, and in 1992 he became head scientific secretary for the Siberian Department of the RAN.

The institute researches automated control systems, the mathematics of physics and chemistry, and develops software. Its scientists model problems of plasma physics, and chemical kinetics. In 1992, the staff of the Computer Center totaled 302 people of whom 141 were research scientists and of whom seven held the doctorate and 53 the candidate degree. Iurii I. Shokin, D. PM. S. has headed the center since 1984. The Scientific Secretary was Sergei K. Galushko, C. PM. S.



61. Compound Institute of Chemistry and Chemical Technology in Krasnoyarsk under Acting Director Vadim N. Shevnin.

Khol'kin (Kholkin), Anatolii I., D. Chem. S. Born in 1937. Inorganic chemist. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department and of the Siberian Department of the Academy since December 1987. He graduated from the Leningrad Polytechnic Institute in 1960. From 1962 to 1980, he researched in the Inorganic Chemistry Institute of the Siberian Department of the academy, moving from an aspirant, a junior and senior researcher. In 1980, he joined the Chemistry and Chemical Technology Institute of the Siberian Department, as its Deputy Director and in 1981, he became Director of that institute. Since 1982, he has been a professor at the Krasnoyarsk State University, holding the chair of inorganic and organic chemistry. He is a leading member of the of the Scientific Coordinating Council. He received the State Laureate Prize in 1986. (LDA 89-11378.)

The Chemistry and Chemical Technology Institute in Krasnoyarsk was founded in 1981 from the Department of Chemistry and Chemical Technology of the Institute of Inorganic Chemistry in Novosibirsk. The institute studies new chemical-metallurgical processes for the extraction of non-ferrous metals from ores, the transformation of brown coals of the Dansk-Achinsk field with the aim of creating a basis for new technologies for conversion into synthetic fuels and chemical products. Director: Anatolii I. Khol'kin, C. Chem. S. corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Russian Academy of Sciences and of the Siberian Department since 1987.



62. Institute of Chemistry of Natural Organic Materials, SB

Director of the Institute

Dr. of Chemistry

Kyznestov Boris Nikolaevich

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The Institute continues under the supervision Boris N. Kuznetsov (Kyznestov) , D. Chem. S. Personnel totaled 111 persons in 1992, of whom 70 were research scientists and of whom two held the doctorate and 32 the candidate degree. Its scientist

research ways to turn the brown coal of the Kansk-Achinsk coal fields into synthetic fuel; research into the chemical conversion of wood and its components (and woodpulp biomass) into alternative fuels through more effective cultivation and conversion processes. The Scientific Secretary was Larisa I. Serebriakova, C. Chem. S.



63. Institute of Chemistry and Chemical Metallurgy Processes, SB RAS,
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The Institute of the Chemistry of Chemical Metallic Processes in Krasnoyarsk under Gennadii L. Pashkov, D. Tech. S. Personnel totaled 147 persons in 1992, of whom 93 were scientific researchers and of whom two held the doctorate and 51 the candidate degree. Scientists study the synthesis and combinations of non-ferrous metals and their extraction processes; study the quality of inorganic substances, the structure of the technological processes used in producing them, and search for new functional materials and substances with high superconductivity and dielectric qualities. The Scientific Secretary was Liudmila I. Kuznetsova, C. Chem. S.



64. Kirensky Institute of Physics, SB RAS, Krasnoyarsk.
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Academician
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Aleksandrov, Kirill S., D. PM. S. Born in 1931. He is a specialist in the field of crystallography and the physics of crystals. He was elected a corresponding member in 1972, and he has been an academician of the General Physics and Astronomy Department of the academy since 1984. He graduated from the Leningrad V. I. Ulyanova-Lenin Electro-Technical Institute in 1954 and began work at the A V. Shubnikov Crystallography Institute in 1958, and at the Physics Institute in Krasnoyarsk as a junior researcher; he was head of a laboratory and a Deputy Director from 1968 to 1981. Since 1983, he has been Director of that institute--the L. V. Kirenskiy Physics Institute in Krasnoyarsk that was established in 1956 to study thin magnetic film physics, super strong stationary magnetic fields, ferro-electric physics, and radio spectroscopy. It is subordinate to the

Krasnoyarsk Scientific Center of the academy's Siberian Department. He also became deputy chairman of the Krasnoyarsk Scientific Center in 1983. As a professor he has held the chair of Solid State Physics at the Krasnoyarsk State University since 1971. (Material from an unpublished manuscript: *Perasoval'nii Sostav, 1957-1989* Novosibirsk: Akademia Nauk SSSR Publishing House, 1989.)

Established in 1957. Studies thin magnetic film physics, superstrong stationary magnetic fields, ferro-electric physics, and radiospectroscopy. In 1985, the institute had 162 scientific workers of whom one was an Academician of the Russian Academy of Sciences, 11 held doctorates, and 97 had candidate degrees in the sciences. In 1992, the institute had a total of 336 workers of whom 122 were scientific researchers and of whom 10 held the doctorate and 54 the candidate degree--reflecting a decline of degreed Personnel. Applied research in the institute is primarily in finding and developing new materials for electronics and in the design and development of new instruments based upon these findings. In the material sciences work, the main trend is in single-crystal(group growth from a flux-melt, single-crystal growth from a solution, and vacuum and plasma-ion sputtering--including thin magnetic film. This has led to the production of hard magnetic discs for information recording and storage. In instrument making four types have been developed: instruments based on resonance methods, instruments based on new optical methods for quality control of crystals and crystal surfaces, devices using EHF frequency selection, and instruments using thin-film technology. The institute has produced EPR and NMR spectrometers for use in magnetometry, analytical chemistry, and other scientific research. Some of the devices and technologies developed by scientists in the institute include: Single-crystal group growth of itrium iron garnets and barium hexaferrites; magneto-optical discs based on amorphous ferromagnetics; thin-film hard magnetic discs; nuclear magnetic resonance spectrometer (NMR) analyzer of fluorite; an automatic pulsed NMR spectrometer for fundamental and applied research; a stationary spectrometer with a chryomagnet NMR-213M; a power source for superconducting solenoids; a complex of EPR-magnetometers "EPRAN" for use in geology, geophysics, archaeology, and other scientific research; a laser profilograph-profilometer that is designed for non-contact measurements of the profile and roughness of polished surfaces; a crysallizer-thermostat for crystal growth from salt solutions; an automatic microphotometer "ASPHOT-3" for microphotometry of spectrograms and measurements of the element concentrations by emission spectra analysis; an automatic winding device for small thin-wire coils; a miniature microstrip bandpass filter that is a frequency selector of microwave signals; a winding device for superconducting wire solenoids and other solenoids, an automatic vibrational magnetometer for measuring magnetic properties; a thin-film magnetometer that measures weak magnetic pulses in a wide frequency range; a visualizer of optical radiation for visual control of pulsed optical radiation on a real-time scale; a device for replenishing liquid nitrogen in helium crystals and installations continuously operated for long periods, and an ultrasound velocity measuring instrument for measuring the propagation velocity of ultrasound vibrations in solids, consisting of a measuring instrument, a high-frequency pulsed generator, a frequency meter and an oscillograph. Scientific Structure and Personnel: Director: Academician Professor Dr. Kirill S. Aleksandrov, D. PM. S., Director since 1983; Deputy Directors: Professor Dr. Sergei G. Ovchinnikov, D. PM. S., and Boris P. Khrustalev, C. PM. S. In 1992, the institute was organized into four major departments--all with laboratories, and into two large independent laboratories.

(1.) The Theoretical Department has two laboratories and two sectors.

1.1) the Theoretical Physics Laboratory under Professor Dr. Valter A. Ignatchenko, D. PM. S. He was born in 1931 and graduated from Odessa State

University in 1951. His current scientific interest is in amorphous magnetism. Senior researchers in the laboratory include: Vladimir I. Tsifrinovich, C. PM. S. He was born in 1950 and his interest is in NMR in magnetics, and, Dr. Rudolf S. Gekht, D. PM. S. He was born in 1943 and his interest is in incommensurate magnetic structures.

- 1.2) **the Solid State Physics Laboratory** under Professor Dr. Evgenii V. Kuzmin, D. PM. S., who was born in 1938 and graduated from Moscow State University in 1962. He is a specialist in quantum theory of solid state physics. Senior researchers in this laboratory include: Dr. Igor S. Sandalov, D. PM. S., who was born in 1946 and whose principal interest is in strongly correlated electron systems; Dr. Valerii V. Valkov, D. PM. S., was born in 1949 and specializes in spin systems with strong quantum fluctuations.
- 1.3. **The Sector of Non-linear Phenomena Theory** under Dr. Gennadii P. Berman, D. PM. S. He was born in 1946 and graduated from Novosibirsk State University in 1970. His main interest is in quantum chaos on non-linear systems. Among the sectors senior researchers are: Dr. Almas F. Sadreev, D. PM. S., born in 1948. His interest is in phase transitions.
- 1.4 **Sector of the theory of functions** under Professor Dr. Lev A. Aizenberg, D. PM. S. He was born in 1937 and graduated from the Moscow State Pedagogical Institute in 1959. His interest is in the theory of the functions of many complex variables. Senior researchers in this sector include: Nikolai N. Tarkhanov, D. PM. S. who was born in 1955 and Dr. Aleksandr M. Kytmanov, D. PM. S. who was born in 1949.

(2.) **The Department of Physics of Magnetic Phenomena** has four laboratories and one sector.

- 2.1) **The Physics of Magnetic Phenomena Laboratory** under Professor Dr. Sergei G. Ovchinnikov, D. PM. S. He was born in 1950 and graduated from Krasnoyarsk State University in 1972. His work is in the theory of strong electron correlated systems, high-temperature superconductivity, molecular-beam epitaxial films and multilayers. Senior researchers in this laboratory include: Irina. S. Edelman, C. PM. S. who was born in 1936. His interest is in magneto-optics; Iurii M. Fedorov, C. PM. S. He was born in 1947 and his interest is in magneto-optics; Nikolai A. Drokin, C. PM. S. who was born in 1947 and whose interest is in molecular-beam epitaxial films and multilayers; Dr. Vladlen E. Shapiro, D. PM. S., was born in 1937 and works in stochastic dynamics.
- 2.2.) **The Sector of Non-uniform Magnetic Alloys** under Dr. Rauf S. Iskhakov, D. PM. S. He was born in 1950 and graduated from Krasnoyarsk State University in 1972. Lydia A. Chekanova, C. PM. S., born in 1940 is a senior researcher in this sector.
- 2.3) **The Thin Magnetic Films Laboratory** under Georgii I Frolov, C. PM. S. He was born in 1937 and graduated from the Leningrad Electro-Technical Institute in 1958. His work is in magnetic anisotropy of 3d-4f metal thin films and multilayers. Senior researchers in the laboratory include: Liudmila I. Vershinina, C. PM. S. She was born in 1944 and is a specialist in electron microscopy; Gennadii V. Bondarenko, C. PM. S. He was born in 1937 and is an expert in X-ray analysis.
- 2.4) **The “External Memory” Laboratory** under Vitalii A. Sereдкин, born in 1940 graduated from the Krasnoyarsk Polytechnical Institute in 1940. His speciality is magneto-optical discs for information recording and storage. Among senior researchers in this laboratory are: Igor A. Turpanov, born in 1936. His interests are in the technology of hard magnetic discs; Edward C. Mushailov, C. PM. S., born in 1937. His speciality is in NMR in ferromagnetics, and Khvan Do Chen, C. PM. S., born in 1948. His interest is in domain wall dynamics.

(3.) The Department of Crystal Physics has five laboratories.

- 3.1) The Crystal Physics Laboratory** under Academician Professor Dr. Kirill S. Aleksandrov who was born in 1931 and graduated from the Leningrad ElectroTechnical Institute in 1954. His interests are in single crystal growth, structural phase transitions, and ferroelectrics. Senior researchers in this laboratory include: Professor Dr. Viktor I. Zinenko, D. PM. S. He was born in 1942 and graduated from Tomsk State University in 1964. His interests are in electron and phonon band structure calculations, and phase transitions; Anatolii V. Zamkov, C. PM. S., born in 1949. His interests are in crystal optics; Anatolii I. Kruglik, C. PM. S., born in 1947. His specialty is X-ray analysis; Igor N. Flerov, C. PM. S., born in 1942. He is an expert in calorimetry, and Boris B. Beznosikov, C. PM. S., who was born in 1930 and is a specialist in crystal chemistry.
- 3.2) The Magnetic Materials Laboratory** under Leonard N. Bezmaternykh, C. PM. S. He was born in 1934 and graduated from Tomsk State University in 1957. He is a crystal growth scientist.
- 3.3) The Kinetic Processes Laboratory** under Inga P. Aleksandrova who was born in 1934 and graduated from Rostov State University in 1958 is a specialist in NMR in crystals, ferroelectricity, and incommensurate structures. The senior researcher in her laboratory is Iuri G. Elizaryev, C. PM. S., born in 1955, who has interests in NMR.
- 3.4) The Radio-spectroscopic Analysis Laboratory** under Evald P. Zeer, C. PM. S. He was born in 1935 and graduated from the Krasnoyarsk Pedagogical Institute in 1957. His interest are in EPR and NMR in solids. Senior researchers in the laboratory included: Dr. Vladimir E. Zobov, D. PM. S., born in 1948. His work is in the theory of EPR and NMR.
- 3.5) The Resonance Properties of Magnetics Laboratory** under Professor Dr. German A. Petrakovskii, D. PM. S. He was born in 1937 and graduated from Tomsk State University in 1962. His fields are in EHF properties of magnets and high-temperature superconductors. Senior researchers in his laboratory include: Sergei S. Aplesnin, C. PM. S., born in 1954. His specialty is Monte-Carlo simulation of disordered magnets. Anatolii I. Pankrats, C. PM. S., born in 1946. His field is AFMR in magnetic insulators. Gennadii S. Patrin, C. PM. S., born in 1952. He works in photo-induced magnetism. V. Galina Loseva, C. PM. S., born in 1937. Her primary interest is in metal-insulator phase transitions.

(4.) The Department of Optics has two laboratories:

- 4.1) The Molecular Spectroscopy Laboratory** under Professor Dr. Vasilii F. Shabanov, D. PM. S.--a corresponding member of the Russian Academy of Sciences since 1991--was born in 1940 and graduated from the Omsk State Pedagogical Institute in 1962. He is a specialist in liquid and molecular crystals and in molecular electronics. Senior researchers in this laboratory include: Evgenii M Averyanov, D. PM. S., born in 1951. His interests are in phase transitions in liquid crystals. Viktor Iurii Zyryanov, C. PM. S., born in 1955. His interests are in liquid crystals.
- 4.2) The Coherent Optics Laboratory** under Professor Dr. Aleksandr K. Popov. He was born in 1941 and graduated from Tomsk State University in 1963, and is a specialist in nonlinear optics. Senior researchers include: Vitalii V. Slabko, born in 1949, born in 1949. He is a specialist in the laser spectroscopy of gases. Vladimir M. Shalaev, C. PM. S., born in 1957. He specializes in the optical properties of fractals.

(5.) The laboratory of Strong Magnetic Fields under Boris F. Khrustalev. He was born in 1939 and graduated from Krasnoyarsk Pedagogical Institute in 1962. His interests are in superstrong stationary magnetic fields, magnetic properties of

magnetic thin films and superconductors. Senior researchers in this laboratory include: Michael I. Petrov, C. PM. S., born in 1947. He is a high-temperature superconductivity scientist. Anatolii M. Sadovskii, born in 1938. He specializes in strong stationary magnetic fields.

5.1) The Sector of Earth Magnetism under Professor Dr. Anatolii G. Zvegintsev, D. PM. S. He was born in 1935 and graduated from the Krasnoyarsk Pedagogical Institute in 1958. He is expert in the magnetic properties of rocks and minerals. Senior researchers in this sector of the laboratory include: Edward K. Iakubailik, C. PM. S., born in 1940. He is a specialist in the magnetic treatment of raw materials. Vadim P. Aparin, C. PM. S., born in 1939. He is an expert in magnetic methods in geophysics.

(6.) The Micro-wave Electronics Laboratory under Boris A. Beliaev, C. PM. S. He was born in 1950 and graduated from Tomsk State University in 1973. He is a specialist in micro-wave electronics and devices. The senior researcher in this laboratory is Vladimir V. Tyurnev, C PM. S. He was born in 1948 and graduated from Krasnoyarsk State University in 1971. He is a specialist in micro-wave electro-dynamics theory. The scientific secretary was Eduard K. Iakubailik, C. PM. S.

(Information supplied in a letter from Academician-Director K. S. Aleksandrov dated 30 October 1991. A second letter from Dr. Aleksandrov dated 3 February provided the structure and personnel of the Institute.)



65. The Physics of Highly Dispersed Materials Department in Krasnoyarsk

is under the direction of Anatolii M. Staver, D. PM. S. The department works in conjunction with the Chemistry and Chemical Technology Institute in studying the physical chemistry of such materials and their use in the national economy.



Tomsk Scientific Center 634000 in Tomsk:

Vladimir A. Krutikov, D. PM. S.

The Tomsk Branch was established in 1978 under its first Chairman, corresponding member of the AN SSSR V. E. Zuev. In 1992 personnel working in the various institutes of the center totaled some 4043 persons of whom 752 were research scientists and of whom 42 held the doctorate and 353 held the candidate degree. There two Academicians and two corresponding members on staffs of the center's institutes. It is one of the oldest scientific centers in this region of Russia, three of the four research institutes of the Tomsk Branch were derived from the Tomsk University and the Polytechnic Institute. In 1987, the four scientific research institutes subordinate to the Tomsk Branch of the Siberian Department of the Russian Academy of Sciences were: the Atmospheric Optics Institute--which includes "Optika", a scientific instrument design office and a Scientific-Technical Complex--the Heavy-Current Electronics Institute, the Strength Physics and Materials Institute, and the Oil Chemistry Institute. In the complex are also located several departments and laboratories of Siberian Department Institutes including: The Tomsk Department of Experimental Geophysical Investigations of the Institute of Geology and Geophysics in Novosibirsk; the Tomsk Soil Evaluation Laboratory of the Institute of Soil Science and Agrochemistry in Novosibirsk, and the Tomsk Department of Cedar Forests of the Wood and Forestry Institute in Novosibirsk.

Scientific personnel of the Branch include two academicians and two corresponding members of the Russian academy. Some 30 scientists hold the doctoral degree and 200 the candidate degree in sciences. There is a close tie between Branch scientists and the secondary and higher educational institutions in the Tomsk area.

(1996 update)

Tomsk Research Center

Oil and gas are the main natural resources of the Tomsk Region (the area is 317 thousand sq.km, and the population 1009 thousand people). Petrochemical industry with a giant oil-refinery complex, mechanical engineering and woodworking industries play the central role in the economy of Tomsk.

Last century Tomsk used to be called "Siberian Athens", as it was the first town in Siberia where a university was opened (1880).

The Tomsk Research Centre (TRC) of RAS SB includes:

Tomsk University. The Forerunner of Higher learning in Siberia

Institute of Ecology of Natural Complexes

United Institute of Atmospheric Optics involving:

Institute of Atmospheric Optics

"Optika" Institute of Design and

Technology

Institute of Petroleum Chemistry

United Institute of Heavy-Current

Electronics

Institute of Heavy-Current

Electronics

Technological Design Institute of

Heavy-Current Electronics

Institute of Strength Physics and

Material Science

The Tomsk Research Centre of RAMS SB includes:

Institute of Cardiology

Institute of Oncology

Institute of Psychic Health

Institute of Pharmacology

Institute of Medical Genetics

Higher Education:

Tomsk State University

and 6 other institutes

Research institutes subordinate to the Tomsk affiliate: listed by order of their establishment:

66. Institute of Atmospheric Optics of SB RAS

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IAO SB RAS
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The Compound Atmospheric Optics Institute in Tomsk was established in 1969 to do research on spectroscopy, laser probing of the atmosphere, lasers, and to develop other electro-optical devices.

Zuev, Vladimir E., D. PM. S. Born in 1927 in Malye Goly, Kachug Raion, Irkutsk Oblast. Russian physicist. Specialist in the fields of the dispersion of electromagnetic and optical wave bands in the atmosphere. He has been a corresponding member, 1970, and an academician since 1989--of the Oceanology, Atmospheric Physics, and Geography Department. He was originally elected to the General Physics and Astronomy Department. He joined the Presidium of the Siberian Department in 1971. Since 1979, he has been chairman of the Presidium of the Tomsk Scientific Center, and he is chairman of the Council for Research Coordination of the Tomsk Oblast Committee. He has authored 69 scientific works of which nine are monographs of importance; co-authored 238 works of which ten are significant monographs and eight are discoveries. He graduated from the University of Tomsk in 1951 and immediately began teaching there. From 1955 to 1969, he worked in the Siberian Physico-Technical Institute, becoming a professor in 1964. Since 1969, he has been director of the Atmospheric Optics Institute in Tomsk and a member of the Siberian Department Presidium. The Atmospheric Optics Institute was established in 1969 to study spectroscopy, the laser probing of the atmosphere, lasers, and other electro-optical devices. His main work is in atmospheric optics and physics. He has guided the academic work of 23 doctoral candidates and 67 aspirants for the candidate degree. He was a deputy to the 8th Convocation of the Supreme Soviet of the USSR. He received a State Prize for his scientific work in 1985. He is the recipient of a number of other awards and medals. He is presently the Academician Secretary of the Department of Ocean Research, Atmospheric Physics and Geography of the Russian Academy of Sciences. (GSE 9, p. 696.)]

Its scientists study the laser radiation propagation in atmospheres of the Earth and the other planets, atmospheric spectroscopy, laser and acoustic atmosphere probing, create new metal-vapor lasers, and automate scientific research in the field of atmospheric optics. In 1992, the institute had a total of 881 persons of whom 289 were research scientists and of whom 18 held the doctorate and 121 the candidate degree. One Academician was on the staff. The Director of the institute is Vladimir E. Zuev, D. PM. S. In 1989, personnel included: Director Zuev, Vladimir E., D. PM. S., since '69; Deputy Directors: Makushkin, Iurii S., since '83; Panin, Viktor E., D. PM. S., since '81; and Pokasov, Viktor V., since '81.

Laser Sounding Laboratory: Head Samokhvalov, Ivan V., C. PM. S., since '73; Senior Researchers: Burkov, V. V., since '74; Kaul, B. V., C. PM. S., since '74; Matviyenko, G. G., since '74; Zadne, G. O., since '74;

Laser Spectroscopy Laboratory: Head Lopasov, V. P., 74; Senior Researchers: Antipov, B. A., since '70; Fomin, Vasili V., since '71; Makogon, M. M., since '74; Sinitsa, Leonard N., since '74;

Optics of Aerosols Laboratory: Head Khnelevtsov, S. S., since '74; Senior Researchers: Astafurov, V. G., since '74; Glazov, G. N., since '72;

Statistical Optics Laboratory: Head Tvorogov, S. D., since '74; Senior Researchers: Kekov, Georgii M., since '73; Naats, I. E., since '77;
Theoretical Spectroscopy Laboratory: Head Makushkin, Iurii S., since '70; The Scientific Secretary was Vladimir G. Astafirov, C. PM. S.



67. "Optika" Institute of Design and Technology of SB RAS

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Director of the Institute
Corr.-member of RAS
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The Special Scientific Instrument Design Office "Optika" was established in 1972 to create apparatus in the field of optics, laser engineering, electronics, and for precise mechanics and automation equipment development. This important design bureau had a staff of 695 persons in 1992, of whom 18 were scientific researchers and of whom nine held the candidate degree. Initially under the direction of Aleksandr F. Kutelev, C. PM. S., the institute is now under the direction of Mixail V. Kabanov

[**Kabanov, Mikhail V.**, D. PM. S. Born in 1937. Physicist. Specialist in the field of atmospheric physics. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy and of the Siberian Department since 1987. He graduated from the Tomsk State University in 1959, and began work as a researcher, was head of a laboratory of the Siberian Physico-Technical Institute from 1961 to 1975, and head of a laboratory and Deputy Director of the Atmospheric Optics Institute in Tomsk from 1975 to 1984. In 1984, he was made Director of the Siberian Physico-Technical Institute. He has been a professor at the Tomsk State University since 1981. Chairman of the InterDepartmental Commission on Radiation of the Geophysical Committee of the Presidium of the Russian Academy of Sciences. (Also see: LDA 89-11378.)]



68. Technological Design Institute "RITC" of SB RAS

Director of the Institute
Pinkin Vladimir Filippovich
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The Compound Heavy-Current Electronics Institute in Tomsk was established in 1977 by the Science Leader of the Institute Academician Gennadii A. Mesiats, now Director of the Urals Branch of the RAS.

Mesiats, Gennadii A., C. GM. S. Born in 1936. Corresponding member since 1979; and an academician of the General Physics and Astronomy Department and of the

Siberian Department since 1984. He is also a member of the Urals Department. He is a specialist in the fields of electronics and electrophysics. He received the Lenin Komsomol Prize in 1968, and the Laureate State Prize in 1978. Since 1986, as chairman of the Urals Department, he has served as a member of the Presidium of the Academy of Sciences of the USSR. In 1988 he was named a vice-president of the Academy of Sciences for the Urals Department. From 1977 to 1986, he served as director of the High Current Electronics Institute in Tomsk, which is subordinate to the Urals Department. The institute researches thermonuclear and accelerator physics and laser technology and was created in 1977 from the High Current Electronics laboratory of the Atmospheric Optics Institute. Since 1986, he has been chairman of the Urals Department, and from November of 1986 to 1988, he served as the director of the Electrophysics Institute in Ekaterinsburg (Sverdlovsk) that was established in 1986. He is currently President of the Scientific Council on the Problem of "Relativistic and Heavy-Current Electronics."

Its scientists study the emission and formation of the intense fluxes of charged particles, the generation of heavy-current high voltage pulses and their influence on the condensed media, the study of the gas-discharge plasma, and technologic applications of heavy-current electronics. The institute does research on thermonuclear and accelerator physics and laser technology. Director: S. P. Bugaev, C. Tech. S.--also Head of the Electron Beams Laboratory of the Institute. Director: S. P. Bugaev, corresponding member of the RAS. The Scientific Secretary was Andrei V. Kozirev, C. PM. S. In 1989, personnel included: Director Bugaev, Sergei P., C. Tech. S., since '86; Deputy Directors: Bichkov, Iurii I., since '82; and, Potalitsin, Iurii F., since '79;

Electron Beams Laboratory: Head Bugaev, Sergei P., C. Tech. S., since '77; Senior Researcher Koshelev, V. I., since '78;

Field and Explosive Emission Laboratory: Head Proskurovskii, D. I., since '78; Deputy Head Baksht, Rena B., since '78;

Industrial Applications Laboratory: Head Potalitsin, Iurii F., since '78;

Laser Laboratory

Pulsed Power Laboratory: Head Kovalchuk, B. M., since '78;

Theoretical Laboratory: Head Litvinov, E. A., since '78;

69. The Heavy-Current Electronics Institute in Tomsk

Director of the Institute

Corr.-member of RAS

Bugaev Sergei Petrovich

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Bugaev, Sergei P., C. Tech. S. Born in 1936. He has been a corresponding member of the Siberian Department (1987) and of the General Physics and Astronomy Department of the Academy since 1992. Specialist in electronics and electrophysics. He has authored and co-authored some 130 publications of which three monographs on electronics are well known. He is also credited with nine discoveries or inventions. He graduated from the Tomsk Polytechnical Institute imeni S. M. Kirov in 1959. He worked at the Nuclear Physics Institute of the Tomsk Polytechnical University from 1966 to 1973, and headed a laboratory in atmospheric optics of the Physical Electronics Institute from 1973 to 1978. Since 1977, he has been the head of the Electron Beams Laboratory of the Heavy-Current Electronics Institute in Tomsk and since 1986, he has served as its Director. Institute scientists study the emission and formation of the intense fluxes of charged

particles, the generation of heavy-current high voltage pulses and their influence on the condensed media, the study of the gas-discharge plasma, and technologic applications of heavy-current electronics. The institute does research on thermonuclear and accelerator physics and laser technology. The institute was created in 1977 to research thermonuclear and accelerator physics and laser technology. He has been a professor since 1984 holding a chair in the Tomsk Institute on automation of management systems in radio electronics, where he has guided the work of one doctoral student and six aspirants for the candidate degree. He is on the Scientific Council on Electronic Physics. He received a State Prize in 1986, and hold other medals for his scientific work.

The Institute was organized in 1977 by the GKNT. It is under the direction of Sergei P. Bugaev, corresponding member of the RAS. In 1992 it had a total of 395 people on its staff of whom 151 were research scientists and of whom nine held the doctorate and 50 the candidate degree. There were two corresponding members of the Academy on the staff.



70. The Technological Design Institute for Heavy-Current Electronics

Director of the Institute

Candidate of Technics

Khuzeev Aleksandr Pavlovich

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The Institute in Tomsk is under the direction of Aleksandr P. Khuzeev, C. PM. S. The institute had a total of 109 persons on its staff of whom four were research scientists and four held the candidate degree.



71. Institute of Petroleum Chemistry of SB RAS

Director of the Institute

Prof. of Chemistry

Ekaterina E. Sirotkina

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International

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The Oil Chemistry Institute in Tomsk was established in 1968. In 1992 the institute had a total of 390 persons on its staff of whom 82 were research scientists and of whom two held the doctorate and 66 the candidate degree. The institute studies the composition and properties of oil and its components, the physico-chemistry of oil systems and surface phenomena, the chemistry of additives and admixtures for carbon-hydrogen systems. New data on the composition, structure and properties of the oil components for the West Siberia and other regions are obtained from analysis of some 6000 oil samples. The Institute also provides research support for the Tomsk petrochemical complex. The Director of the institute in 1992 was Ekaterinburg E. Sirotkina, D. Chem S. The Scientific Secretary was Valentina N. Gerasimova, C. Chem. S.

(1997 update)

History of the Institute

The Institute of Petroleum Chemistry SB RAS was established in 1970 for comprehensive studies into chemistry of West Siberia oils.

A corresponding-member of the USSR Academy of Sciences Michael F. Shostakovsky was the organizer and the first director of the Institute in 1970-1973. Later the Institute was headed by Professor Yury G. Kryazhev (1973-1978), Dr. Anatoly N. Plyusnin (1978-1981) and by a corresponding-member of the USSR Academy of Sciences Gennady F. Bolshakov (1981-1989).

Since 1989 the Institute is headed by Professor Ekaterina E. Sirotkina.

The scientific trends of the Institute are the following:

Fundamental investigations in oil composition and properties; physico-chemistry of oil systems and surface phenomena; creation of information systems on oil chemistry and geochemistry.

A system for complex studies of oils. Logical structure of integrated GIS data base has been created (nearly 40 Mb) including geological, chemical, physico-chemical information on oils as well as technological and ecological information on the territories of oil fields in the Tomsk region, software to reveal zones of ecological hazard and software for cartographic data mapping.

Original methods for separation, fractionation and testing hydrocarbons, heteroatomic and high-molecular oil components and metalloporphyrins, bitumens and rock organic substances etc. New data on the composition and properties of West Siberia oils and those recovered from other regions of Russia and CIS have been obtained.

Advanced technologies for enhanced oil recovery, transportation and refining.

Scientific foundations have been developed for advanced ecologically acceptable technologies intended to enhance oil recovery by physico-chemical methods. A set of unique instruments and methods has been developed to study physico-chemical and rheological properties of surface and dimensional phases in the system: oil-rock-surfactant solution. A novel promising conception has been developed to use

the formation energy or that of injected heat carrier to generate oil-displacing fluid, gels and sols in situ. Five new commercial technologies have been developed to enhance oil recovery of West Siberia oil fields. The technologies passed large-scale field tests and now they are being made commercial in oil fields of West Siberia.

Analytical and technological aspects of environmental control: purification of water, soil and air from oil and oil products, other organic impurities and from heavy metals.

Reusable adsorbents have been developed to collect oil and oil products from water surface. Their production and use have been brought into a commercial level.

Filter-adsorbent technology intended to purify sewage from oil products and surfactants.

Devices for scientific researches, i.e. densimeters, microcalorimeters, viscosimeters, cryostats and petroleum quality analysers.

Methods for judicious use of natural caustobiooliths, waste of oil refining, coal, peat and other organic raw material processing.

Stabilizers, additives, dyes, lubricants, sensitizers, flotation reagents, surfactants etc.

The Institute has a block of model installation to bring new technologies into a commercial level.

A unique petroleum museum has been created at the Institute containing more than 3000 petroleum samples and cores. They are also used as the subjects for scientific researches.

Present day equipment, accredited laboratories and certified testing methods.

In 1970 a Department of high-molecular compounds of the Tomsk State University was organized at the Institute for training specialists. The Department is traditionally headed by the director of the Institute.

There is a post-graduate course on petroleum chemistry and a dissertation council at the Institute.

The staff numbers 259 including 7 Doctors and 56 Candidates of Sciences.

Information Resources of the Institute:

A geoinformation system (GIS) on geology and chemistry for Russian oils has been created. It consists in three data bases.

Base of factographic data includes files "The Results of Well Tests", containing the results on the studies of all productive and prospecting wells, i.e. productive formations, depth of roof and bottom occurrence, hole depth, perforation range, formation temperature and pressure, differential pressure; buffer, casing head, bottom hole pressures; oil, gas and condensate outputs; etc.

The second data base includes information on current state of wells: abandoned, shut-in or productive.

The third data base includes files "The Results on the Studies of Oil Samples and Dispersed Rock Phases" and over 48 indexes obtained at IPC SB RAS and in other research and industrial institutions. Presented are geochemical characteristics of oils and dispersed rock phases, calculated based on individual composition of alkanes, arenes and metalloporphyrins. GIS permits to develop digital maps.

There are special data bases presenting primary information obtained at geophysical well tests and under the investigations of oil samples and dispersed rock phases. The processing of the information obtained fills up the contents of the basic factographic data bases.

Automatically created file "Chromatograms of Oil Samples and Dispersed Rock Phases" includes chromatograms for the analysed samples in a numerical form. This information is also used to create factographic data base.

Data base on atmospheric pollutions and those of surface and ground waters of the Tomsk Region consists in 16 files characterizing environmental conditions in the region since 1992.

Collection of the Patent and Information Department includes:

Data base "Oil Card Index" (physico-chemical characteristics, element composition and fraction characteristics);

A program for ESR-spectra processing;

A program for data processing based on analyses of oils and dispersed rock phases by main component method;

Patent literature;

Inventions Over the World (abstracts);

Information publications;

Patent research reports;

Information search reports;

Bibliographic bulletins.



72. The Strength Physics and Materials Institute in Tomsk

Director of the Institute

Academician

Panin Viktor Evgenievich

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Panin, Viktor E., D. PM. S. Born in 1930. Specialist in mechanics and solid state physics. Corresponding member since 1981, and academician since 1987--of the

Machine Building and Control Processes Department. He graduated from the Tomsk State University in 1952. From 1955 to 1979, he was on the staff of the Siberian Physico-Technical Institute, heading the Department of the physics of metals of that institute from 1969 to 1979. In 1979, he joined the Department of solid state physics and materials and headed that Department from 1979 to 1980. He was named Deputy Director of the Atmospheric Optics Institute in 1981--that was established in 1969 and engages in research on spectroscopy, laser probing of the atmosphere and other electro-optical devices--and served in that capacity until 1984. In 1984, he became Director of the Physics of Strength of Materials Institute. He was named a deputy chairman of the Presidium of the Tomsk Scientific Center in 1983. He has been a professor at the Tomsk State University since 1970. He is an honored scientist of the former Soviet Union. He was a member of the GKNT. He was also Chairman of the "special-purpose" program for powder metallurgy.

The institute was established in 1984 from the Strength Physics and Materials Department of the Atmospheric Optics Institute. In 1992, the institute had a total staff of 375 persons of whom 104 were research scientists and of whom three held the doctorate and 46 the candidate degree. One Academician served on the staff. Its scientists study the problems of electron theory of the solid body, plastic deformation and destruction of crystals, the physics principles for the creation of the new high strength, durable and corrosion-resistant materials. Particular attention is paid to the creation of materials that will withstand the rigors of the Siberian and the Far North regions. In 1985, a technical-engineering center for the restoration and strengthening of components of machinery and mechanisms was created at the institute. Director: V. E. Panin, D. PM. S. Academician of the Machine Building and Control Processes Department of the AN SSSR from 1987. The Scientific Secretary was Petr G. Burkov, C. PM. S.

(1997 update)

Tomsk Branch of the Institute for Structural Macrokinetics of RAS

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Main directions of TF ISM RAS scientific activity:

experimental and theoretic investigations of self-propagating high-temperature synthesis (SHS) processes;

mathematic simulation of SHS under impact, action of electromagnet and other fields;

development of the methods of SHS production of new materials with the unique properties (porous ceramics, high nitrogen ligatures for making superhard stainless nickel free steels, resistive pastes for heaters free of noble metals, getters on the base of aluminides of transition metals etc.

More important projects, conducted with the participation of TF ISM RAS:

The development of SHS technology for production of filters for

purification of drinking water, industrial wastes.

SHS technology of burial of the Siberian chemical plant radioactive wastes.

History of Institute

The Branch was established in 1989.

The founder of SHS school, member correspondent of Russian Academy of Sciences mr. Merzhanov A.G. paid much attention to the works of Tomsk SHS school, headed by professor Maksimov Yu. M. It was their initiative to establish the Branch of the Institute for Structural Macrokinetics in 1989. At present the staff of the Institute is 70 persons, among them there are 2 Doctors and 12 Candidate of Sciences. During these years a member of fundamental investigations had been conducted in the field of self-propagating modes of chemical transformations in different porous heterogeneous systems. The characteristic peculiarities of the investigations conducted at the Tomsk Branch is the development of new material synthesis technologies, their implementation is left to the enterpriser.



73. Institute of Ecology of Natural Complexes of SB RAS

Director of the Institute

Dr. of Biology

Vorobiev Vladislav Nikitich

Phone: +7(382-2) 25-88-55

Fax: +7(382-2) 25-88-55

E-mail: root@ecology.tomsk.su

The Ecological Protection Complex Institute in Tomsk is under Vladislav N. Vorob'ev, D. Bio. S. The institute was organized in 1990. The Scientific Secretary was Galina S. Shchegoleva, C. Chem. S.



Kemerovo Scientific Center (650600) in Kemerovo:

Gennadii I. Gritsko, corresponding member of the RAS.

In 1992, the Scientific Secretary of the center was Evgenii L. Schastlivtsev, C. Tech. S.

The institutes in Kemerovo under the Scientific Center are:

74. Institute of Coal Research, SB RAS, Kemerovo.

Director of the Institute

Corr.-member of RAS

Gritsko Gennadii Ignatievich

Phone: +7(384-2) 28-14-33

Fax: +7(384-2) 21-18-38

E-mail: prezid@tranzit.kemerovo.su

The Kemerovo Coal Institute in Kemerovo was established in 1983 borrowing personnel from the Institute of Mining and the Institute of Inorganic Chemistry in Novosibirsk.

Gritsko, Gennadii, D. Tech. S. Born in 1930. Engineer. Specialist in research into pressures of pits in coal mines. Corresponding member since 1990. He is Director of the Coal Institute in Kemerovo. He is author of 20 scientific works and co-author of 121, of which eight were important monographs. He introduced the method for predicting pressures in coal mine pits and developed the technology to implement the method. He teaches at the Kuzbass Polytechnic Institute where he has guided the work of two doctoral and 42 aspirants for the candidate degree. He was on the Scientific Council on physical technical problems in the exploitation of useful minerals of the Geology, Geochemistry and Mining Sciences Department of the AN SSSR; on the Scientific-Technical Council a government ministry; on the Council on the mechanical and mathematical, energetics and earth sciences of the Siberian Department of the academy. He is on the specialists' supervisory panel for dissertation defense and chairman of the doctorate granting body of the Institute of Coal. He is editor of a scientific journal and Director of the Kemerovo Scientific Center of the Siberian Department. Under Dr. Gritsko's leadership, an International Center for Coal Research is being organized in Kemerovo under the Kemerovo Scientific Center.

Its Director in 1987 was G. Gritsko, D. Tech. S., a USSR State Prize winner. The institute studies ways to exploit the coal deposits under the mountainous geological conditions of the Kuzbass, studies coal-chemistry problems, and coal conversion by means of underground gasification and its conversion into engine fuels is studied here. Pollution studies of industrial cities are also conducted. The International Center of Coal Research is in process of being established based upon the Kemerovo Institute of Coal. It will be under the direction of corresponding member G. Gritsko of the Institute of Coal. The Scientific Secretary was Vladimir M. Skomorokhov, C. Tech. S.



75. The Chemistry of Carbon Materials Institute in Kemerovo

Director of the Institute

Dr. of Chemistry

Kryazhev Yurii Gavriilovich

Phone: +7(384-2) 26-57-69

The institute is under the direction of Iurii G. Kriazhev, D. Chem. S.
The Scientific Secretary is Anri I. Min'kov, C. Ch. S.



Yakutsk Scientific Center 677000 in Yakutsk:

Vladimir P. Larionov, corresponding member of the RAS.

[Larionov, Vladimir P., D. Tech. S. Born in 1938. Engineer. Specialist in machine building and construction. Corresponding Member of the Academy and of the Siberian Department in 1993. Since 1962, he has directed the work of the Physical Technical Problems of the North Institute in Yakutsk. He is a professor, recipient of the Prize of the Council of Ministers of the Soviet Union, deputy head for science of the Yakutsk ASSR, and was a Peoples' Deputy of the Soviet Union. He is author of 12 scientific works of which the monograph "Electrospark Welding Construction" stands out. He has co-authored another 169 publications. He is deputy chairman of a Scientific Council of the GKNT on machines and materials

and the exploitation and introduction of foreign practices into production as well as on the Russian Academy of Sciences national committee on welding, a member of the Supreme Soviet for science. In 1991, a new International Research Center for Northern Territories Development in Siberia was established that links together the work of scientists of three Siberian Department Institutes: the Institute of Cryosphere of Earth in Tyumen, the Institute of Physico-Engineering Problems of the North in Yakutsk, and the Institute of Philology in Akademgorodok-Novosibirsk. As Director of the Institute of Physico-Engineering Problems of the North in Yakutsk, Dr. Larionov will play a major role in the development of this new international research institute.(LDA 89-11378.)]

(1997 update)

Yakutsk Research Center

The skeleton of a rhinoceros found near the village of Churapcha, one of the most valuable exhibits of the Geological Museum of the Yakut Research Centre.

Yakut (Sakha) Republic is situated in the north-east of Siberia (its area is 3103 thousand sq.km, its population 1099 thousand people). Forty per cent of its territory is beyond the Polar Circle. At Oymyakon, "Pole of Cold" of the Northern Hemisphere, the minimum winter temperature is - 71,1 °C, and maximum temperature in summer may reach + 36,7 °C.

Yakutia is rich in diamonds and gold, in tin and antimony, in oil, coal, and iron ore. It has many mines for the extraction of non-ferrous metals and other minerals. Agriculture is very poor due to the permafrost. Climatic conditions are extremely severe.

The Yakut Research Centre (YRC) of RAS SB includes:

Diamonds of Yakutia.

Institute of Cosmophysical Research and Aeronomy

Institute of Mining of the North

Yakut Institute of Geosciences

Permafrost Institute

United Institute of the Physical-Technological

Problems of the North involving:

Institute of the Physical-Technological Problems of the North

Institute of Non-Metallic Materials

The Yakut Research Centre (YRC) of YaNAS includes:

Yakut Institute of Biology

Yakut Institute of Language, Literature and History

Economics Institute of Integrated Development of Natural Resources of the North

Environmental Protection Sector Institute of the Problems of Ethnic Groups of the North

RAAS SB

Yakutia Research Institute of Agriculture

Higher Education:

Yakut State University and one more institute

Although a Language, Literature and History institute existed in Yakutsk as early as 1932, it was not until 1949 that the Yakutsk Branch of the Russian Academy of Sciences came into being. In 1957, with the establishment of the Siberian Division of the Academy, the Yakutsk Branch was transferred to its jurisdiction. In 1987, the Yakutsk Branch had some 30 doctoral degrees scientists and 300 with candidate of sciences degrees. Branch institute scientists lecture in Yakutsk State University and students from the University do their practical work in the institutes and participate in institute expeditions. In 1992, the center had 3280 persons working in the institutes of the center of whom 994 were research scientists and of whom 55 held the doctorate and 446 the candidate degree--a considerable increase over a five year period. Three Corresponding Members of the RAS were on the staff. Chairman: Larionov, Vladimir P. Born in 1938. Since 1989, he has been Director of the Physical Technical Problems of the North Scientific Research Institute in Yakutsk that was founded in 1970 to research the strength of various materials, the cold resistance of steel and the problems and properties of gas hydrate transport. He has also been a Deputy Chairman of the Yakutsk Scientific Center since January 1989. Since 1992, Valerii A. Sherstov, C. Tech. S., has been Scientific Secretary of the center. The institutes under the Yakutsk Center are listed below:

76. Yakut Institute of Geosciences, SB RAS, Yakutsk.

677891, Yakutsk-891, Russia

pr. Lenina, 39

YIG SB RAS

Phone: +7(411-22) 2-53-97

E-mail: geo@geo.yacc.yakutia.su

The Yakutsk Institute of Geological Sciences in Yakutsk under Boris V. Oleinikov, D. GM. S. was organized in 1991 with a staff of 322 persons of whom 132 were scientists and of whom nine held the doctorate and 76 the candidate degree. In 1991, the RAS authorized an Experimental Methods Seismological Group with a contingent of 66 persons. The Scientific Secretary was Gai P. Mikhalev.



77. Yakutsk Institute of Biology in Yakutsk under Nikita G. Solomonov, corresponding member of the RAS.

Solomonov, Nikita G., D. Bio. S. Born in 1929. Biologist. Specialist in ecology and ecological plant physiology. Corresponding member of the General Biology Department of the Academy and of the Siberian Department since 1990--and

reconfirmed in 1992. He has authored 64 scientific works of which four monographs published from 1973 to 1980 are considered to be scientifically significant. He is the Director of the Yakutsk Biology Institute. He has studied pollution ecology and the ecology of plants and has established an original school for research and study in these fields. For 18 years he has held the chair of zoology at the Yakutsk State University where he has directed the work of 12 aspirants for the candidate degree. He was a member of the ecological section of the Scientific Council of the AN SSSR on problems of the fundamental control of the environment and the reconstruction of animal world; a member of the Research Committee on the biological sciences of the Siberian Department ; head of the Yakutsk Department for All-Union territorial society, and on the editorial boards of "Ecology", "Cryobiology", and "Izvestia" of the Siberian Department of the AN. SSSR. He was also on the Presidium of the Yakutsk Scientific Center of the Siberian Department of the RAS.

Organized in 1991 with a total staff of 264 of whom 125 were research scientists and of whom six held the doctorate and 60 the candidate degree. The Scientific Secretary was Pavel I A. Remigailo.



78. The Language, Literature and History Institute of the Yakutsk (aya)-Sakha Scientific Center of the Siberian Branch in Yakutsk was founded in 1935--the first institute of the Yakutsk Branch.

In 1988, the staff of the institute totaled 153 of whom 97 were researchers and of whom 11 held the doctorate and 62 the candidate degree. It was reauthorized by the RAS in 1991 with a compliment of 131 persons of whom 98 were research scientists and of whom eight held the doctorate and 51 the candidate degree--a decline in Personnel. It underwent two name and status changes prior to its present name and ranking that it was given in 1988. Its major scientific interests are in the study of language, literature, folklore, history and art of Yakut peoples, a study of the history and modern processes of the State, sociological studies, and the development of language problems for the Yakut, Even, Evenk, and Yukagir languages. The institute carries on extensive archaeological research that includes the Diring-Yuryakh Paleolithic settlement on the Lena river bank. Institute scientist have developed the Yakut alphabet, and are developing grammar and dictionaries of the language. The Directors of the institute have been: P. A. Oiunskii (1935-37), S. M. Kochkin (1937-38), V. N. Chmezev (1938-40), R. I. Mestnikov (1940-41), T. A. Shub (1943-47), A. I. Novgorodov (1947-49), Z. V. Gogolev (1949-63), E. I. Korkina (1963-84), and since 1984, V. N. Ivanov, D. Hist. S., has been the Director. Structure of the institute: The institute is organized into five departments:

history;
linguistics;
literature, art and folklore;
humanitarian problems of the North, and
relations between different nationalities and ethnosocial processes.

The institute has a separate sector on archeology. Research supervisors of the institute include: P. A. Sleptsov, A. N. Myreeva, N. E. Petrov, M. I. Ivanov, T. E. Andreeva, V. A. Robbek, G. S. Syromiatnikov, I. G. Potapov, N. N. Toborukov, Kh. K. Lebedeva, F. M. Zykov, S. V. Atlasov, and D. A. Shirina. Dr. Vasili N.

Ivanov, D. Hist. S., has been the Director since 1984. In 1992, Roza V. Shelekhova, C. Hist. S., was the Scientific Secretary of the institute.



79. Institute of Cosmophysical Research and Aeronomy, SB RAS,

Yakutsk.

677007, Yakutsk-7, Russia

pr. Lenina, 31

ICRA SB RAS

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Director of the Institute

Corr.-member of RAS

Krumskii Germogen Filippovich

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E-mail: centr@ikfia.yacc.yakutia.su

The Institute of Cosmophysics and Aeronomy Research in Yakutsk is under Germongen F. Krymskii, corresponding member of the RAS.

[**Krymskii (Krimskii), Germogen F.**, D. PM. S. Born in 1937. Physicist. Specialist in nuclear physics and the physics of cosmic rays. Corresponding member of the General Physics and Astronomy Department of the RAN since 1992. He has authored or co-authored 207 scientific works of which three are major monographs. He graduated from the Yakutsk State University in 1959. From 1959, he worked at the Laboratory for Cosmic Rays, of the Space Physics Research and Aeronomy Institute in Yakutsk as a laboratory assistant, a laboratory technician, a junior and senior researcher, and head of a sector of the theoretical Department, and in May of 1988, he was named Director of the Space Physics Research and Aeronomy Institute in Irkutsk that had been established in 1962 and is a center for the study of cosmic rays. He became a member of the Siberian Department's Presidium in 1988. He is an honored Scientist of the Soviet Union. He was named chairman of the Yakutsk Scientific Center in April 1989. In 1990, the Siberian Department of the Russian Academy of Sciences established the Siberian Center of Solar-Terrestrial Physics in Siberia--a new international research center that combined the work of scientists in two major institutes: the Terrestrial Magnetism, Ionosphere and Radio Wave Propagation Institute in Irkutsk and the Institute of Cosmophysical Reser and Aeronomy in Yakutsk in the establishment of this new international thrust. As Director of the Siberian Institute of Cosmophysical Research and Aeronomy located in Yakutsk, Dr. Krimskii will play a major role in the development of this new scientific international research effort.]

Organized in 1991 with a personnel complement of 351 persons of whom 109 are research scientists and of whom six hold the doctorate and 49 the candidate degree. One corresponding member of the Russian Academy is on the staff. In June 1990, the Siberian Department linked the personnel of this institute with those of the Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation (now the Solar Physics Institute) in joint research as part of the Siberian Center of Solar-Terrestrial Physics international research effort. A large number of other institutes of the Siberian Department are also doing research on related topics. The activities of this new center will be to participate in the international programs on "Solar-Terrestrial Energy Programme", "Flare Studies in the Current Maximum of Solar Activity, "

and in the international Geosphere-Biosphere Program projects such as STEP, INTERBAL and INTERMAGNET. Observation and data gathering bases include: Kotelny, Tiksi, Zhigansk, Yakutsk, Norilsk, Zuii, Irkutsk, Patrony, Uzur, Lisivyanka, Tory, Mondy, and Badary. In 1992, Viktoria P. Egorova, C. PM. S. was Scientific Secretary of the institute.



80. The Complex Economic Institute for the Development of the Natural Resources of the North in Yakutsk under Nikolai V. Igoshin, D. Econ. S. Established in 1986. Personnel totaled 128 in 1992 of whom 77 were scientific researchers and of whom two held the doctorate and 23 held the candidate degree. In 1992, Anatolii I. Krivoshapkin was Scientific Secretary of the institute.



81. Permafrost Institute, SB RAS, Yakutsk.
677018, Yakutsk-18, Russia
PI SB RAS
Phone: +7(411-22) 4-46-34
E-mail: postmaster@imzran.yacc.yakutia.su
Director of the Institute
Dr. of Technics
Kamenskii Rostislav Mikhailovich
Phone: +7(411-22) 4-46-34
E-mail: postmaster@imzran.yacc.yakutia.su

The Permafrost Institute in Yakutsk. Rostislav M. Kamenskii, D. Tech. S. was organized in 1991 with a staff of 416 persons of whom 109 were scientific researchers and of whom six held the doctorates and 49 the candidate degree. In 1992, Afanasii A. Mandarov, C. Tech. S. was the Scientific Secretary of the institute.



82. Combined Institute of the Physical-Technical Problems of the North in Yakutsk was organized in 1991, and had a personnel total of 379 persons of whom two held the doctorate and 64 the candidate degree, and two were corresponding members of the RAS. General Director was Vladimir P. Larionov, corresponding member of the RAS.



83. Institute of the Physical-Technological Problems of the North, SB RAS, Yakutsk.
677007, Yakutsk-7, Russia
1, Oktyabrskaya Str.
IPTPN SB RAS
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Fax: +7(411-22) 4-04-55

Administration
Director of the Institute
Corr.-member of RAS
Larionov Vladimir Petrovich
Phone: +7(411-22) 4-04-55

Fax: +7(411-22) 4-04-55

[**Larionov, Vladimir P.**, D. Tech. S. Born in 1938. Engineer. Specialist in machine building and construction. Corresponding Member of the Academy and of the Siberian Department in 1993. Since 1962, he has directed the work of the Physical Technical Problems of the North Institute in Yakutsk. He is a professor, recipient of the Prize of the Council of Ministers of the Soviet Union, deputy head for science of the Yakutsk ASSR, and was a Peoples' Deputy of the Soviet Union. He is author of 12 scientific works of which the monograph "Electrospark Welding Construction" stands out. He has co-authored another 169 publications. He is deputy chairman of a Scientific Council of the GKNT on machines and materials and the exploitation and introduction of foreign practices into production as well as on the Russian Academy of Sciences national committee on welding, a member of the Supreme Soviet for science. In 1991, a new International Research Center for Northern Territories Development in Siberia was established that links together the work of scientists of three Siberian Department Institutes: the Institute of Cryosphere of Earth in Tyumen, the Institute of Physico-Engineering Problems of the North in Yakutsk, and the Institute of Philology in Akademgorodok-Novosibirsk. As Director of the Institute of Physico-Engineering Problems of the North in Yakutsk, Dr. Larionov will play a major role in the development of this new international research institute.(LDA 89-11378.)]

The Institute of the Physico-Engineering Problems of the North in Yakutsk under Vladimir P. Larionov. (See above.) In the 1990s, the institute joined with the Cryosphere of the Earth Institute under corresponding member Melnikov, and the Institute of Philology in Akademgorodok under Lavrentyev to form a new International research Center for Northern Territories Development in Siberia. The center will use organizations of the Yakutsk and the Tyumen Scientific Centers in new collaborative research efforts on problems of Northern Siberia. In 1992, Valerii V. Popov, C. Tech. S., was Scientific Secretary of the institute.



84. Institute of Non-Metallic Materials, SB RAS, Yakutsk.

677002, Yakutsk-2, Russia

10, Avtodorozhnaya Str.

INMM SB RAS

Phone: +7(411-22) 3-13-33, 2-06-00

Director of the Institute

Dr. of Technics

Cherskii Igor Nikolaevich

Phone: +7(411-22) 3-13-33, 2-06-00

The Institute of Nonmetallic Materials in Yakutsk is under Igor' N. Cherskii, D. Tech. S. This institute was organized in 1991 had has a total of 69 persons of whom 49 are scientific researchers and of whom three hold the doctorate and 12 the candidate degree.



85. Institute of Mining of the North, SB RAS, Yakutsk.

677007, Yakutsk-7, Russia

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IMN SB RAS

Phone: +7(411-22) 3-58-45
Fax: +7(411-22) 6-27-23
E-mail: igd@leo.yacc.yakutia.su

Administration:
Director of the Institute
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Novopashin Mikhail Dmitrievich
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E-mail: igd@leo.yacc.yakutia.su

The Mining Institute in Yakutsk was under Viktor L. Iakovlev, corresponding member of the RAS until replaced by Mikhail Novopashin.

[**Iakoviev, Viktor L.**, D. Tech. S. Born in 1934. Mining Engineer. Specialist in mining. Corresponding member of the Academy and of the Siberian Department since 1990. From 1982 to 1984 he taught at the Sverdlovsk Mining Institute imeni V. V. Vazhrushev, and since 1987 he has taught at the Yakutsk State University where he has guided the research of nine aspirants for the candidate degree. He has written 27 studies of which one is a significant monograph and he has co-authored 79 publications of which four are major monographs. He is chairman of the Russian Group on International Mining in the Arctic of the USA Committee, on the Scientific Council of the Siberian Department for the Mechanics, Energetics, and Mining Sciences, and he is chairman of the Yakutsk Scientific Center of the Siberian Department of the Russian National Academy]

This institute was organized in 1991 with a total membership of 236 persons of whom 113 are scientific researchers and of whom 10 hold the doctorate and 41 the candidate degree. There is one corresponding member on the staff. In 1992, Gennadii P. Dovidenko, C. Tech. S. was the Scientific Secretary of the institute.



86. Department of Applied Mathematics and Computer Technology in Yakutsk under Mikhail G. Chistiakov was authorized by the RAS in 1991 with a staff of 27 persons of whom two hold the doctorate and three the candidate degree.



87. Department for Protecting Nature (Environmental Protection) in Yakutsk under Dmitrii D. Savvinov., D. Bio. S. Authorized by the RAS in 1991, with a staff of 50 persons of whom 32 are scientific researchers and of whom two hold the doctorate and 11 the candidate degree.



Omsk Scientific Center (644000) in Omsk under Valerii K. Dupliakin, D. Chem. S.

In 1992, the Scientific Secretary of the center was Aleksandr I. Nizovskii, C. Chem. S.

Research institutes under the Omsk Scientific Center are listed below:

88. Omsk Branch of the Institute of Catalysis of SB RAS in Omsk

**644040, Omsk-40, Russia
54, Neftezhavodskaya Str.
OBIC SB RAS
Phone: +7(381-2) 66-44-50**

**Director of the Institute
Dr. of Chemistry
Dyplyakin Valerii Kyzmich
Phone: +7(381-2) 66-44-50**

Authorized in 1991, with a complement of 253 persons of whom 40 were research scientists and of whom one held the doctorate and 15 the candidate degree, this branch of the Institute in akademgorodol-Novosibirsk is under Valerii K. Dupliakin..

89. Institute of Sensor Microelectronics, SB RAS, Omsk.

**644077, Omsk-77, Russia
pr. Mira, 55-a
ISM SB RAS
Phone: +7(381-2) 64-86-76
Fax: +7(381-2) 64-86-76
E-mail: Bolotov@ism.omsk.su**

**Director of the Institute
Candidate of Phys.-math.
Bolotov Valerii Victorovich
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Fax: +7(381-2) 64-86-76
E-mail: Bolotov@ism.omsk.su**

The Sensors Microelectronics Institute in Omsk under Nikolai N. Gerasinenko, D. PM. S. was authorized in 1991 by the RAS with a total number of personnel of 46 of whom 36 were researchers and of whom one held the doctorate and 16 the candidate degree. In 1992, Natal'ia N. Strumina, C. PM. S., was the Scientific Secretary of the institute. It is now under the direction of Valerii V. Bolotov.

90. Omsk Combined Branch Institute of History, Philology and Philosophy

in Omsk under Nikolai A. Tomilov, D. Hist. S. Authorized in 1991 with a total of 30 persons of whom 12 were researchers and of whom two held the doctorate and 20 the candidate degree.

91. Institute of Information Technologies and Applied Mathematics, SB RAS, Omsk.

**Director of the Institute
Dr. of Technics
Shaptsev Valerii Alekseevich
644050, Omsk-50, Russia
pr. Mira, 19-a
IITAM SB RAS
Phone: +7(381-2) 65-37-27, 66-50-18
Fax: +7(381-2) 65-14-33
E-mail: iitpm@intekh.omsk.su**

The Institute of Information Technology and Applied Mathematics in Omsk is under Valerii A. Shaptsev, D. Tech. S. It was Authorized in 1991 by the RAS with a complement of 112 persons of whom 54 were research scientists and of whom five held the doctorate and 20 the candidate degree.



Tyumen Scientific Center (625000) in Tyumen

The center is under Vladimir R. Tsibul'skii. Authorized in 1992 with a complement of 173 persons of whom 14 held the doctorate and 82 the candidate degree. There was one Academician and one Corresponding Member on the staff of the Center's institutes. Research institutes under the Tyumen Scientific Center are listed below:

(1997 update)

Tyumen Research Center

Tyumen Region (its area is 1435 thousand sq.km, its population 3135 thousand people) is a vitally important fuel-power base of the Russian Federation and of the Commonwealth of Independent States; a large oil and gas exporter. This region of West Siberia is characterized by a unique combination of severe climatic conditions, natural resources, extremely vulnerable environment, and extreme anthropogenic impact on the environment, and by complicated regional socio-political and economic problems.

The Tyumen Research Centre (TRC) of RAS SB includes:

**Institute of the Earth Cryosphere
Institute of Northern Development
Institute of Multi-Phase Systems
Mechanics**

Institutes of RAAS SB:

**Research Institute of Agriculture
of North Urals
Research Institute of Land
Improvement and Rational Use of
Nature**

RAMS SB:

**Institute of Clinical and
Prophylactic Cardiology**

Higher Education:

**Tyumen State University
and 4 other institutes**

**Tobolsk, Tyumen region
The old Kremlin (XVI
century).**



92. Institute of the Earth Cryosphere, SB RAS, Tyumen.

625000, Tyumen, Russia
box 1230
IEC SB RAS
Phone: +7(345-2) 24-36-49
Fax: +7(345-2) 25-11-53
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Director of the Institute
Corr.-member of RAS
Melnikov Vladimir Pavlovich
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Fax: +7(345-2) 25-11-53
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Scientific Secretary of the Institute
Candidate of Economics
Limonova Emma Mikhailovna
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The Institute of the Cryosphere of the Earth in Tyumen; under Vladimir P. Mel'nikov, corresponding member of the RAS.

[**Mel'nikov (Melnikov), Vladimir P.**, D GM. S. Born in 1940. Geologist. Specialist in geocriology, geophysical methods of researching the earth's crust. Corresponding member of the Oceanography, Atmospheric Physics and Geography Department and of the Siberian Department since December 1987. He graduated from Moscow Geological Prospecting Institute imeni Sergei Ordzhonikidze in 1962. He worked at there as an engineering student, a participant in geological expeditions, a junior and senior researcher. From 1970 to 1984, he worked at the Permafrost Institute in Yakutsk where he was a senior researcher and headed (from 1984 to 1985) the Department of engineering, geocriology and Deputy Director of the Geology and Geophysics Institute of the Siberian Department. In 1985 he was named Director of Problems of the North Institute in Tyumen--now called the Cryosphere of Earth Institute. He heads the national committee on permafrost, and is a leading member of the Science Coordination Council of the Soviet Union. In 1991, a new International Research Center for Northern Territories Development in Siberia was established that links together the work of scientists of three Siberian Department Institutes: the Institute of Cryosphere of Earth in Tyumen, the Institute of Physico-Engineering Problems of the North in Yakutsk, and the Institute of Philology in Akademgorodok-Novosibirsk. As director of the Institute of Cryosphere Earth, Mel'nikov will collaborate with the Directors of the other two institutes in the development of this new international research center. (LDA 89-11378.)]

Authorized in 1992 with a complement of 121 persons of whom 67 were research scientists and of whom three held the doctorate and 33 the candidate degree. One corresponding member of the RAS was on the staff. In the 1990s, the institute joined with the Institute of the Physico-Engineering Problems of the North under corresponding member Larionov, and with the Institute of Philology in

Akademgorodok under Lavrentyev to form a new International research Center for Northern Territories Development in Siberia. The center will use organizations of the Yakutsk and the Tyumen Scientific Centers in new collaborative research efforts on problems of the area. In 1992, Emma M. Limonova, C. Earth S. was Scientific Secretary of the institute.



93. Institute of Northern Development, SB RAS, Tyumen.

(1997 update)

Administration

Director of the Institute

Prof., Dr. of technical sciences

Tsibulsky Vladimir Romanovich

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**Deputy director for Science
Institute**

Dr. of History

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Scientific Secretary of the

Dr. of Biology

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Referent of Director

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The Institute for Problems of the North in Tyumen under Vladimir R. Tsibul'skii was authorized in 1992 with a staff of 193 persons of whom 82 were researchers and of whom eight held the doctorate and 37 the candidate degree.

(1997 update)

History of the Institute

Institute of Northern Development was organized on December 15, 1985, according to the decision of Council of Ministers on August 20, 1985 N 797 and the decision of the Presidium of the USSR Academy of Sciences on November 28, 19.85 N 1223

According to the decision of Siberian Division Russian Academy of Sciences N 493 on November 5, 1988 the Institute of Multiphases Mechanics separated from IPOS.

According to the decision of Siberian Division Russian Academy of Sciences N 261 on May 5, 1991 the Institute of the Earth's Cryosphere separated from IPOS.

At present there are 7 Laboratories in the Institute:

"Botanical garden";
biology;
new informational technologies;
biochemistry;
archaeology and anthropology;
non-traditional methods of oil and gas fields development;
ethnology of West Siberian peoples.



93. Institute of Northern Development, SB RAS, Yakutsk.

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IND SB RAS

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Basic Scientific Activities:

new geoinformational technologies of Northern development;
scientific basis of analysis, exploration and development of oil and gas fields, capillar-screened as well, and accumulation of hydrocarbons in threshold of cryolitozone;
problems of social-economical and ethnocultural development of West-Siberia;
scientific basis of stability and conservation of biogeocoenosis of the West-Siberia;

The most important projects, fulfilled by IPOS:

Scientific-research program "Yamal" (Co-ordinator of the nature-preserving part is professor V.R. Tsibulsky).

Ugry and Indoeuropeans. Ethnical co-operation and formation of khanty and mansi culture.

Complex archaeological and ecologo-floristic investigation of Ingalskaya valley.

The program of the Tyumen oblast development.

Exploration of large gas fields of the Yamal peninsula and Nadym-Pour-Tazovsky region of the Tyumen oblast.

Projects:

genesis, structure and resources of natural gas in Tourn-Kon'jak-Santovsky deposits;

analysis of reasons, motifs and mechanisms defining the dynamics of real economic indices;

creating of data bases for GIS for the problems of landscapes stability of polar and pre-polar territories;

Information resources

Informational resources of IPOS are presented by Power Station RISK 6000;

GIS-technologies ARC/INFO. MapINFO;

Local computer administrative net of the Institute;

Bank of scientific-research information (social-economic, medico-biologic and ecologic) on Yamalo-Nenets autonomous okrug and the Yamal peninsula.



94. The Tyumen' Institute of the Exploitation Problems of the North was established in Tyumen in 1985 from personnel from the Institute of Geology and Geophysics, the Institute of Economics and Industrial Engineering and the Power Engineering Institute--all institutes subordinate to a branch of the Siberian Department.

Mel'nikov (Melnikov), Vladimir P., D GM. S. Born in 1940. Geologist. Specialist in geocriology, geophysical methods of researching the earth's crust. Corresponding member of the Oceanography, Atmospheric Physics and Geography Department and of the Siberian Department since December 1987. He graduated from Moscow Geological Prospecting Institute imeni Sergei Ordzhonikidze in 1962. He worked at there as an engineering student, a participant in geological expeditions, a junior and senior researcher. From 1970 to 1984, he worked at the Permafrost Institute in Yakutsk where he was a senior researcher and headed (from 1984 to 1985) the Department of engineering, geocriology and Deputy Director of the Geology and Geophysics Institute of the Siberian Department. In 1985 he was named Director of Problems of the North Institute in Tyumen--now called the Cryosphere of Earth Institute. He heads the national committee on permafrost, and is a leading member of the Science Coordination Council of the Soviet Union. In 1991, a new International Research Center for Northern Territories Development in Siberia was established that links together the work of scientists of three Siberian Department Institutes: the Institute of Cryosphere of Earth in Tyumen, the Institute of Physico-Engineering Problems of the North in Yakutsk, and the Institute of Philology in Akademgorodok-Novosibirsk. As director of the Institute of Cryosphere Earth, Mel'nikov will collaborate with the Directors of the other two institutes in the development of this new international research center. (LDA 89-11378.)

The institute does geocriology engineering and studies problems of control of the development of the Western Siberian oil-gas complex.

Structure of the institute: the institute is comprised of 26 laboratories, eight of which deal with humanities research: applied ethics; languages and cultures of the

nationalities of the Siberian North; problems of the development of the aboriginal population in Yamal-Nenets National District; history of the Arctic policy; ecological and ethnic studies (Novokuznetsk); ecological psychology (Novokuznetsk); ecology of the national minorities in Siberia (Novokuznetsk), and the archeology and ethnography of Western Siberia. The staff numbers 159 researchers of whom 13 hold the doctorate and 67 the candidate degree. One corresponding member of the Russian Academy of Sciences is on the staff. The Director since 1985 has been Dr. V. P. Mel'nikov, D. Geol. S. who is a corresponding member of the Oceanography, Atmospheric Physics and Geography Department of the Russian Academy of Sciences.



95. Institute of Mechanics of Multiphase Systems, SB RAS, Tyumen.

625000, Tyumen, GSP, Russia

74, Taymirskaja Str.

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[1997 update]

Administration

Director of the Institute

Academician of Russian Academy of natural sciences

Prof., Dr. of Phys.-math.

Gubaidullin Amir Anvar

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Scientific Secretary of Institute

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Syrtlanov Vil Roman

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Until 1992, the Institute for Multiphase Mechanical Systems in Tyumen was under Robert I. Nigmatulin, Academician of the RAS and he was replaced by

[Nigmatulin, Robert I., D. PM. S. Born in 1940. Engineer. Corresponding member of the Machine Building, Mechanics, and Control Processes Department and of the Siberian Department since December 1987, and academician since 1990. He has written 40 scientific works of which four are significant monographs. He has 21 inventions and has co-authored another 130 scientific publications of which three are monographs. He graduated from the Moscow Technical Correspondence School imeni N. E. Bauman in 1963 and from the Moscow State University in 1965. He began working at the Bauman school. From 1963 to 1986, he worked at the Institute of Mechanics, as a junior and senior researcher, leader of a sector and head of a laboratory. In 1986, he was named Deputy Director of the Handling Problems of the North Institute in Tyumen. He was a professor at the Moscow State University from 1978 to 1986, and held a chair at the Tyumen State

University from 1986. As a professor there he has guided the work of 10 doctoral students and 35 aspirants for the candidate degree. He is on the national committee on theoretical and applied mechanics. He is an Honored Scientist of both the Academy and of the former State Committee for Science and Technology He was replaced by (GKNT).]

Authorized in 1992 with a staff of 53 persons of whom 22 were research scientists and of whom three held the doctorate and 11 the candidate degree. There was one Academician on the staff. Research concentrated on the theoretical and experimental research into the field of the mechanics of the multiphase system. In 1992, Amir A. Gubaidulin, D. PM. S. was Scientific Secretary of the institute.

(1997 update)

Main directions of scientific activity TIMMS SD RAS:

investigation of fundamental problems of mechanics of multiphase medium;

research of thermal and hydrodynamic processes in saturated porous medium;

modeling of gas, vapor-liquid and gas-droplet mixed flow; study of the dynamic phenomena on interphase borders.

The most important projects, executed with participation IMMS SD RAS:

"Biphase flows and phase transitions at microgravity" within the framework of the contract NASA with Russian space agency on fundamental researches on designed International space station "Alfa". Research of a opportunity of initiation of bubble fusion by effect of a variable field of pressure together with Rensselaer Polytechnic Institute, Troy, New York, USA.

History of the Institute

The Institute the mechanics of multiphase systems SD RAS was formed in 1990.



(1997 update)

Barnaul Research Center

656000

Altai Territory (its area, including Gorno-Altai Republic, is 262 thousand sq.km, and the population 2835 thousand people) is situated in the south of Siberia, and its climatic conditions are most favourable for agriculture. It produces more than half of the corn of West Siberia, half of the wool, one third of meat and one quarter of milk.

The Territory has machine-building and chemical industries, plants for extraction of polymetallic ores, food and consumer goods industries. Mountain Altai is a pristine, non-polluted part of Siberia, which attracts many tourists.

Accommodated in Barnaul are:

Institute for Water and Environmental Problems of RAS SB

Altai Research Institute of Arable Farming and Selection of RAAS SB: Altai RDTI of Animal Husbandry RAAS SB

Research Institute of Horticulture of Siberia of RAAS SB

Higher Education:

Altai State University
and 5 other institutes



96. Institute for Water and Environmental Problems, SB RAS, Barnaul.

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Administration

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The Water and Ecological Problems Institute in Barnaul under Oleg F. Vasil'ev, corresponding member of the RAS. In 1992, Sergei A. Sukhenko, C. PM. S., was Scientific Secretary of the institute.

Vasil'ev (Vasilev), Oleg F., D. Tech. S. Born in 1925 in Moscow. Russian scientist in the fields of applied hydrodynamics and hydraulics. Academician of the Problems of Machine Building, Mechanics, and Control Processes Department of the Russian Academy of Sciences and of the Siberian Department since 1992. He has authored or co-authored 250 scientific works of which four are major monographs. He graduated from the Moscow Institute of Hydromelioration in 1948 and taught at the Moscow Institute of Engineering and Construction until 1959. In 1970, he began working in the Department of applied hydrodynamics in the Institute of Hydrodynamics of the Siberian Department of the AN SSSR. The institute was established in 1957 to conduct theoretical and experimental research on gases, plasma, and the mechanics of fluids. From 1977 to 1980, he served as Deputy Director and head of a Department and as a specialist at the Institute of Applied Systems Analysis in Austria. In 1980, he organized and was head of a Laboratory on the Hydrophysics and Ecology of Reservoirs of the Hydrodynamics Institute of the Siberian Department. In 1985 he was the organizer, and in 1987 was named the Director of the Water and Ecological Problems Institute in Barnaul that was subordinate to the Siberian Department. His works are in the theory of non-stationary and eddy currents of liquids and gases, the hydraulics of open river beds,

pipe systems, and hydraulic works. Since 1962, he has been a professor at the Novosibirsk State University, and from 1980 to 1987, he was on the faculty of the Engineering Institute in Novosibirsk. He has directed the work of three doctorate students and 25 aspirants for the candidate degree. He has been on the Council on the Biosphere since 1970, on the Council on Mathematical Modeling since 1987; on the Presidium's National Committee on Theoretical and Applied Mechanics, and a member of interdepartmental Association Reservoir Research. He was made an honorary member of the Hungarian Hydrological Society in 1978 and received an honorary doctorate in engineering sciences from an East German University in 1985. He is presently located in Barnaul. (GSE 4, p. 525.)



Kizil (Kyzyl) 667000

Siberian Branch of Russian Academy of Sciences, Novosibirsk

Kyzyl Research Center

Tuva Republic (the area is 170 thousand sq.km, and the population 314 thousand people), the capital of which is Kyzyl city, occupies mountains of South Siberia, at the issue of the Yenisey River. Asbestos, cobalt ore, coal, wood, consumer goods and food are produced here. Animal husbandry is the main occupation in agriculture.

Accommodated in Kyzyl are:

Tuva Interdisciplinary Institute of RAS SB

Higher Education:

One institute

96. The Tuvinskii Complex Department in Kizil under Vladimir I. Lebedev. Personnel in the department totaled 116 persons in 1992, of whom 34 were scientific researchers and of whom two held the doctorate and 16 the candidate degree. The department scientists search for ways to convert and enrich the mineral raw materials of the region, the complex economic and social problems of the small producers of the area, the quantity and quality of the mineral resources of the area, and the problems related to the conservation of their natural resources. In 1992, Oktiabrina E. Lanchikova, C. Chem. S., was Scientific Secretary of the complex.

(1997 update)

97. Tuva Institute for Exploration of Natural Resources SB RAS, Kyzyl.

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TuvIENR SB RAS

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Director of the Institute

Dr. of Geol.-miner.

Lebedev Vladimir Ilich

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Chita 672000

Chita Research Center

Main industries in Chita Region (its area is 431 thousand sq.km, and the population 1385 thousand people) are mining industry and deep processing of raw materials, namely, gold, fluorites, molybdenum, tungsten and forest. So far the giant Udokan copper deposit is not used industrially. Animal husbandry farming is the main branch of agriculture.

Accommodated in Chita are:

Chita Institute of Natural Resources of RAS SB

Research Institute of Veterinary of East Siberia of RAAS SB

Higher Education:

3 institutes

98. Chita Institute of Natural Resources, SB RAS, Chita.

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Director of the Institute

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The Chita Institute of Natural Resources was founded in 1981 by personnel from the Chita departments of the Institute of Geography, the V. N. Sukachev Institute of Wood and Forestry, the Limnological Institute, the Computing Center, the Institute of Mining and the Institute of Geology and Geophysics--all of the Siberian Department and located in Krasnoyarsk. Institute scientists study the laws of the formation and distribution of mineral deposits in the Eastern Trans-Baikal zone, conduct economic-geographical investigations of the area, and study the problems of the exploitation of the copper ores of the Udokan deposits. Director Fedor P. Krendelev, D. GM. S. has been a corresponding member of the AN SSSR from 1984. In 1992, Aleksandr P. Chechel', C. GM. S. was Scientific Secretary of the institute.

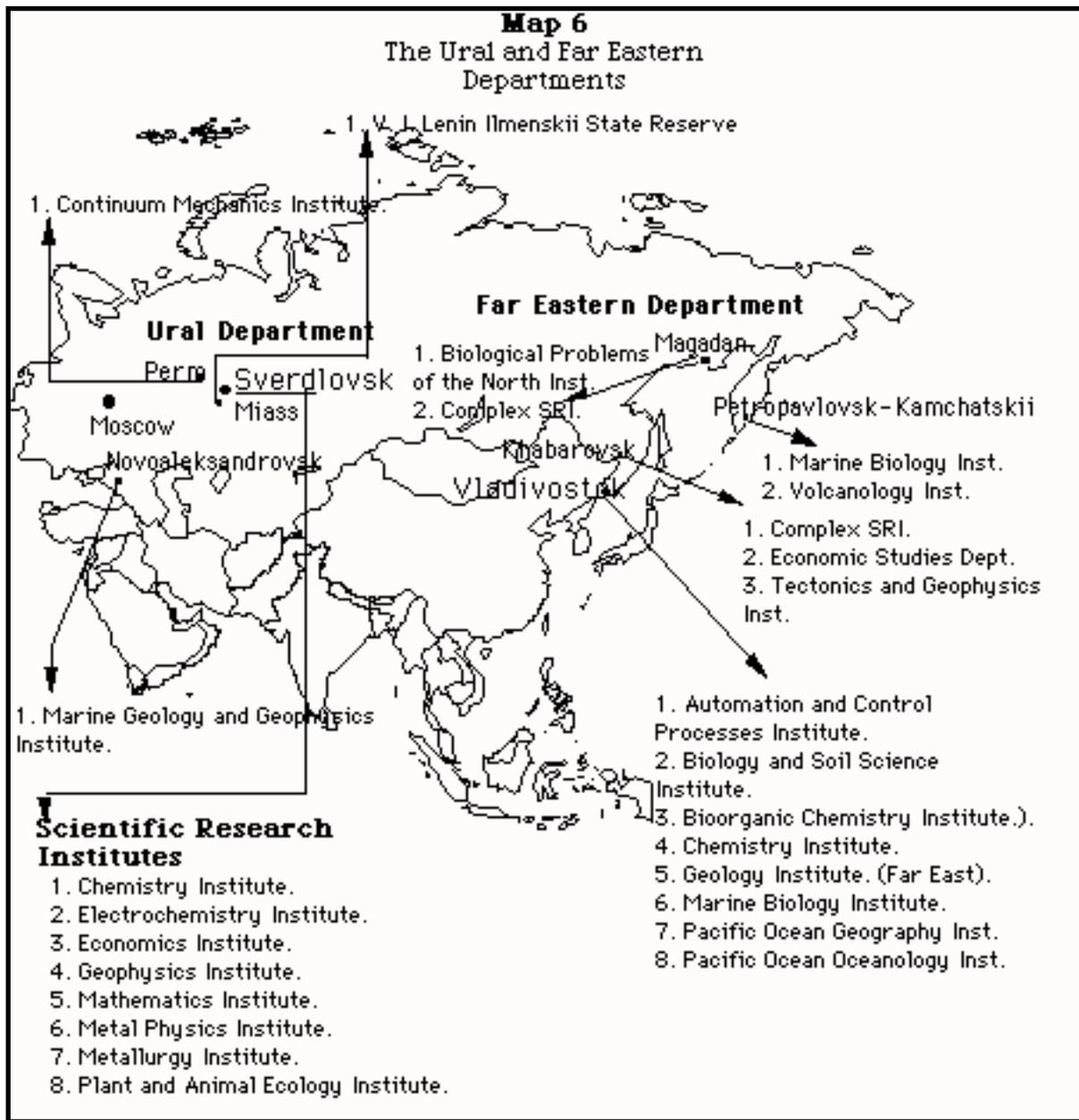


The Far Eastern and the Urals Departments Subordinate to the Academy



The Far Eastern Department--retrospect: The Far East Scientific Center, founded in 1970 to consolidate the work of the scientific research and auxiliary institutions of the Academy of Sciences of the USSR located in the Far East, was converted into a department of the academy in the mid-1980s. The main tasks of the department are the development of fundamental research in the field of the natural and social sciences, work on scientific problems to achieve more rapid developments in the economy and in the development of the productive forces in the area, coordinate research in the natural and social sciences among the scientific institutes of the national academy in the region as well as the research institutes of the ministries, departments, and institutions of higher learning in the territory.¹⁸

¹⁸ (Shilo, Nikolai A., "Scientists in the Far East for the Five-Year Plan," *Ekonomicheskaya Gazeta*, No. 27, July 1982, p. 16.)



Members of the Department--administrative responsibilities:

In 1989, the Far Eastern Department had 34 members which includes a Chairman and four Deputy chairmen. Eleven were academicians and 23 were corresponding members. Seven of the academicians of the center were or are Directors of Scientific Research Institutes subordinate to the center. Another 11 of the corresponding members were or had been Directors or Deputy Directors of research institutes in the region. Two were members of the Presidium of the national academy, one is rector of the Novosibirsk State University, and one, because of advanced age, was named an advisor to the national academy's Presidium in 1988. One was a Vice President of the AN SSSR.

Academicians--age and schools: The birth dates of nine of the 11 academicians of the Far Eastern Department are known. Two academicians were in their 80s, one in his 70s, and the average age of the other six whose birth dates is known was 64 years in 1991. Institutions graduating seven of the 11 academicians are known and include: the University of Gorkiy, the Vladivostok Pedagogical Institute, Moscow State University, Leningrad State University, the Leningrad Institute of Mines, the Leningrad Polytechnic Institute, and the F. E. Dzerzhinskii Artillery Academy. Each of these institutions graduated one academician. Of the 11 academicians, seven were Directors of scientific research institutes and three were Deputy Directors of institutes. Again, the administrative role of Russian scientists in heading laboratories or research institutes stands out. One was Vice President of the AN SSSR, and two others were on the Presidium of the Russian Academy of Sciences. Four held their principal membership in one of the 18 subject-matter departments of the Russian Academy of Sciences.

Corresponding Members--age and schools: The birth dates of 15 of the 23 corresponding members of the Far Eastern Department are known. Three of them were in their 80s, and the average age of the remaining 12 whose birth dates are known was 61 years in 1991. Again, as in the case of the Siberian Department, a lower average age of members of this geographic department is observed. Fourteen of the 23 corresponding members of the Far Eastern Department had their principal memberships in six of the subject-matter departments of the Russian Academy of Sciences--with the predominant number (seven) holding their membership in the Geology, Geophysics, Geochemistry, and Mining Sciences Department. Other joint memberships were with the Mechanics and Control Processes Department, the Economics Department, the History Department, the Oceanology, Atmospheric Physics, and Geography Department, and the General Biology Department is rather accurate reflection of the research emphasis of the Far Eastern Department and of its scientific research institutes. In fact, ten of the corresponding members were or had been Directors of research institutes located in the Far Eastern regions, one was a Deputy Director, and one was Chairman of one of the national scientific councils, which is an important position in the directing of scientific research in Russia. The educational background of the corresponding members is diverse, although the institutions graduating the corresponding members of the department is known in the cases of only eight of the 23 corresponding members. Three of those graduated from Moscow State University; one from Leningrad State University; one from the Middle Asian Geological Exploration Institute in Tashkent; one from the A. N. Krylov Naval Academy of Naval Architecture and Armaments, one from the Far Eastern Agricultural Institute, and one from the Leningrad Veterinary Institute.

Chairman:

Il'ichev, Viktor I. Born in 1932 in the village of Tikhonovo, Vladimir Oblast. Russian hydrologist and hydroacoustics specialist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the AN SSSR from 1976, and, academician since 1981. He graduated from the University of Gorkiy in 1955. Between 1955 and 1974 he was on the Acoustics Institute staff. In 1974, he became Director of the Pacific Ocean Oceanology Institute in Vladivostok that was established in 1973 to study the complex hydrophysics of water masses, sea swell, energy exchange, and the interactions of the ocean. It is subordinate to the academy's Far Eastern Scientific Center (now an academy Department.) Since March 1986, he has served as Chairman of the Far Eastern Department of the academy. He has been a Vice President of the academy and on the Presidium since October 1987. His works deal with acoustic and hydrodynamic cavitation, the resistance of liquids to cavitation, and marine hydrology. (GSE 30, p. 440.)

Deputy Chairmen:

Glushchenko, Viktor Iurii Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the AN SSSR from 1987. Deputy Chairman of the Far Eastern Department since August 1988. LDA 89-11378.)

Miasnikov, Veniamin S. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes of the AN SSSR from December 1987. He has also been a member and Deputy Chairman of the Far Eastern Department since August 1988.

Head Scientific Secretary:

Akulichev, Viktor A., D. PM. S. Since 1981, he has been the Deputy Director of the Pacific Ocean Oceanology Institute in Vladivostok. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy in 1993. He has served as Head Scientific Secretary of the Far Eastern Department since March 1988.

Academicians

Ageev, Mikhail D. Corresponding member of the Problems of Machine Building and Control Processes Department of the Russian Academy of Sciences and of the Far Eastern Department of the AN SSSR since December 1987; academician in 1993.

Derevianko, Anatolii P., D. Hist. S. Born in 1943. Archeologist. Specialist in the fields of archeology and of the ancient history of Siberia and the Far East. Corresponding member of the History Department of the Academy since 1979, and academician since December 1989. He graduated from the Blagoveshchenskii Pedagogical Institute in 1963 and from graduation until 1976 he worked as an aspirant in the Department of the Humanities Research Institute studying the economics and industrial development of Siberia in the Museum of History and Culture. In 1983 he became Director of the History, Philology, and Philosophy Institute of the Siberian Branch in Akademgorodok. He was active in Komsomol organizational activities in the late 70s. He joined the Presidium of the Siberian Department in 1980. From 1980 to 1982, he was rector of the Novosibirsk State University. He is author of 120 scientific works of which 15 are major monographs; he has co-authored 105 scientific works of which six are important monographs. His "History of Science and Culture of Mankind" and "History of the Peoples of Central Asia" both published by UNESCO are major contributions to the literature. He received his doctorate from the German Archeology Institute in the GDR in 1987. In 1991, an agreement was signed between the Siberian Department of the RAS and the Gornii Altai Republican Soviet that established an open international non-governmental organization for international research: The Altai International Center for Humanitarian and Biospheric Research. The center will involve the collaboration of three major bodies: the United Institute of History, Philology and Philosophy in Akademgorodok-Novosibirsk, the Cytology and Genetics Institute in Akademgorodok-Novosibirsk, and the Gorno-Altai Republican Soviet in Gorno-Altai, Russia. As Head of the United Institute of History, Philology and Philosophy, Derevianko will play a major role in the development of this international research center's development.

Druzhinin, Igor P. Corresponding Member of the Far Eastern Department since December 1987; Academician of the Academy since 1993.

Eliakov, Georgii B., D. Chem S. Born in 1929 in Kostroma. Russian chemist and biochemist. Corresponding member of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) and of the Far Eastern Department since 1970, and from 1980 to 1988, he was a Deputy Chairman of that center. He has been an

academician of both departments since December 1987. He graduated from the Department of Chemistry at Moscow State University in 1952. From 1955 to 1959, he worked in Moscow. Since 1959, he has been in Vladivostok where in 1962, he organized and headed the Chemical Laboratory of Natural Physiologically Active Compounds of the Far Eastern Branch (now Department) of the Siberian Department of the AN SSSR. Since 1964, he has been Director of the Bio-organic Chemistry Institute (Pacific) in Vladivostok that is subordinate to the Far Eastern Scientific department and that studies the exploitation of marine and terrestrial plant and animal sources of natural drugs. Also Head of the Steroid and Terpenoid Chemistry Laboratory of that institute. His works are in the synthesis of glycosides, sterols, and glycosides from the roots of ginseng and other plants of the family. (GSE 9, p. 115.)

Fedotov, Sergei A., D. PM. S. Born in 1931 in Leningrad. Russian geophysicist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1970; academician in 1993. Also a member of the Far Eastern Department. He graduated from Moscow State University in 1953. From 1957 to 1971, he worked at the O. Iurii Shmidt Institute of Earth Physics of the AN SSSR. Since 1971, he has been Director of the Volcanology Institute at-Kamchatskii (of the Far Eastern Department of the Russian Academy of Sciences) that was established in 1961 to study volcanism in the Churl-Kamchatka zone. In 1975, he was elected Vice President of the International Association of Volcanology and Chemistry of the Earth's Interior. His principal works deal with the internal structure and seismicity of the earth, properties of the earth's mantle, the mechanism of deep magmatic and volcanic activity, and long-term earthquake predictions. (GSE 27, p. 137.)

Il'ichev, Viktor I. Born in 1932 in the village of Tikhonovo, Vladimir Oblast. Vice President of the Academy for the Far Eastern Department since 1987. Russian hydrologist and hydroacoustics specialist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1976 and, academician since 1981. He graduated from the University of Gorkiy in 1955. Between 1955 and 1974 he was on the Acoustics Institute staff. In 1974, he became Director of the Pacific Ocean Oceanology Institute in Vladivostok established in 1973 to study the complex hydrophysics of water masses, sea swell, energy exchange, and the interactions of the ocean. It is subordinate to the Academy's Far Eastern Department. Since March 1986, he has been Chairman of the Far Eastern Department of the Academy. His works deal with acoustic and hydrodynamic cavitation, the resistance of liquids to cavitation, and marine hydrology. (GSE 30, p. 440.) (See above.)

Ovodov, Iurii S. Born in 1937. Academician of the Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department (now the Physical and Chemical Biology Department) of the Academy and of the Far Eastern Department in 1993. Head of the Carbohydrate Chemistry Laboratory of the Bioorganic Chemistry Institute in Vladivostok since '69, which was established in the mid-1960s and which studies the exploitation of marine and terrestrial plant and animal sources of natural drugs. Professor Ovodov has been a Deputy Director of the institute since 1969.

Shcheglov, Aleksei D., D. GM. S. Born in 1926. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Far Eastern Department since 1979; academician in 1993. Since 1979, he has been Director of the Geology Institute in Vladivostok that studies the laws of distribution of deposits of useful minerals in the Far East and since 1980, he has served as Deputy Chairman of the Far Eastern Center of the Academy.

Shilo, Nikolai A., C. GM. S. Born in 1913 in Piatigorsk. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining

Department of the Academy since 1964, and academician since 1970. He is also member of the Far Eastern Department. He graduated from the Leningrad Institute of Mines in 1937 and worked for various geological institutions in northeastern former Soviet Union. In 1960 he became Director of the Complex Scientific Research Institute (the Northeastern Integrated Scientific Research Institute) at Magadan. Since 1977, he has been Chairman of the Presidium of the Far Eastern Department. Since 1980 he has been on the Presidium of the Russian Academy of Sciences. In 1988, he was appointed advisor to the Academy's Presidium. His works are in the geology and geochemistry of mineral deposits, including gold, silver, tin, mercury, tungsten, platinum, and copper. In 1985, he received the V. A. Obruchev Prize in geology for his lifetime contributions to the geological sciences. (GSE 29, p. 596.)

Zhirmunskii, Aleksei V., D. Bio. S. Born in 1921 in Leningrad. Russian biologist. Corresponding member of the General Biology Department of the Academy from 1972, and academician since 1981. He is also a member of the Far Eastern Department and on the Presidium of that department. He graduated from the Leningrad State University in 1950, worked for the Institutes of experimental medicine of the Academy of Medical Sciences from 1954 to 1955; for the institutes of zoology from 1955 to 1957, and the institutes of cytology of the Academy from 1957 to 1966. In 1966, he moved to Vladivostok to become founding Director (in 1970) of the Institute of Marine Biology of the Russian Academy of Sciences Far Eastern Department (then Far Eastern Scientific Center). He is Head of the Physiological Ecology Laboratory whose research objectives include auto-ecological investigation of adaptation in invertebrates, analysis of life cycles and the organization of natural systems. His works are in cell physiology, the experimental ecology of Marine animals, cellular ecology, and general and comparative physiology. He was replaced as Director of the Marine Biology Institute in 1988. He holds the Chair in Marine Biology at the Far East State University. He has authored some 270 scientific works. (GSE 30, p. 741.)

Corresponding Members

Babushkin, Mark N. Born in 1924 in Volgograd Oblast. Russian scientist in control problems. Corresponding member since 1976. Also corresponding member of the Far Eastern Department. He graduated from the F. E. Dzerzhinskii Higher Naval School in 1947 and from the A. N. Krylov Naval Academy of Naval Architecture and Armaments in 1954. He served on the teaching staff of the academy from 1954 to 1972, becoming a professor there in 1968. In 1973, he was appointed Director of the Khabarovsk Scientific Research Integrated Institute of the Far Eastern Department of the AN SSSR. Since 1973, he has been Director of the Complex Scientific Research Institute in Khabarovsk. This institute studies the biogeochemical and geological processes of the earth, subsurface strata of the earth's crust, biogeological methods of mineral prospecting and geochemical characteristics of ancient regions and deposits. His works are in the theory of multivariable control systems and integrated ship automation, and the theory of analog computers. (GSE 30, p. 20.)

Borukayev, Chermen B., D. Geol. S., Moscow State University graduate in 1958. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining department of the AN SSSR and member of the Far Eastern department since December 1987. Since 1988, he has been the Director of the tectonics and Geophysics in Khabarovsk. which was founded in 1971 and is subordinate to the Far Eastern Department of the Academy. Its scientists study the deep tectonics of the Earth's crust of the continent and Pacific ocean; determine the relationship between the geophysical fields and structures of the Earth's crust; develop estimates

of mineral deposits from the study of tectonic and geophysical relationships, and probe tectonic and geophysical theoretical problems. (LDA 89-11378.)

Bunich, Pavel G. Born in 1929 in Moscow. Russian economist. Corresponding member of the Economics Department of the Russian Academy of Sciences and of the Far Eastern Department since 1970. He graduated from the Economics Department of Moscow State University in 1952. In 1955, he began research and teaching, becoming a professor in 1963. In 1972, he was made Chairman of the Scientific Council of the AN SSSR on the Comprehensive Study of the Scientific Foundations of Profit and Loss Accounting. His works are in economic management, the fixed capital stock and production capacities of industry, the circulating capital of industry, and socialist finance. (GSE 30, p. 29.)

Dikov, Nikolai N. Born in 1925. Corresponding member of the History department and of the Far Eastern department since 1979. Since 1967, Chief of a department of the (Northeastern) Complex Scientific Research Institute in Magadan. With V. A. Kavinets, he discovered the northernmost Paleolithic remains in the world on the Pechora and Lena Rivers, in the Aldan River basin, and on Kamchatka. (LDA 89-11378.) (GSE 11, p. 642d.)

Glushchenko, Viktor Iurii Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the AN SSSR from 1987. Deputy Chairman of the Far Eastern Department since August 1988. LDA 89-11378.) (See above.)

Kapitsa, Andrei P., D. Geo. S. Born in 1931 in Cambridge, England. Russian geographer and geomorphologist. Corresponding member since 1970. From 1953 until 1970, he worked at the Department of Geography of Moscow State University, becoming a professor in 1966, and serving as dean from 1966 to 1970. He participated in four Soviet Antarctic expeditions and in the trans-antarctic crossings from Mirnyi Station to Pionerskaia (aya) (1956), Mirnyi to the south pole (1959-60), and from Vostok Station through the Pole of Inaccessibility to Molodezhaia (aya) Station (1963-64). In 1967-69, he led the Soviet Complex Geophysical Expedition of the AN SSSR to East Africa. He is also member of the Far Eastern Department. He has been Chairman of the Presidium of the Far Eastern Department of the AN SSSR from 1970. Son of P. L. Kapitsa. He has been on the Presidium of the RAS since 1971. He is Director of the Pacific Institute of Geography of the Far Eastern Department. His major works are on the dynamics and morphology of the Eastern Antarctic ice cap. Recipient of the State Prize, 1971. (GSE 11, p. 405.)

Khudiakov, Gleb I., D. GM. S. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since 1987. Also member of the Far Eastern Department. From 1978 to 1980, he was Chief of a laboratory of the (Far Eastern) Geology Institute in Vladivostok. Since 1980, he has been Director of the Pacific Ocean Geography Institute in Vladivostok which was established in 1971 to do physical, economic geographical research and to forecast environmental changes caused by economic development. (LDA 89-11378.)

Kontrimavichus, Vitautas L., D. Bio. S. Born in 1930 in Kaunas. Russian helminthologist. Corresponding member of the General Biology department and of the Far Eastern department since 1970. Academician of the Chemical, Technological, and Biological Sciences Department of the Lithuanian Academy since 1980. Academician Secretary since 1984. He graduated from the Leningrad Veterinary Institute in 1952. From 1952 to 1968, he was a graduate student and researcher at the Helminthology Laboratory of the Academy in Moscow. In 1968, he became Head of the department of the Biological Problems of the North of the Northeast Complex SRI of the Siberian department of the Academy. Since 1970, he has been the Director of the Biological Problems of the North Institute at Magadan

which researches the structure, function and productivity of ecosystems of the northern latitudes and methods of their preservation and adaptation to the northern environments. His work is in classification, ecology, and zoogeography of the parasitic helminths of mammals. In 1987, he was given the E. N. Pavlovskii Gold Medal for his work in parasitology and zoology. (GSE 13, p. 372.)

Korobeynikov, Viktor P., D. PM. S. Corresponding member of the Information Science, Computer Technology, and Automation Department of the Academy since December 1987. He is also a member of the Far Eastern Department of the Academy. (LDA 89-11378.)

Krasnii, Lev I., D. GM. S. Born in 1911. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy and of the Far Eastern Department since 1970. (LDA 89-11378.)

Kulish, E. A. Born in 1931. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Department since 1970. Also member of the Far Eastern Department.

Kuznetsov, Nikolai V. Corresponding member of the Mathematics Department and of the Far Eastern Department since December 1987.

Ler, Pavel A. Corresponding member of the General Biology Department of the Russian Academy of Sciences and of the Far Eastern Department since December 1987.

Moiseenko, Valentin G., D. GM. S. Born in 1930. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences department and of the Far Eastern department since 1987. He heads up the Amur Interdisciplinary Scientific research Institute in Blagoveshchensk. Established in 1980, from units of the Far Eastern Geological Institute and the Economic Research Division of the Institute of Economics, the institute has a subdivision on humanitarian problems and a Laboratory on Sociology that is headed by V. N. D'ianchenko. The laboratory works on the manpower problems in the Baikal 1-Amur region and on labor resources for the agroindustrial complex of the region. It maintains relations with the branch of the Chinese Academy of Sciences in Hilongjiang province. (LDA 89-11378.)

Miasnikov, Veniamin S. Corresponding member of the Problems of Machine Building, Mechanics and Control Processes of the AN SSSR from December 1987. Also a corresponding member of the Far Eastern Department and Deputy Chairman of the Far Eastern Department since August 1988.

Neunlyov, Boris A. Born in 1908 in Dankov, Lipetsk Oblast. Russian soil scientist, agricultural chemist, and rice-growing specialist. Corresponding member of the General Biology Department of the Academy since 1970. Academician of the Academy of Agricultural sciences since 1966. Also a member of the Far Eastern Scientific Center. He graduated from the Far Eastern Agricultural Institute in 1935. He worked at the Far Eastern Rice Experiment Station and on a rice-growing sovkhoz from 1935 to 1963. In 1964, he became acting Chairman and from 1966 to 1970 served as Chairman of the Presidium of the Far Eastern Branch (now department) of the Academy. In 1973, he was made Deputy Director for science of the All-Union SRI of Rice of the All-Union Academy of Agricultural sciences located in Belogernoe, Krasnodor Krai. His works are in the physical chemistry of soils, regulation of oxidation reduction conditions and acidity of rice paddy soils, and the increase of fertility of rice paddy soils. (GSE 17, p. 505.)

Sergeev, Konstantin F., D. GM. S. Born in 1931. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Far Eastern Department since 1979. Since 1977, he has been Director of the Marine Geology and Geophysics Institute (formerly the Complex Scientific Research Institute--Sakhalin) in Novo Aleksandrovsk that is subordinate to the Far Eastern Department and that does research in the fields of oceanography and geophysics, including seismology, hydro-acoustics, and the study of tidal waves.

Research Institutes Subordinate to the Far Eastern Department:

(Older material)

Scientists in the scientific research institutes of the Far Eastern Department work in some 20-odd institutes located over vast expanses of the Far East from Vladivostok to Wrangel Island beyond the Polar Circle; they study all aspects of the Pacific Ocean on some 15 scientific research vessels. While producing about half of the fish products consumed in Russia, the region has become heavily industrialized in recent years with some 85 percent of the population engaged in industrial production of some sort. Scientists in the Department have taken the lead in developing long range plans for the further intensification of development of the region in response to the CC CPSU decree of 1982 that directed them to coordinate the work of other organizations in the area. The Center involves some 62 scientific research and planning organizations and VUZy in planning for the intensified development of an agrarian-industrial complex in the Far East.

(1997 update)

[A visitation report by a western team of engineers and scientists to the Far Eastern Branch of the RAS in 1996 discusses in some detail the changes and structure of this important element of the Russian scientific establishment.]

Vladivostok

Presidium of the Far Eastern Branch of the Russian Academy of Sciences (FAR EASTERN BRANCH RAS)

The study team was hosted by Academician George B. Elyakov, Vice President of the Russian Academy of Sciences (RAS), and Chairman of the Far Eastern Branch (FAR EASTERN BRANCH).

The FAR EASTERN BRANCH RAS, founded a quarter century ago, is headquartered in Vladivostok.

The branch has six regional centers and is composed of 35 institutes, two native preserves, and one special marine preserve. The three preserves are used for science and environmental protection studies.

The Magadan Territorial Center for Arctic studies has a cooperative program with the University of Alaska, Fairbanks. A major goal of the branch's efforts is the study of the use of resources, both on land and at sea, of the Russian Far East. The total staff of the FAR EASTERN BRANCH is a little over 8,000. There are 10 academicians in the FAR EASTERN BRANCH.

The branch has the largest research fleet of the RAS. There are 15 ships ranging in size from a few hundred tons to over 6200 tons. Most of this fleet is homeported in Vladivostok. The majority of these vessels are currently inactive due to lack of funding.

The major research directions of FAR EASTERN BRANCH institutes are earth sciences, biology, biotechnology, physics and technical sciences, chemistry, and the social sciences. Academician Elyakov said that funding in the branch is now half what it was before Perestroika. He encourages and supports joint projects with other countries that will use his people and facilities.

The Far Eastern State Technical University (FESTU)

Founded in 1899 as the "Oriental Institute," since 1923 the "Far Eastern Polytechnical Institute," it was renamed by decree of the Russian Federation government in December 1992. Overall, FESTU is reported to rank in the top 100 Russian universities. The university has approximately 10,000 students and four branch campuses. A faculty of 700 includes three academicians, 100 doctors of science, and 400 candidates for doctors of science ("candidate" is roughly equivalent to Ph.D.). Among the disciplinary areas covered by the university's 18 major departments are electrical engineering, radio and instrumentation, natural sciences, architecture, naval engineering, economics and management, mechanical engineering, heat and power engineering, and the humanities. A six-year program is offered for a bachelor's diploma degree in naval engineering. Ph.D. programs are offered in ocean science, ship construction, and other fields in technology, economics, math, and philosophy. The humanities program emphasizes technical language understanding in English, Chinese, Japanese, and Korean. Approximately 36 students from different countries are enrolled in FESTU.

Academician Gennady Turmov, president of FESTU, showed the WTEC team four ocean engineering projects. The first two were remotely operated vehicles (ROVs), the third used optical fibers as sensors for ocean tomography, and the fourth was an artificial neural network to interpret sensor data. The team was told that 39 ROVs have been designed by FESTU. Most of them were designed for hydroacoustical, magnetic, and photographic work. The team saw three of these ROVs. FESTU's two 6,000 meter Roby submersibles (Fig. 1.3) were used to recover the flight recorder from Korean Airlines' Flight 007 in the Sea of Japan. These vehicles were designed for rescue operations, taking photo surveys, and coring. They are also equipped with manipulators for work tasks.

1. The Pacific Oceanological Institute (POI)

Founded in 1973, the Pacific Oceanological Institute in Vladivostok is the major institute of the FAR EASTERN BRANCH RAS. It has a staff of over 600, including approximately 270 scientists. Researchers at the institute conduct experiments along the Pacific Rim from the Bering Sea to the South China Sea. In addition, POI actively participates in international projects such as the World Ocean Circulation Experiment (WOCE).

The POI laboratories and departments focus on the following research areas:

Experimental and theoretical oceanology investigations of ocean processes and dynamics

Underwater acoustics

Ocean-atmosphere interaction

Assessment of the status of water ecosystems

Geological/geophysical investigations of the sea bottom

The Institute of Marine Technology Problems (IMTP)

The IMTP was founded in 1988 by Academician Mikhail D. Ageev, who is also a fellow of the U.S. Marine Technology Society. The scientific staff of the institute consists of 90 people. One is an academician of the RAS, one a corresponding member of the RAS, three are academicians of the Academy of Engineering Sciences, and 19 are professors and doctors of science.

Facilities include about 2,000 square meters of laboratory space, computer-aided design (CAD) engineering capabilities, experimental production workshops, a high pressure (21,900 psi or 49,200 ft.) test chamber, and a small research vessel. The high pressure facility is located at a separate site from the main institute, while the research vessel is in Vladivostok's inner harbor.

Scientific investigations and technical developments are carried out in underwater robotics, hydrophysics, renewable energy sources, and marine ecological systems monitoring. The work in underwater robotics actually began in the early 1970s when this technical staff was part of another institute. Some of their AUVs were built during this time.

The primary programs of the IMTP are as follows:

Development of new methods and principles to utilize AUVs for research and for exploring the ocean. Several AUVs have been built since the 1970s (Figs 1.5-1.7); most have operating depth capabilities down to 6000 m.

Hydrophysics, investigating large scale inhomogeneities of the water medium.

Renewable energy resources and nontraditional energetics. This laboratory group conducts resource evaluations of renewable power sources as well as investigations into new alternative energy technologies.

Development of automated systems for ecological research and monitoring the water medium and aquaculture using AUVs designed and built at the institute. The institute has maintained close scientific and technical contacts with universities, institutes, and companies in China, France, South Korea, and the United States. It has built specialized AUVs for customers in the People's Republic of China, in South Korea, and in the United States.

2. The Pacific Institute of Bioorganic Chemistry (PIBC)

The PIBC was founded in 1964. Academician Elyakov has been its director for 30 years. The primary research focus is on the study of marine organisms at the molecular level. This direction offers the greatest potential for discovery of bioactive substances that can be used for the benefit of man.

The work of the PIBC has attracted foreign interest from organizations such as the National Institutes of Health, major drug companies, and the Harbor Branch Oceanographic Institution (U.S.). Foreign organizations are very interested in the 8,000 strain reference collection developed by PIBC. The Institute has a staff of 350, which includes 70 Ph.D.s and 25 doctors of science. Many of the support staff are involved with the operation and maintenance of the research vessel Akademik Oparin.

The institute now produces some commercial products which are sold on the market, but since it is part of the government (as part of the FAR EASTERN BRANCH RAS), institute researchers do not enjoy much freedom of action. Director Elyakov said that the institute's dream is to set up a company, independent of the government, to develop and market a variety of commercial products based on their biotechnology discoveries.

The Research Vessel Akademik Oparin

The WTEC team visited and inspected the Akademik Oparin in port in Vladivostok's inner harbor (Fig. 1.8). The ship is operated by the PIBC. Built in Finland in 1985, it is 75 meters long and displaces 2,600 tons.

The Oparin was designed to support marine biosciences, specifically biomedical marine research. It is one of a few research vessels in the world equipped for this type of research work at sea. The vessel has 14 well-equipped laboratories, diver facilities, and a large decompression chamber. The laboratories are spacious, and deck space is available for mission-related vans. An A-frame on the stern is available for handling oceanographic equipment. The ship is equipped with a vivarium to house rodents used in research experiments. At least one nuclear magnetic resonator is installed on board, and a photo lab is available for real time photographic support. A central computer system provides the ability to process data quickly and send it ashore to the institute by satellite link.

In recent years, the Harbor Branch Oceanographic Institute in the United States has conducted collaborative work with PIBC personnel on board the ship. The PIBC is actively looking for other foreign partners for joint scientific projects. Present funding limitations for the FAR EASTERN BRANCH RAS mean that Oparin can go to sea as a research ship only a few days a year.

When not involved in research, the ship is sometimes used to transport automobiles from Japan to Vladivostok. In this way, the vessel can be kept operational in the present time of greatly reduced funding support for seagoing research in Russia.

At this site visit, the panel was briefed by Dr. Vitaly G. Tarasov, acting director. The Institute of Marine Biology was founded in 1967. The basic focus for research activities is the near shore coastal areas of the Russian Far East. The goal of the research is the balanced conservative use of the marine resources of the region and the protection of these resources from environmental damage.

The IMB employs 450 people, 300 of whom are research staff. The remaining 140-150 are engineers and technicians. The institute has 20 laboratories, four field stations, and the Far East State Marine Reserve. Two small vessels support coastal projects. Most of the scientists are divers.

Dr. Tarasov said that Peter the Great Bay has the greatest biodiversity in East Asia because this area is influenced both by the warm Kuroshio and cold Oyashio currents. Work is being done to study the effects of dredging in the Kuriles, the impact of past nuclear waste dumping in the Sea of Okhotsk, an assessment of fish stocks in the Bering Sea and the Sea of Okhotsk, and the biofouling of offshore platforms near Sakhalin. In addition, environmental assessment work is being done in the river delta area where North Korea, China, and Manchuria propose to build a major new seaport and railhead.

The institute has also developed cooperative projects with the University of Washington, the University of Alaska, and Hokkaido University. IMB is actively looking for new international cooperative ventures.

3. Institute for Automation and Control Process (IAPU)

The IAPU was established in 1971 by Academician **A. A. Voronov** to research control theory, computer science, and mathematical modeling and simulation. The institute presently has a staff of 250 people, including a research staff of 112. This staff includes two academicians, 14 doctors of science, 54 candidates of science, and four corresponding members of the RAS. The director is **Academician V. P. Myasnikov**.

The six departments of the institute are as follows:

Expert Design Systems

Research of Control Processes and Reliability Problems*

Mathematical Simulation of Complex Systems

Surface Physics and Design of Semiconductor Systems*

Development of Non Traditional New Technologies

Information Support for Ocean Environment Exploration*

*departments visited by the WTEC team

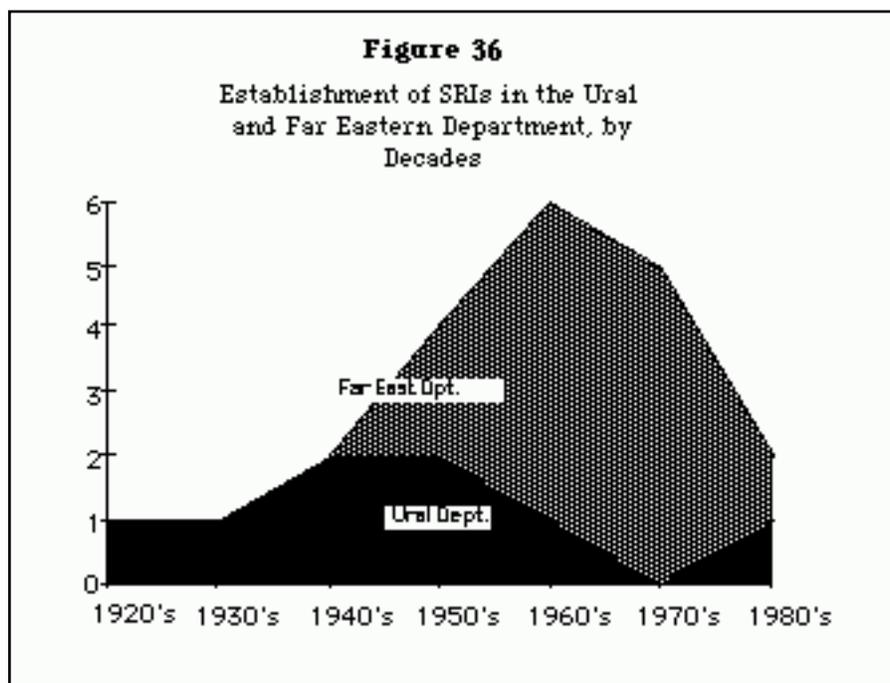
4. Institute of Chemistry The Institute of Chemistry was established in 1971 from the chemistry department of the Far Eastern State Technical University. The current staff is 200. In 1991 the staff was 345. The institute comprises 14 laboratories and an engineering technical center. The WTEC team toured four of these laboratories:

The Laboratory of Inorganic Fluorides performs research and analysis in fluoroplastics for use in the nuclear power industry, making fillers for medical ointments and cosmetics and coatings of metal, low cost fluoroplastic lubricants (trade name, Forum O) that has smaller, more uniform particle size than the well-known product Slick 50, and fluoropolymer coatings on lithium battery cathodes that double the capacity of lithium batteries. The major contribution of this laboratory is a fluoroplastic powder synthesis process.

The Laboratory of Sorption Processes produces fluoride glasses which offer special properties when compared to quartz, rare earth ligands that are luminescent, polyethylene films which convert UV to IR for use in greenhouses, a fluoroluminescent method for detecting AIDS in blood, a cleaning filter for sewage cleaning and oil refining, and an absorption material used to clean water of radioactive wastes.

The Laboratory of Protective Films works on coatings to reduce marine corrosion, coatings of metals to reduce friction, and coatings for cookware.

The Laboratory of Marine Corrosion has developed a thermoplastic-based antibiofouling paint that is environmentally safe.



Growth: The period of greatest growth in the development of research institutes subordinate to the Far Eastern Department was between 1950 and 1970, and in those of the Urals Department from 1940-1950. Research Institutes Directly Subordinate to the Far Eastern Department: The research institutes subordinate to the Far Eastern Department are given below in the order of their establishment.

1. Far Eastern Botanical Garden in Vladivostok. Opened in 1948, the garden grows plant species indigenous to the Russian Far East and studies environmental conditions for plant life in the region. Director Koropachinskii, Igor Iurii, since 1987. (See: Ruble, Vol. I., p. 294.)



2. Northeastern Interdisciplinary Scientific Research Institute in Magadan.

Sidorov, A. A. Corresponding member of the Academy in 1993. In 1985 he was named Director of the Northeastern Interdisciplinary Scientific Research Institute in Magadan. The institute serves as a base facility for the study of the Eskimo peoples of the far northeast.

Established in 1960 and made subordinate to the Siberian Department in 1970, this institute serves as a base facility for the study of the Eskimo peoples of the far northeast. Its first Director was Nikolai A. Shilo (1960-85), and A. A. Sidorov has been the Director since 1985. The institute has a staff of 181 researchers of whom six hold the doctorate and 75 the candidate degree. Three members of the staff are corresponding members of the Russian Academy of Sciences.

Structure of the institute:

Department of natural and economic systems of the Russian North with three laboratories on economics and organization of industrial production laboratory; economic

problems of production infrastructure laboratory, and economic problems of Chukotka laboratory. There is a separate laboratory on: archeology, history and ethnography.

Scientists like N. N. Dikov, have conducted extensive expeditions throughout the region as well as on the Kamchatka peninsula. It publishes a Trudy series on the history and culture of the peoples of the northeastern USSR. Its scholars have produced a five-volume history of Siberia, a two-volume history of the Russian Far East and have compiled a history of the Chukotka peninsula from prehistory to present times. The institute has established relations with the University of Alaska, the Sorbonne, the Italian Archeological Society, the Hokkaido University in Japan, and with individual scholars in Canada and the United States. Deputy Director Zhelnin, Stepan G., since '78; Unidentified Department: heads: Dikov, Nikolai N., since '67; and Sidorov, Anatoli A., D. GM. S., since '78; Unknown affiliation: Senior Researchers: Babkin, Petr V., D. GM. S., since '70; Goncharov, V. I., since '70; Naiborodin, V. I., since '70; and, Zilberminets, A.: V., since '70; (**See: Ruble, Vol. III, p. 84.**)



3. The Far East Geological Institute in Vladivostok.

Nekrasov, Igor Ia. Since 1988, he has been the Director of the Far Eastern Geology Institute in Vladivostok subordinate to the Far Eastern Department of the Academy. It was founded in 1959 to study the distribution of useful minerals in the region. He was a corresponding member of the Academy in 1993.

Established in 1959, the institute studies the laws governing the distribution of mineral deposits in the transition zone from Asia to the Pacific. The institute was made up of 18 laboratories--or research teams--in 1992, each under the direction of a senior and prominent scientist. The present institute Director Dr. Igor Ia. Nekrasov D. Geol. S., was appointed in 1988. He is a corresponding member of the Russian Academy of Sciences. He graduated from the Donetsk Industrial Institute in 1951, having concentrated on mineralogy and the genesis of ore deposits. At present his primary interests are in the geochemistry of gold and platinum deposits. Deputy Directors: Dr. Aleksandr I. Khanchuk D. Geol. S., Head of the Regional Geology Laboratory and Dr. Sergei A. Shcheka, D. Geol. S., who graduated from the Far East Polytechnical Institute in Vladivostok in 1960 at which time he began work at the institute--he received his doctorate from the Moscow State University in 1988. He studies petrology and the mineralogy of mafic and ultramafic rocks; Councilor: Ekaterinburg A. Radkevich, D. GM. S., was born in 1908 in Kiev. He has been a corresponding member of the Russian academy since 1970 and is also a member of the Far Eastern Department. He graduated from the Middle Asian Geological Exploration Institute in Tashkent in 1931 and did geological work in Middle Asia until 1932. Between 1937 and 1959, he worked at the Institute of Geological Sciences of the Russian academy--now the Institute of Geology of Ore Deposits, Petrography, Mineralogy, and Geochemistry. In 1959, he was appointed Director of the Far East Geological Institute of the Siberian Department in Vladivostok. He served as Director until 1977. His principal works are in ore deposits and metallogeny; Learned Secretary of the Institute: Dr. Vladimir K. Popov, D. Geol. S., and the Associate Director for International Relations: Ms. Lydia I. Kovbas. The staff of the institute totaled 135 scientists in 1992. The 18 laboratories include:

- 1) **the Paleontology and Stratigraphy Laboratory:** Dr. Iuri D. Zakharov, D. Geol. S. graduated from the geological faculty of the Far East Polytechnical Institute in 1958 and is a specialist in Eurasia Permian and Triassic systems;
- 2) **the Regional Geology and Tectonics Laboratory;**
- 3) **the Lithology Laboratory:** Dr. Pavel V. Markevich, D. Geol. S., is an expert in lithogenesis in the transition zone from Asia to the Pacific. He graduated from Kishinev University in Moldova in 1956 and has worked at the institute since 1972;
- 4) **the Hydrothermal Systems of the Ocean Laboratory:** Dr. Oleg V. Chudaev, D. Geol. S., graduated from the Moscow Geologic Prospecting Institute and is a specialist in oceanic hydrothermal lithogenesis and mineralization;
- 5) **the Intrusive Magmatism Laboratory:** Dr. Stepan S. Zimin, D. Geol. S., a student of Academician Iurii Kuznetsov, has worked at the institute since 1961 and specializes in mafic and ultramafic and ophiolitic magmatic activity of the Pacific margin of Asia;
- 6) **the Metamorphic and Metasomatic Formations Laboratory;**
- 7) **the Petrology of Volcanic Formations Laboratory;**
- 8) **the Experimental Petrology and Mineralogy Laboratory;**
- 9) **the Mineralogy Laboratory;**
- 10) **the Regional Geology Laboratory:** Dr. Aleksandr I. Khanchuk, a specialist in accretional geology and tectonics, heads the Laboratory and has worked at the institute since 1976; he is presently working on a joint research project with geologists of the US Geological Survey;
- 11) **the Geochemistry of Igneous Rocks Laboratory;**
- 12) **the Iostopic Geochemistry Laboratory;**
- 13) **the Metallogeny of Ore Districts Laboratory;**
- 14) **the Geodynamics of Ore-controlling Systems Laboratory;**
- 15) **the Gold-bearing Formations Laboratory;**
- 16) **the Physico-Chemical Studies Laboratory;**
- 17) **the X-ray and Electron Microscopy Studies Laboratory,** and
- 18) **the Mathematical Methods in Geology Laboratory.**

Other of scientists of note at the institute include: Drs. M. Mishkin, O. Avchenko, S. Korenbaum, L. Plyusnina, V. Sakhno, and A. Lennikov--all in igneous petrology and metamorphism, and, Drs. Vadim Khomich and V. Ratkin--in ore geology and regional metallogeny. Professor Dr. Nikolai P. Vasilkovskii, D. Geol. S., has worked at the institute since 1979. He is an expert in regional geology, a supporter of the geosynclinal hypothesis and the irreversibility of the Earth's evolution. His studies from 1930 to 1964 covered Central Asia, and since 1965 his work is on the Russian Far East. Professor Dr. Ivan N. Govorov, D. Geol. S., graduated from Moscow State University in 1943 and has worked at the institute since 1960 serving as a Deputy Director and as Head of the Geochemical Department, and at present is, like Professor Vasilkovskii, a leading researcher. He has studied the problems of ocean magmatism, the deep-seated sources of ore material, and the geochemical zonation of geosphere deep layers. These scientists and other researchers in the institute have described three crust types that form the basement of the Pacific "active margin." They have described the stratigraphy of the Cambrian rocks of the Far East using new and original data obtained by institute scientists. They have developed new geothermobarometers for the rocks of the metamorphic complexes were proposed. Major mic types in igneous rocks have been described and the influence of the inner structure of aluminosilicate melts on their composition was determined. A reference book on the physical and crystallochemical properties of natural and synthetic compounds has been published. Research cruises in the Pacific Ocean have shown that ophiolitic complexes that originated in different geodynamic environments outcrop in recent deep-water

trenches of the Western Pacific. Three types of geological structures bearing ophiolites were found and accumulations of phosphorites and platinum-cobalt-manganese crusts in carbonate covers of guyots were discovered in the North-Western Pacific in 1990-91. (**Information provided by letter dated 28 December 1991 from Dr. Vladimir Popov, Learned Secretary, and Ms. Lydia Kovbas, Associate Director for International Relations of the institute.**)



4. Volcanology Institute in Petropavlovsk-Kamchatskii.

Fedotov, Sergei A., D. PM. S. Born in 1931 in Leningrad. Russian geophysicist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Academy since 1970; academician in 1993. Also a member of the Far Eastern Department. He graduated from Moscow State University in 1953. From 1957 to 1971, he worked at the O. Iurii Shmidt Institute of Earth Physics of the AN SSSR. Since 1971, he has been Director of the Volcanology Institute at Petropavlovsk-Kamchatskii (of the Far Eastern Department of the Russian Academy of Sciences) that was established in 1961 to study volcanism in the Kurile-Kamchatka zone. In 1975, he was elected vice-President of the International Association of Volcanology and Chemistry of the Earth's Interior. His principal works deal with the internal structure and seismicity of the earth, properties of the earth's mantle, the mechanism of deep magmatic and volcanic activity, and long-term earthquake predictions. (GSE 27, p. 137.)

Established in 1961 from a Volcanology Laboratory of the AN SSSR in Kamchatka's geological Geophysical Department of the Siberian Department of the AN SSSR. The institute studies contemporary volcanism in the Kurile-Kamchatka zone. Since 1971, its Director has been Sergei A. Fedotov, D. PM. S. Deputy Directors: Belousov, Vladimir Iurii, since '83; Gushchenko, Igor I., since '78; and, Sugrobov, V. M., since '81;

Postmagmatic Processes Laboratory: Head Noboko, Sofia I., D. GM. S., since '70;



5. Soil Biology Institute in Vladivostok. Also the Biology and Soil Science Institute. Established in 1962. Studies Agricultural problems in the Far East. Its scientists have contributed to the development of a national soil map. Director Tarankov, Vladimir I., D. Bio. S., since 1977. (See: Ruble, Vol. I., p. 294.)



6. Bioorganic Chemistry Institute in Vladivostok.

Eliakov, Georgii B., D. Chem S. Born in 1929 in Kostroma. Russian chemist and biochemist. Corresponding member of; the; Biochemistry, Biophysics, and Chemistry of Physiologically Active Compounds Department of the Academy since 1970, and academician since December 1987. He is also a member of the Far Eastern Department and since 1980, he has been deputy chairman of that Department. He graduated from the Department of chemistry at Moscow State University in 1952. From 1955 to 1959, he worked in Moscow. Since 1959, he

has been in Vladivostok where in 1962, he organized and headed the Chemical Laboratory of Natural Physiologically Active Compounds of the Far Eastern Department of the Siberian Department of the AN SSSR and the RAN (Russian Academy of Sciences). Since 1964, he has been Director of the Bio-organic Chemistry Institute (Pacific) in Vladivostok that is subordinate to the Far Eastern Department and that studies the exploitation of marine and terrestrial plant and animal sources of natural drugs. He has also been head of the Steroid and Terpenoid Chemistry Laboratory of that institute. His works are in the synthesis of triterpenoid glycosides, triterpenoids, sterols, and glycosides from the roots of ginseng and other plants of the Araliaceae family. (GSE 9, p. 115.)

Established in the mid-1960s, Studies the exploitation of marine and terrestrial plant and animal sources of natural drugs. Director Eliakov, Georgii B., D. Chem. S., since 1964. Since 1989, personnel includes: Director Eliakov, Georgii B., D. Chem. S., since '64; Deputy Directors: Dzizenko, Anatoli K., since '72; Ovodov, Iurii S., since '69; and, Rasskazov, V. A., since '86;

Biochemistry Laboratory: Head Rasskazov, V. A., since '69;

Carbohydrate Chemistry Laboratory: Head Ovodov, Iurii S., since '69;

Flora and Fauna Chemistry Laboratory: Head Vaskovskii, Viktor E., since '69; Senior Researcher Eliakova, L. A., 69;

Humic Acid Chemistry Laboratory: Head Maksimov, O. B., since '69;

Natural Compounds Technology Laboratory: Head Suprunov, N. I., C. Pharm. S., since '68;

Organic Microanalysis Laboratory: Head Glebko, L. I., since '69;

Pharmacology and Experimental Therapeutics Laboratory: Head Brekman, Izraill I., D. Med. S., since '69; Senior Researchers: Bezdetko, G. N., since '69; Dardimov, I. V., C. Med. S., since '69; Dobriakov, Iurii, I., C. Bio. S., since '69; Golotin, V. G., since '69; Grinevich, M. A., C. Med. S., since '69;

Physical and Chemical Methods Laboratory: Head Dzizenko, Anatoli K., since '69;

Plant Soils Laboratory: Head Gorovoi, P. G., since '69;

Steroid and Terpenoid Chemistry Laboratory: Head Eliakov, Georgii B., D.; Chem. S., since '64;



7. Institute of History, Archeology and Ethnography of the Peoples of the

Far East in Vladivostok. This institute was organized in 1970 from the older department of the same title that may trace its roots back to the establishment of a Pacific Committee in 1927 and that in the 1940s became the Pacific Institute of the Academy, and that in 1950, as part of a general reorganization of Soviet Oriental Studies ceased operations with many of its rich library holdings going to the Oriental Studies Institute in Moscow. Academician Andrei I. Krushanov has headed the institute since 1970. Structure of the institute: The institute is organized into five departments:

- (1.) **the history of the USSR (17th-20th centuries);**
- (2.) **foreign political problems of the Asian-Pacific region;**
- (3.) **the archaeology department;**
- (4.) **ethnography and philology department, and**
- (5.) **the theory and practice of ideology department.**

The staff of the institute numbers 131 researchers of whom eight hold the doctorate and 71 the candidate degree. One member of the staff is an academician of the Russian Academy of Sciences. (See: Ruble, Vol. I., p. 410.)



8. Tectonics and Geophysics Institute in Khabarovsk.

Borukayev, Chermen B., D. Geol. S., Moscow State University graduate in 1958. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining department of the AN SSSR and member of the Far Eastern department since December 1987. Since 1988, he has been the Director of the Tectonics and Geophysics Institute in Khabarovsk. which was founded in 1971 and is subordinate to the Far Eastern Department of the Academy. Its scientists study the deep tectonics of the Earth's crust of the continent and Pacific ocean; determine the relationship between the geophysical fields and structures of the Earth's crust; develop estimates of mineral deposits from the study of tectonic and geophysical relationships, and probe tectonic and geophysical theoretical problems. (LDA 89-11378.)

The institute was founded in 1971 and is subordinate to the Far Eastern Department of the Russian Academy of Sciences. Personnel at the institute total 235 of whom 65 are scientists whose numbers include seven with doctoral degrees and 25 with candidate degrees in geology. Besides the several service departments, the institute is organized in eight laboratories. In 1988, Dr. Chermen B. Borukayev (D. Geol. S., since 1988) was named Director of the institute replacing Dr. Iurii A. Kosygin (1971-1988) who continues as the "Honorable" Director (Emeritus). Scientists in the institute study the deep tectonics of the Earth's crust of the continent and Pacific ocean; determine the relationship between the geophysical fields and structures of the Earth's crust; develop estimates of mineral deposits from the study of tectonic and geophysical relationships, and probe tectonic and geophysical theoretical problems. The institute executes field excursions throughout the vast Far Eastern territory with particular attention on the Pacific moving belt and adjacent regions. Since 1982 the editorial board of the Geology of the Pacific Ocean journal has been housed at the institute in Khabarovsk. The institute has published a large number of significant books and scientific monographs. Scientific Personnel and Structure: Director: Dr. Chermen B. Borukayev, corresponding member of the Russian Academy of Sciences, D. Geol. S., Moscow State University graduate in 1958, present assignment in 1988; Honorable Director Iurii A. Kosygin, academician of the Russian Academy of Sciences, D. Geol. S., Moscow Mining Academy graduate in 1931, and from 1971 to 1988 Director of the institute; Deputy Director Nikolai P. Romanovskii, D. Geol. S., Far East Polytechnical Institute graduate in 1954, and present position in 1975; Scientific Secretary Svetlana N. Alekseenko, Moscow State University graduate in 1974, and present assignment in 1978. The eight laboratories of the institute are as follows:

- (1.) **the Tectonics Laboratory:** Dr. Anatolii A. Vrublevskii, D. Geol. S., Novosibirsk State University graduate in 1974, present position in 1975;
- (2.) **the Regional Geophysics Laboratory:** Iurii F. Malishev, C. Geol. S., Leningrad Mining Institute graduate in 1957, present position in 1975;
- (3.) **the Petrophysics Laboratory:** Dr. Nikolai P. Romanovskii, D. Geol. S., Far East Polytechnical Institute graduate in 1954, present position in 1975;
- (4.) **the Seismotectonics Laboratory:** Fedor G. Korchagin, C. Geol. S., Far East Polytechnical Institute graduate in 1969, present position in 1971;

- (5.) **the Magmatic Tectonics Laboratory:** Viatcheslav A. Popeko, C. Geol. S., Leningrad State University graduate in 1959, and current position in 1972;
- (6.) **the Geology of Oil and Gas Basins Laboratory:** Dr. Vitalii G. Varnavskii, Novotcherkassk Polytechnical Institute graduate in 1952, present position in 1980;
- (7.) **the Fluid Systems Laboratory:** Nikolai V. Berdnikov, C. Geol. S. Novosibirsk State University graduate in 1975, and current position in 1975;
- (8.) **the Geophysical Instruments Laboratory:** Iurii M. Krinitcin, Novosibirsk State University graduate in 1970, present position in 1984. **(Information provided in a letter dated 20 November 1991 from Honorable Director Dr. Iurii A. Kosygin.)**

In 1989, personnel included: Deputy Directors: Podkaminer, O., since '72; and Romanovskii, Nikolai P., since '82; Scientific Secretary Vrublevskii, Anatoli A., C.G.M. S., since '77.



9. Marine Biology Institute in Vladivostok.

Kas'ianov (Kasianov), Vladimir L. Born in 1940. Corresponding member of the Academy in 1993. Since 1979 he has been the Deputy Director of the Marine Biology Institute in Vladivostok which was created in 1970 to study the distribution, composition of marine life and the biology of the Far Eastern seas. In 1991, he was named Director of the Institute replacing Dr. Zhirmunskii.

Founded in 1967 as the Marine Biology Division and in 1970 it became the Institute of Marine Biology of the Far Eastern Science Center (now department). It was established by Alexei V. Zhirmunskii who directed it until succeeded by Vladimir L. Kasianov in 1988 and who is its current Director (1991). The staff of the institute totals 554 persons, which includes 196 research workers, 15 doctors of science and 107 candidates of science. The institute is comprised of 24 laboratories, the Far East State Marine Reserve, the Mariculture Preserve "Vostok" and four biological stations: "Vostok" near Nakhodka, "Stark" on Popov Island,--both of these are in the Peter the Great Bay of the Sea of Japan--and "Sokol" on Sakhalin Island, and "Raduga" on Kamchatka. Scientific objectives of the institute include the study of species composition, distribution and ecology of marine flora and fauna; estimation of biological productivity of shelf zones of the far eastern seas of the USSR and adjacent waters of the Pacific Ocean; the development of scientific foundation of efficient utilization, preservation and restoration of living resources of the shelf; biological problems of mariculture, and the study of adaptations, ontogenesis and evolution of marine organisms. The institute conducts a Junior Academy of Marine Biology to prepare youngsters to study Marine Biology, and provides the base for the Chair of Marine Biology of the Biological Faculty at the Far East State University. Structure and Scientific Personnel: Honorary Director Aleksei V. Zhirmunskii, D. Bio. S., since 1967 and since 1970; Present Director Vladimir L. Kasianov, since 1988; Deputy Directors: Dr. Sergei L. Kondrashev--over 10 laboratories; Dr. Mikhail I. Glubokovskii--over seven laboratories; Dr. Valerii I. Fadeev--over seven laboratories and the Far East State Marine Reserve, the Research Fleet and the Diving Service. The Scientific Secretary is Dr. Tamara A. Terekhova and the managing Director for the institute is Nikolai V. Lobov.

[The Kondrashev Laboratories]

The Cell (Molecular) Biophysics Laboratory: Dr. Nikolai S. Sheludko--conducts comparative studies of the mechanisms of muscle contraction in marine molluscs;

Comparative Biochemistry Laboratory: Dr. Vasilii I. Svetashev--deals mainly with chemical composition, distribution, function and biological activity of lipids obtained from marine organisms;

Comparative Cytology Laboratory: Dr. Igor Iurii Dolmatov--studies reparative and growth processes in somatic tissues of marine invertebrates at different stages of their life cycle;

Comparative Physiology Laboratory: Dr. Sergei L. Kondrashev--comparative physiological study of vision and behavior in marine animals;

Cyto-embryology Laboratory: Dr. Anatoli I. Drozdov;

Embryology Laboratory: Dr. Vladimir L. Kasianov--studies the biology of reproduction, embryonal and larval development of marine organisms, cell differentiation;

Isotopic Laboratory: Dr. Igor I. Deridovich;

Marine Pharmacology Laboratory: Dr. Oleg I. Kirillov--studies the biological activity of lipids and other compounds obtained from marine organisms;

Physiology of Ontogenesis Laboratory: Dr. Aleksandr A. Maximovich--study of the cellular processes of reproduction regulation and adaptation to environment factors in the Pacific salmon;

Reproduction Control Laboratory: Dr. Iuri S. Khotimchenko--studies cellular and molecular mechanisms of regulation of gametogenesis in marine animals;

[The Glubkovskii Laboratories]

Ecology and Cultivation of Invertebrates Laboratory: Dr. Valeri A. Brykov--studies the ecology of common species of mollusks and echinoderms with reference to their reproduction and cultivation;

Genetics Laboratory: Dr. Evgenii S. Balakirev--studies genetic variability of proteins and population-genetic structure in marine bottom invertebrates; Senior Researchers: Anbinder, E., M., since 1970, and Viktorovskii, R. M., since 1970;

Ichthyology Laboratory: Professor Viacheslav P. Shuntov--founded in 1989, its scientists study the composition, structure and productivity of ichthyocenosis of far eastern seas, the study and reproduction, embryonic and larval development of common and commercial species of fishes in connection with the formation of productivity of new stocks, and the study of population composition;

Molecular Genetics Laboratory: Dr. Vladimir A. Brykov--established in 1989 for studying molecular mechanisms of species evolution and cell differentiation in early developmental stages;

Photosynthesis Laboratory: Professor Edward A. Titlianov--studies the productivity and light adaptations in photosynthesizing marine plants and reef-building corals and variation of primary production in photosynthesizing organisms in different environments;

Population Biology Laboratory: Dr. Mikhail I. Glubkovskii--researches the patterns of the structure and population density of fish stocks, mostly salmon species;

Systems Analysis Laboratory: Dr. Aleksandr M. Bronevskii--studies the structure and dynamics of variation of biological systems with the use of the methods of system analysis and automation of research processes;

[The Fadeev Laboratories]

Chorology Laboratory: corresponding member Oleg G. Kussakin--deals mainly with hydrobiological surveys of the inter-tidal zone and the productivity of the far eastern seas;

Ecology of Benthos Laboratory: Dr. Iuri Ia. Latipov--investigates bottom sediments of coastal waters that are promising for mariculture;

Ecosystem Productivity Laboratory: Dr. Vitali G. Tarasov--studies biogeochemical cycles as a basis of productivity in coastal and extreme marine ecosystems;

Marine and Island Communities of the Far East State Marine Reserve: Dr. Andris V. Ozolinsh--inventory and monitoring of marine and island communities of the marine reserve and study and organization of these communities;

Physiological Ecology Laboratory: Academician Alexei V. Zhirmunskii--research objectives include auto-ecological investigation of adaptation in invertebrates, analysis of life cycles and organization of natural systems;

Shelf Communities Laboratory: Dr. Valeri I. Fadeev--study the composition, structure and formation of shelf communities and fouling associations in the far eastern seas;

Zooplankton Laboratory: Dr. Vladimir G. Chavtur--studies the systemization, distribution and biology of common species of zooplankton.



10. Far East State Marine Reserve: Manager V. V. Gorlach--established in 1978 to protect coastal flora and fauna, to protect natural environments, to preserve animals and plants of the reserved island areas, and to serve as a base for conducting major field research in biological field stations located in:

Primorye, on Sakhalin and Kamchatka;

Marine Biological Field Station;

"Vostok": Manager V. A. Vorobjev--located in the southern Primorye in the vicinity of Nakhodka--studies the ecology, biochemistry, genetics and embryology of marine invertebrates;

Biological Field Station "Stark": Manager V. E. Rube--located on Popov Island near Vladivostok--studies comparative physiology of marine animals, ecology, physiology and biophysics of photosynthesis in marine algae;

Biological Field Station "Sokol": Curator A. A. Maximovich is located on Sakhalin and researches population genetics of the Pacific Salmon;

Biological Station "Raduga": Manager V. V. Il'in--is located on Kamchatka---studies the structure of the sockeye salmon population in Azabachje Lake;

Maritime Service: headed by A. V. Ramm;

Diving Service: headed by Iurii P. Popov.

(See: Ruble, Vol. I., pp. 295.) (Information provided by letter from Academician Alexei V. Zhirmunskii dated 7 October 1991.)

(1996 update)

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SOME HISTORICAL INFORMATION

The Pacific waters of Russia are of special interest for marine biologists. These waters are inhabited by flora and fauna of particular diversity, and the continental shelf of the Pacific supports rich marine life. The necessity to expand our knowledge of marine animals and plants and to meet economic needs connected with development of the region were the main reasons for foundation of a scientific institution for

fundamental and applied research in marine biology. The Department of Marine Biology in Vladivostok was established in the 1967 according to the project of Dr. Alexei V. Zhirmunsky (skii) , who organized and directed the Department, and Dr. Oleg G. Kussakin, who contributed much to this foundation. In January 1970, the Department was reorganized to the Institute of Marine Biology of the Far East Science Center (FESC) of the Academy of Sciences of USSR, now Far East Branch (FEB) of Russian Academy of Sciences (RAS).

Since 1967, hydrobiological explorations have been conducted all over the far-eastern seas from Chukotka Peninsula down to southern Primorye, in Sakhalin, the Kuriles and Commander Islands. More than 30 marine expeditions sailed to coral reefs of the Pacific and Indian Oceans and to the coasts of Vietnam. In the Institute, 26 Doctor dissertations and 170 Candidate theses were defended and more than 3500 scientific publications appeared, including 75 collections of papers and 81 monographs. Since 1975, the Institute of Marine Biology has been publishing "Marine Biology, Vladivostok" ("Biologiya morya"), a journal of Russian Academy of Sciences. Its English translation appears in the USA under the title "The Russian Journal of Marine Biology".

MAIN RESEARCH OBJECTIVES OF THE INSTITUTE:

study of species composition, distribution and ecology of the marine flora and fauna; biological productivity of shelf zones of the far-eastern seas of Russia and adjacent waters of the Pacific Ocean; research and development of preservation and restoration of marine biota; study of adaptations, ontogenesis and evolution of marine organisms.

The Institute has held several national and international conferences on marine biology, marine biogeography, biological resources of shelf, experimental ecology of marine invertebrates, physiology and biochemistry of adaptations in marine animals, on marine biotesting, and classes in marine biology and micromethods for lipid analysis.

Specialized Boards for dissertations in hydrobiology, ichthyology; embryology, histology, and cytology and animal physiology operate within the Institute. Post-graduate school in these specialties as well as in biochemistry, genetics, ecology, plant physiology, zoology operates at the Institute.

The Institute organizes the activities of the United Scientific Council for Biological Sciences of the Far East Branch, RAS, the Primorye Branches of Russian Scientific Societies for Hydrobiology, Genetics, Selection, and Biochemistry.

The main scientific achievements of the Institute are connected with the biological survey of coastal waters, research in ecology of invertebrates and algae, cytology, biochemistry of lipids, salmon biology and problems of marine environmental protection.

Structure of Institute of Marine Biology:

The staff of the Institute numbers 440, including 170 research workers, 2 Academicians, and 1 Corresponding Member of RAS, 21 Doctors, and 110 Candidates of Sciences. They conduct their researches in 19 laboratories, 4 biological stations, and the Far East State Marine Reserve.

ADMINISTRATION:

Director: Dr. Vladimir L. KASYANOV, Corresponding Member of RAS
Honorable Director: Dr. Alexei V. ZHIRMUNSKY (SKII) , Academician of RAS
Deputy Directors: Dr. Vitaly G. TARASOV, Dr. Iurii S. KHOTIMCHENKO

Scientific Secretary: Dr. Tamara A. TEREKHOVA
Assistant Manager: Nickolay V. LOBOV

INFRASTRUCTURE:

1. LABORATORY OF CHOROLOGY
2. LABORATORY OF ECOLOGY OF SHELF COMMUNITIES
3. LABORATORY OF PLANKTONOLOGY
4. LABORATORY OF ECOSYSTEM PRODUCTIVITY
5. LABORATORY OF PHYSIOLOGICAL ECOLOGY
6. LABORATORY OF EMBRYOLOGY
7. LABORATORY OF ECOLOGY OF INVERTEBRATES
8. LABORATORY OF ECOLOGY OF BENTHOS
9. LABORATORY OF GENETICS
10. LABORATORY OF FISH POPULATION BIOLOGY
11. LABORATORY OF ICHTHYOLOGY
12. LABORATORY OF CYTOPHYSIOLOGY AND PHARMACOLOGY
13. LABROATORY OF FISH PHYSIOLOGY
14. LABORATORY OF COMPARATIVE CYTOLOGY
15. LABORATORY OF COMPARATIVE BIOCHEMISTRY
16. LABORATORY OF CELL BIOPHYSICS
17. LABORATORY OF WATER PLANT PHYSIOLOGY
18. LABORATORY OF SYSTEM ANALYSIS
19. MUSEUM
20. FAR EAST STATE MARINE RESERVE
21. MARINE PRESERVE "VOSTOK BAY"
22. LIBRARY
23. BIOLOGICAL STATIONS
24. ALL-INSTITUTE UNITS

1. Laboratory of Chorology

HEAD Oleg G. KUSSAKIN, Dr. Sci. Biol., Academician of RAS.
STAFF numbers 11, including 1 Academician, 2 Cand. Sci.

RESEARCH OBJECTIVES: Hydrobiological survey of the intertidal zone, its productivity; crustacean taxonomy. The Laboratory has accomplished a hydrobiological survey of the 7000-km intertidal zone of the far-eastern seas, from the Bering Strait to the Korean Peninsula. Qualitative and quantitative studies of macro-and meiobenthos have been performed. Basing on a study of isopod crustaceans of boreal and temperate. The Laboratory has accomplished a hydrobiological survey of the 7000-km waters and the deep sea, Professor O. Kussakin made a zoogeographic demarcation of the shelf and developed an original concept which suggests that the deep-water fauna of the World Ocean is relatively young and has been formed by migrations from cold-water regions, mostly the Antarctic. Five volumes of identification keys have been published for isopod crustaceans and gastropod mollusks.

2. LABORATORY OF ECOLOGY OF SHELF COMMUNITIES

HEAD Valerii I. FADEEV, Cand. Sci. Biol.
STAFF numbers 28, including 2 Drs. Sci., 10 Cand. Sci.

RESEARCH OBJECTIVES: Research on the composition, structure and dynamics of shelf and fouling communities in the far-eastern seas. Using scuba-diving equipment, the research teams of the Laboratory have surveyed ecosystems of the upper subtidal zone in the far-eastern seas. Sites with great species diversity have been found in Peter the Great Bay, the Kuriles and area of Kamchatka. The survey was aimed at assessment of resources of species, which are important for nutrient value and as raw matter for production of biologically active compounds. On the basis of long-term investigations, the species composition and ecology of fouling organisms on marine vessels and in far-eastern ports have been described. Migration routes of fouling organisms and successions of fouling communities in Peter the Great Bay and in Avacha Inlet (Kamchatka) have been described. An intensive method for painting vessels with anti fouling paints has been proposed which ensures protection of hull coating during 5-year operation. A model of the biotic cycle of organic matter has been developed for Nha Phu Lagoon (Vietnam), which is promising for cultivation of marine invertebrates. The species composition of phytoplankton is studied by electronic microscopy (SEM, TEM) and in cultures. Investigations are made of the seasonal dynamics of abundance and biomass of micro algae, horizontal and vertical distribution and the state of phytoplankton in conditions of eutrophication. Attention is focused on the study of "blooms" and "red tides". General problems of marine ecology and biogeography are under study.

3. LABORATORY OF PLANKTONOLOGY

HEAD Vladimir G. CHAVTUR, Dr. Sci. Biol.
STAFF numbers 9, including 1 Dr. Sci. and 1 Cand. Sci.

RESEARCH OBJECTIVES: Study of the biology of common species of zooplankton that form a food source of commercial organisms in the far-eastern seas and adjacent areas of the ocean; development and use of bioindication methods for determining the structure, dynamics and pollution of water and biological state of plankton; taxonomic studies on several groups of organisms which are of theoretical and applied importance. The Laboratory conducts research in three directions. Study of seasonal dynamics of structure-functional characteristics of neritic zooplankton with the aim in view to reveal phenological regularities of its coenoses in coastal waters of the Far East and to develop bioindication methods for determination of biological state of communities and sanitary diagnosis of waters under different anthropogenic effects. Investigation of biology, distribution and dynamics of mass zooplankton species, forming the feeding base of important commercial objects (invertebrates, fish, and mammals) in the far-eastern seas and adjoining oceanic areas. Taxonomical research in different systematic groups of zooplankton aimed at elucidation of spatial position and dynamics of water mass, study of peculiarities of vertical and zoogeographical distribution of pelagic organisms in different climatic zones of the World Ocean. Laboratory collections include plankton materials for the far-eastern seas and adjoining Pacific waters as well as for other areas of the World Ocean for some systematic groups. The Laboratory has a voluminous library. Bibliographic database has been made for specific areas (for plankton in general and different taxocoenes).

4. LABORATORY OF ECOSYSTEM PRODUCTIVITY

HEAD Vitaly G. TARASOV, Dr. Sci. Biol.
STAFF numbers 12, including 3 Drs. Sci., 4 Cand. Sci.

RESEARCH OBJECTIVES: Study of production and destruction of organic matter, including biogeochemical cycles of most important biogenic elements in coastal marine ecosystems and in zones of underwater hydrothermal activity in particular. Methods for study of exchange of oxygen, nitrogen and other biogenic elements on the bottom-water border have been developed. The oxygen cycles and some components of the nitrogen cycle have been investigated: nitrogen fixation, denitrification and nitrification in the surface layers of sea bottom deposits in different areas of the Pacific and Indian Oceans. It has been found that the main source of biogenous elements in marine coastal waters are bottom sediments. Denitrification of bottom sediments in Vietnam coastal waters has been recognized as most important for nitrogen removal from ecosystem. Metals with variable valency have been shown to play an important role in biogeochemical processes in communities of soft bottom sediments in zones of shallow-water hydrothermal activity and in some coastal waters. Specific marine ecosystems discovered in zones of shore volcanic activity in the western Pacific are presently under exploration. Biochemical processes in these systems characterized by extremely high rates of production of organic matter on the basis of photo- and chemosynthesis are determined by external flow (underwater gasohydrothermal activity) of some biogenic elements, reduced sulphur and metal compounds with changeable valency. Biological communities of these areas have a high density of settlements and great biomasses of unicellular and multicellular organisms. Bacterial and algobacterial mats develop on the bottom around vents of hydrothermal solutions. New genera and species of bacteria have been identified in these ecosystems, including extremely thermophylic archebacteria, and several new invertebrate species. Biochemical peculiarities of metabolism have been revealed in some common invertebrate species, and some bivalve mollusks were found to have endosymbiotic bacteria.

5. LABORATORY OF PHYSIOLOGICAL ECOLOGY

HEAD: Alexei V. ZHIRMUNSKY (SKII) , Academician of RAS.
STAFF: numbers 10 , including 1 Academician, 6 Cand. Biol.

RESEARCH OBJECTIVES: Autoecological investigation of adaptation in invertebrates, analysis of developmental cycles and organization of natural systems. Mechanisms of adaptation of invertebrate species to temperature and salinity are studied on the molecular, cellular and organismic levels. Comparative study of thermal adaptations in more than 150 invertebrate species has made it possible to develop a concept suggesting that zonation in distribution of bottom animals is determined by hereditary differences in the structure of cellular proteins. An analysis of allometric relationships in the development of various natural systems has revealed a relation between successive critical values of the argument, at which the system leaps to a new state. The law has been formulated according to which the hierarchy of related processes in natural systems has some critical levels with successive values relating as e^e , i. e., 15.15... In particular, this concept was applied to description of the species composition of bottom communities (Acad. A. V. Zhirmunsky (skii) and Professor V. I. Kuzmin, Moscow). Phases have been established in alteration of resistance of invertebrate embryos and adults to environmental salinity and temperature. Contrary to the generally accepted concept on a low environmental resistance of invertebrate

embryos and larvae to different effects in comparison to adult organisms, stages of high resistance and critical phases have been revealed that are characterized by enhanced sensitivity coinciding in time with morpho-physiological reconstructions (Dr. L. M. Yaroslavtseva and A. M. Makarycheva).

6. LABORATORY OF EMBRYOLOGY

HEAD Vladimir L. KASYANOV, Corresponding Member of RAS
STAFF numbers 20, including 1 Corresponding, 3 Drs. Sci., 9 Cand. Sci.

RESEARCH OBJECTIVES: Study of the biology of reproduction, embryonic and larval development of marine organisms; research in differentiation of the sex and embryonic cells in marine organisms. Gametogenesis, reproduction, early developmental stages and sex differentiation have been described for common species of bottom invertebrates of the Sea of Japan and other regions of the World Ocean with special reference to environmental situation in their habitats. It was revealed that the cortical cytoskeleton is a carrier of morphogenetic information in egg cell. Gamete and larval structure of marine invertebrates were considered as a tool for elucidation of some evolutionary and taxonomic problems. The concept on planktotrophic and lecithotrophic reproductive strategies of marine invertebrates has been formulated. Identification keys have been prepared for larvae of marine invertebrates. Recommendations have been given on installation of collectors for settling of larvae of mollusks cultured in Peter the Great Bay, on preventive measures against polychaete fouling of cultured *Laminaria*, other anti-fouling measures and problems of biological monitoring and cryopreservation of larvae.

7. Laboratory of Ecology of Invertebrates

HEAD Valerii A. BRYKOV, Cand. Sci. Biol.
STAFF numbers 13, including 4 Cand. Sci.

RESEARCH OBJECTIVES: Studies of the ecology of common species of mollusks and echinoderms in the context of their reproduction and cultivation. The Laboratory is engaged in population-ecological analysis of commercial and other common species of mollusks and echinoderms. Long-term monitoring has been established on the dynamics of settling of larvae of the commercially important Pacific mussel *Crenomytilus grayanus* and the scallop *Patinopecten yessoensis*.. Investigations into feeding of filter feeding mollusks and their food webs in coastal ecosystem have been recently started.

8. LABORATORY OF ECOLOGY OF BENTHOS

HEAD Iurii Ya. LATYPOV, Dr. Sci. Biol.
STAFF numbers 26, including 2 Drs Sci., 10 Cand. Sci.

RESEARCH OBJECTIVES: Investigation of bottom sediments of coastal waters, including regions which offer promise for mariculture. A comparative autoecological study of recent and fossil common species of macrobenthos inhabiting coastal waters and coral reefs is aimed at their rational utilization and preservation. Population density and size-age structure have been analyzed for common species of macrophytes and invertebrates promising for mariculture in Peter the Great Bay. Species composition and distribution are studied in hermatypic corals of Vietnam, which constitute about 90% of all scleractinian fauna of the Indo-Pacific. Observations on oil-extracting platforms in the South China Sea have

detected formation of the skeleton of an artificial coral reef as a final stage of fouling community. The species composition and population structure of subfossil tanatocenoses, their succession with depth within the intertidal zone are shown to correspond to such changes in living cenoses in coastal waters of Peter the Great Bay. It was found that long-term cultivation of introduced *Mizuhopecten yessoensis* is associated with changes in the size-age structure and population density of natural molecules settlements. Systematics and ecology of gastropods of the World Ocean are studied. The composition, structure, and seasonal and long-period dynamics of meiobentic communities are investigated.

9, LABORATORY OF GENETICS

HEAD Vladimir A. BRYKOV, Cand. Sci. Biol.
STAFF numbers 20, including 1 Dr. Sci., 9 Cand. Sci.

RESEARCH OBJECTIVES: Study of genetic processes in populations of marine invertebrates and fish; investigation into the molecular mechanisms of evolution in group of species of invertebrates and fish. Genetic variability of marine invertebrates is studied in the context of their taxonomy and evolution. The population-genetic structure of settlements of these animals is investigated in relation to their rational exploitation and cultivation as well as conservation of the richness of genofond. Marine invertebrates (over 50 species of different phyla were examined) exhibit a marked genetic variability. The genotype composition of settlements of the mussel *Crenomytilus grayanus*, the oyster *Crassostrea gigas* and the scallop *Patinopecten yessoensis* has been studied in different localities on the coast of southern Primorye. High level of similarity has been found among the settlements from different localities. Microspatial genetic heterogeneity occurs in mussel and oyster settlements. A common far-eastern mussel previously referred to as *Mytilus edulis* has been reidentified as *Mytilus trossulus*. Research is continuing on the intra-and interspecific patterns of divergence of the mitochondrial and nuclear genomes in some groups of fish and marine invertebrates. Investigations into the molecular mechanisms of cell differentiation are carried out on sea urchin embryos. The molecular genetic methods are used to study the DNA replication processes as a probable mechanism that determines the activity of genes in dividing and differentiating cells of embryos.

10. LABORATORY OF FISH POPULATION BIOLOGY

HEAD Mikhail K. GLUBOKOVSKY (SKII) , Dr. Sci. Biol.
STAFF numbers 24 , including 1 Dr. Sci., 8 Cand. Sci.

RESEARCH OBJECTIVES: Study of the mechanisms that regulate the structure and abundance of populations of fish, mostly salmon species, and investigation of the evolutionary biology of fish. A comprehensive monitoring of the sockeye salmon subpopulation of Lake Azabachye, Kamchatka, initiated by S. M. Konovalov in the 1970s, has made it possible to reveal the major factors and mechanisms regulating the structure and abundance of populations of the Pacific salmon. Using pink salmon as an example, a new model of the population organization of fish has been suggested - "a system of fluctuating stocks". The population structure of chum and masu salmon of the Russia Far East has been studied. Evolutionary patterns, phylogeny and system of salmonid fishes of the genera *Oncorhynchus* and *Coregonus* are investigated with the use of morphological, karyological and molecular methods. One subfamily, two genera and three species of salmonid fishes have been established as new for science.

11. LABORATORY OF ICHTHYOLOGY

HEAD Eugene I. SOBOLEVSKY (SKII) , Dr. Sci. Biol.
STAFF numbers 13, including 1 Dr. Sci., 3 Cand. Sci.

RESEARCH OBJECTIVES: Study of the composition, structure and productivity of near-shore, pelagic and deep-water ichthyocenoses of the far-eastern seas; study of the reproduction, embryonic and larval development of common and commercially valuable fish species in connection with formation of good-harvest recruit; research on the population structure and regulation of the structure and abundance of sea fish populations; study of the fauna and systematics of fish of the far-eastern seas and contiguous waters of the Pacific Ocean. On the basis of the investigations, conclusions will be drawn on the condition of ichthyocenoses and recommendations made with respect to the monitoring and protection of marine biocenoses and increase in the variety of raw materials for fishing industry. The Laboratory participated during 1989-1992 in three surveys in Peter the Great Bay (Sea of Japan) and eight comprehensive surveys of the pelagic zone of the Bering Sea and Okhotsk Sea and the Pacific waters off Kamchatka. New data on the species composition and structure of meso- and bathypelagic fishes of the Bering Sea have been obtained, areas and time of spawning established as well as trophic relationships and feeding rhythms of some mesopelagic fishes elucidated. Knowledge of the species composition of ichthyocenosis of Peter the Great Bay and peculiarities of the spatial, biotopic and bathymetric distribution of common species of fish have been refined. The structure of near-shore ichthyocenoses (0-35 m) during the foraging period has been determined.

12. LABORATORY OF CYTOPHYSIOLOGY AND PHARMACOLOGY

HEAD Iurii S. KHOTIMCHENKO, Dr. Sci. Biol.
STAFF numbers 25, including 3 Drs. Sci., 11 Cand. Sci.

RESEARCH OBJECTIVES: Study of the molecular and cellular mechanisms that regulate the proliferation, growth and maturation of the gametes and of the processes of deterioration of the somatic and sex cells under the influence of heavy metals, petroleum hydrocarbons and radionuclides; primary pharmacological assessment of biologically active substances from animals and plants; development of new food additives and medicinal preparations. It has been established that the monoaminergic, cholinergic and peptidergic neurosecretory systems are involved in regulating the reproduction in echinoderms and bivalve mollusks. The properties of the adenylate cyclase system in oogenesis and early embryonic development of sea urchins and starfishes have been described. A biotechnology for obtaining of the mature sex cells of sea urchins and bivalve mollusks under artificial conditions has been worked out. Methods for toxicological assessment of soils, bottom sediments and sea water has been developed using the embryonic development of sea urchin as a model.

13. LABORATORY OF FISH PHYSIOLOGY

* HEAD Sergei L. KONDRASHEV, Cand. Sci. Biol.
* STAFF numbers 8, including 1 Dr. Sci., 2 Cand. Sci.

RESEARCH OBJECTIVES: Study of the cellular processes of reproduction control and adaptation to environmental conditions in Pacific salmon; comparative

physiological investigation of the visual system in marine animals. It has been shown that after migration from the sea to fresh water during the spawning run, the systems of ionic and osmotic regulation of pink salmon preserve, with a high degree of stability, the main constants of the water-salt balance in the blood serum and internal fluids. During the spawning migration the large cells and small cells in the preoptic nuclei of the pink salmon hypothalamus show two periods of pronounced functional activity: one after passage from the sea to river and the other before spawning. The first activation period is connected with the change of habitat and intensification of sexual maturation and the second is connected with "spawning stress" and the completion of maturation. During starvation exogenous insulin activates enzymes of utilization of endogenous glucose in fish. It has been established that exogenous salmon gonadotropin considerably activates the gonad growth in immature young chum salmon. In collaboration with the Institute of Especially Pure Biopreparations (St. Petersburg), prolactin has been, for the first time, isolated from pink salmon, purified and tested. Special attention has been given to investigation of the visual system and visually guided behavior in fish. A new phenomenon in the physiology of fish visual analyzer, change of the eye cornea coloration in relation to light conditions, has been discovered and described. In comparative aspect, a scheme of the structure of nerve centers of the brain in arthropods has been developed and morpho-physiological organization of the peripheral part of the visual system of decapod crustaceans from the Sea of Japan has been studied. A complex study is being conducted of the correlations between the fine morphology of fish retinal neurones and their functional properties.

14. LABORATORY OF COMPARATIVE CYTOLOGY

HEAD Igor Iurii DOLMATOV, Cand. Sci. Biol.
STAFF numbers 10, including 5 Cand. Sci.

RESEARCH OBJECTIVES: Study of cellular mechanisms of the regeneration and growth processes, their dynamics and regulation in the somatic tissues of marine invertebrates in relation to life cycles, ecology and taxonomy. A new approach to the study of the processes of physiological and reparative regeneration, cell proliferation and differentiation in the marine invertebrate tissues has been developed in the course of many-year research under the leadership of Dr. N. L. Leibson. Among various taxa, species and natural states have been found as well as experimental models (holothurians) developed which are promising for analysis of the mechanisms and cell sources of regeneration. Some renewing systems have been described for mollusks and echinoderms. Most of the intestinal epithelia of the animals have diffuse cell reproduction and are devoid of topographically separated cambial zones. The evolutionary significance of this initial organization of the epithelial layer is substantiated. Dr. Le terocoelodermal tissue type) in holothurians and, probably, some other animals. Annual cyclic changes in the physiological regeneration and deep structural reorganizations of the tissues have been discovered. The seasonal dynamics of proliferation in a number of mollusks and echinoderms have been studied for the first time for marine invertebrate tissues. Studies have begun on the use of marine invertebrate tissues as promising sources and targets (test objects) of growth factors and some possible agents for the medicinal purposes.

15. LABORATORY OF COMPARATIVE BIOCHEMISTRY

HEAD Vasily I. SVETASHEV, Cand. Sci. Chem.
STAFF numbers 18, including 1 Dr. Sci., 7 Cand. Sci.

RESEARCH OBJECTIVES: Study of the composition, distribution, pathways of biosynthesis, and biological activity of lipids of marine organisms and development of methods for lipid separation. A micro technique for lipid analysis has been developed, which is now widely applicable in different laboratories of Russia and abroad. General patterns of the distribution of polar lipids and fatty acids in main types of marine invertebrates and divisions of marine macrophytes have been elucidated. Methods of the separation of polyenoic fatty acids and some other physiologically active lipids from sea raw matter have been worked out.

16. LABORATORY OF CELL BIOPHYSICS

HEAD Nikolai S. SHELUDKO, Dr. Sci. Biol.
STAFF numbers 11, including 1 Dr. Sci., 5 Cand. Sci.

RESEARCH OBJECTIVES: Investigation of the mechanisms of functional specialization of contraction systems by modeling; development of methods of marine invertebrate cell culture that can be useful for the production of biologically active substances. Optic characteristics of the molecular contraction models, myofibrils, natural and synthetic actomyosin, and their changes in the process of functioning of models have been investigated. Conditions of the long-term cultivation of some cells of marine invertebrates have been developed on the basis of optimization of the composition of culture media.

17. LABORATORY OF WATER PLANT PHYSIOLOGY

HEAD Eduard A. TITLYANOV, Dr. Sci. Biol., Professor.
STAFF numbers 14, including 1 Dr. Sci, 4 Cand. Sci.

RESEARCH OBJECTIVES: Study of photosynthesis in marine plants and reef-building corals with the aim of controlling their productivity. Research into the mechanism of light adaptation of aquatic plants and corals is being carried out. The primary production of photosynthesizing organisms in various ecological conditions and the utilization of primary production in the processes of growth, life maintenance and excretion are estimated. The donor-acceptor relationships between the general life function and photosynthesis are examined at different stages of the life cycle of algae. Considerable attention is paid to the physiology and ecology of commercially valuable algae species producing agar and alginic acid. Recommendations have been given with respect to the rational exploitation of the natural commercial fields of agar-producing alga *Ahnfeltia*. In Vietnam, research on the physiology and improvement of the techniques for growing of agar-producing algae *Gracilaria* is being conducted and the dynamic structure and production characteristics of natural *Sargassum* growths are being studied. Marine expeditions to the South China Sea and other areas of the Pacific and Indian Oceans have been organized to study the production ecology in various species of photosynthesizing plants and reef-building corals.

18. LABORATORY OF SYSTEM ANALYSIS

HEAD Aleksandr M. BRONEVSKY (SKII) , Cand. Sci. Biol.
STAFF numbers 7, including 2 Cand. Sci.

RESEARCH OBJECTIVES: Investigation of the structure and dynamics of biological systems with the use of the methods of system analysis and automation of scientific

research. In particular, population analysis of salmon stocks has revealed their epigenetic structure and mechanisms that maintain structure and underlie its variation and the effect of the structure on population dynamics. The staff of the Laboratory has developed and applied in the Institute's research a complex of programs for data analysis: many-dimensional regressive analysis, methods of random search, computer graphics, stochastic simulation and a system of storage and search of bibliographical data. A database on population biology of salmon has been compiled.

19. MUSEUM

HEAD - Constantin A. Lutaenko

STAFF numbers 5.

The Institute's museum was set up in 1994 in an effort to form a system of qualified storage and exhibition of collections of sea animals and plants. The museum's collections comprise more than 40,000 specimens, of which the greater part has not yet been cataloged. Malacological and ichthyological collections are the largest. The collection of corals from the laboratory of Benthos Ecology and the collection of sea flora and fauna assembled by the staff of the Far Eastern State Marine Reserve will be transferred to the Museum. One of the museum's exhibitions will show the advance in marine biology in the Russia Far East and the evolution of research at the Institute. In the museum's halls there will be aquaria with inhabitants of the sea, particular Peter the Great Bay. Demonstration of underwater video films and ecological lectures form a part of the museum's educational program. Also our objective is to engage in museum's activities school-children and students of the Junior Academy of Marine Biology.

20. FAR EAST STATE MARINE RESERVE INSTITUTE

HEAD Peter V. KOLMAKOV, Cand. Sci. Biol.

STAFF numbers 39, including 4 Cand. Sci.

RESEARCH OBJECTIVES: To conserve the coastal flora and fauna, richest in species diversity for the Russia seas, and their natural environments; to preserve animals and plants of the reserved island areas; to describe the marine and island biocenoses of the reserve and to study their dynamics under the influence of natural and anthropogenic factors; to promote the concept of sea protection and to develop activity of the permanent exhibition on Popov island "Nature of the Sea and Sea Protection". The **Institute** has developed a project of organization of marine and complex reserves on the coasts of the far-eastern seas (**Acad. Alexei V. Zhimunsky (skii)**).

21. MARINE PRESERVE "VOSTOK BAY"

HEAD Alexei N. Tyurin, Cand. Sci. Biol.

The State Marine Preserve in Vostok Bay was established on the Institute's initiative in 1989; it occupies 18,2 square meters of the aquatic area of Vostok Bay (Sea of Japan) north of the line connecting Cape Puschin and Cape Elizarov, including Srednyay Bay, Vostok Inlet, Tikhhaia (aya)i Zavod Inlet and Llitovka Bay. The protected sanitary zone of the preserve represents a shore band 500 m wide, starting with the highest high water mark. The preserve activities include the reduction of

antropogenous effects on Vostok Bay, the protection of commercial marine organisms and their spawning grounds, the conservation of the natural diversity of animals and plants of Vostok Bay; investigation into the effects of sea farming on the state of benthic and pelagic communities; development of bioassays techniques seawater quality monitoring.

22. LIBRARY

The Institute Library (headed by Lubov I. Leibovich) is a division of the Central Library of the FEB RAS. It was established in 1967 simultaneously with foundation of the Department of Marine Biology. It contains books and journals on marine biology, zoology, ecology, embryology, cytology, plant physiology, genetics and biochemistry. Now its stocks include 31 500 items, 14 000 of them are foreign publications. Part of the literature came from personal collections of Academician E. N. Pavlovsky (skii) , Professor D. M. Fedotov, as well as from libraries of the Zoological Institute and the Institute of Cytology of RAS. Many books were gifted to the Library by Academician Alexei V. Zhirmunsky (skii) . Literature exchange with research institutions of the World contributes much to development of the Library.

23. BIOLOGICAL STATIONS

Marine Biology Institute in the Far East

"Vostok" station (headed by Vladimir A. Vorobyev, Cand. Sci. Biol.) is located near Nakhodka, in the southern Primorye.

Research efforts are focused on studies of the ecology, biochemistry, genetics and embryology of marine animals as well as flora and fauna of Vostok Bay. Along with the Institute's staff members, visiting scientists, from Moscow, Saint Petersburg and other cities conduct research in various areas of marine biology. The station also visited by foreign scientists, among them Professor Otto Kinne (Germany), a famous explorer and scientist Thor Heyerdal (Norway), the Director of Marine Laboratory of Duke University Professor John Costlow, Professor of Harvard University Ruth Turner, a member of American National Academy of Sciences, Professor Andy Benson (USA) and others.

Biological station "Vostok" is the place for seasonal practical courses for future scientists, members of Junior Academy of the Marine Biology, students of 9 - 11 forms of high school.

"Stark" station (headed by Ivan N. Budin, Cand. Sci. Biol.) , is situated on Popov Island not far from Vladivostok. Research is conducted on comparative physiology of animals, ecology and physiology of seaweed.

"Sokol" station (headed by Oleg V. Rychkov) is located on Sakhalin and conducted research on physiology, population genetics of the Pacific salmon, cellular reorganizations in salmon organs and tissues during spawning migration.

In "Raduga" station (headed by Peter D. Krainyuk) located on Kamchatka, long-term study is being conducted on the structure of the sockeye salmon population in Azabachje Lake in order to give recommendations on effective utilization of the fish stock.

24. ALL-INSTITUTE UNITS

Department for Scientific information

Head T. A. Terekhova, Cand. Sci. Biol..

Staff numbers 16. The department includes groups for scientific information, translation, editing and publishing, copying and photography. The main objectives of this Department are the provision information for the Institute's scientists, and the dissemination of information about the Institute at home and abroad; the world-wide exchange of publications with marine biological institution; organization of scientific conferences and meetings of the Specialized Dissertation Councils, etc.

Maritime service of the Institute is headed by Stanislav D. Oleyinic. Surveys within the Peter the Great Bay are conducted aboard the research vessels "Professor Nasonov" and "Vnimatelny". The research vessel of the Research Fleet of the FEB RAS "Akademik Aleksandr Nesmeianov" or "Akademik Oparin", are used by the Institute for far expeditions.

Diving Service (headed by Iurii P. Popov) performs the years-round sampling for research and participates in hydrobiological surveys during expeditions of the Institute at all latitudes from Chukotka, tropical waters of the Pacific and Indian Oceans.

Aquarial group (headed by Viktor P. Naidenko) helps experimental work that requires maintaining marine organisms in aquaria. In the building of the Institute and at the Vostok station there are aquaria of varied capacity (10 to 1000 liters), some being provided with biofilters; seawater supply system and biofilter in aeration system operate continuously.



11. Marine Geology and Geophysics Institute in Novo Aleksandrovsk.

Sergeev, Konstantin F., D. GM. S. Born in 1931. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Far Eastern Department since 1979. Since 1977, he has been Director of the Marine Geology and Geophysics Institute (formerly the Complex Scientific Research Institute--Sakhalin) in Novo Aleksandrovsk that is subordinate to the Far Eastern Department and that does research in the fields of oceanography and geophysics, including seismology, hydro-acoustics, and the study of tidal waves.

No date given in source. Research in oceanography and geophysics, tidal waves, hydro-acoustics, and seismology. Director Sergeev, Konstantin F., D. GM. S., since 1977. (See: **Ruble, Vol. I., p. 276. Listed as the Sakhalin Interdisciplinary Scientific Research Institute.**)



12. Chemistry Institute in Vladivostok.

Ippolitov, E. G., D. Chem S. Born in 1930. Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy since 1979. Also a member of the Siberian department. Since 1977, he has been Director of the Chemistry Institute in Vladivostok, which was founded in 1970 and does research on the composition of marine foam, methods of extracting minerals from sea water, and researches the crystal structures of rare metal fluorides.

Established in 1970. Research on the composition of marine foam, methods of extracting minerals from sea water, and studies on the crystal structures of rare metal fluorides. Director Ippolitov, E. G., D. Chem. S., since 1977.



13. Economic Research Institute in Khabarovsk. Established in 1976. This institute grew from an economic group of five persons who began operations in Vladivostok in 1951, to a laboratory of Labor Resources that broke off from that original group and established itself in Khabarovsk in 1962, and in 1968, after the growth of a group of Khabarovsk laboratories that became part of the Far Eastern Division of the Siberian Department, was turned into the Khabarovsk Complex Scientific Research Institute. In 1970 this institute became part of the Far Eastern Center of the AN SSSR. In July 1976, the formal organization of the Institute of Economic Research was approved with the addition of branches of the institute established in Vladivostok, Blagoveshensk, and in Petropavlovsk-Kamchatskii. With these changes, the institute and its personnel turned to regional economic development problems and **the Amursk Complex Scientific Research Institute** in Blagoveshensk, and **the Pacific Institute of Geography** located in Petropavlovsk-Kamchatskii were developed from it. The Khabarovsk Economic Research Institute coordinates the economic research activities of the academic, branch institutes and higher educational institutions in the Russian Far East. The institute has been responsible for the drafting a regional economic development plan, for pioneering programs for scientific-technical progress in the Far East, for introducing management systems improvements for a transition to a market economy, and for long-range planning to the year 2000. Its scientists are designing regional economic atlases and maps. The institute maintains an active research graduate program and a specialized council for candidate and doctoral dissertation defenses.

Structure of the institute: the institute is organized into nine sectors:

- complex regional planning;
- forecasting and economic-mathematical modeling;
- territorial management;
- comprehensive economic exploitation of natural resources;
- the standard of living and distributional relations;
- population and applied sociology;
- the efficiency of new forms of foreign economic relations in the Far Eastern economic region;
- economic and political problems in the Asian-Pacific region, and the efficiency of the comprehensive development of the Khabarovsk region.

The staff of the institute includes 77 researchers of whom four hold the doctoral and 36 the candidate degree. The Directors of the institute have been: G. L. Tarasov (1976-78), N.: Z. Atari (1978-79), V. P. Chichkanov (1979-86), and, since 1987 Petr Ia.

Balkan, D. Geog. S. has been the Director. From 1979 to 1986 Dr. Valerii P. Chichkanov, corresponding member of the Russian Academy of Sciences was Director of the Economics Research Institute in Khabarovsk. In 1987, he was made Director of the Economics Institute in Ekaterinburg (Sverdlovsk); Deputy Director Dr. A. S. Sheingous, D. Econ. S., since 1991; Deputy Director O. M. Renzin, C. Econ. S., since 1991; Academician Secretary E. L. Motrich, C. Econ. S., since 1991. Some of the more prolific scientists in the publication of articles and monographs that have been published by the institute include: P. Ia. Baklanov, V. N. Bikov, D. S. Vishnevskii, V. N. Golodnenko, A. I. Gubar', A. G. Zel'dner, V. P. Ivanov, N. F. Kovalev, M. I. Kraeva, M. I. Ledenev, S. N. Leonov, P. A. Minakir, N. N. Mikheeva, O. M. Renzin, N. I. Savin, P. M. Salinin, G. I. Sukhomirov, N. I. Tsvetkov, V. P. Chichkanov, and N. L. Shlik. (**Information provided by letter dated 15 October 1991 from E. Motrich, Academic Secretary of the Economics Research Institute in Khabarovsk.**) (Also see: **Ruble, Vol. I., p.101.**)



13. Economic and International Problems of the Use of Ocean Resources Institute in Vladivostok

can be traced back to the addition of a division added to the Economic Research Institute of the Far East Scientific Center in 1977, that, was reorganized into the Institute of the Economics of the Ocean in 1983, that, in turn, was reorganized and became the institute under its current name in 1987. The first Director of this institute was V. A. Fedoseev (1983-88) and since 1989, the institute has been headed by Dr. Rafik Sh. Aliev, D. Hist. S. Staff at the institute numbers 105 researchers of whom seven hold the doctorate and 38 hold the candidate degree. Structure of the institute: The institute is organized into six departments with sectors and groups as follows:

- (1.) Problems of the Maritime Economic Complex Department with sectors on the development of the fishing industry complex; managing the regional scientific complex; sociological studies; managing socioeconomic systems, and a group on computer software;
- (2.) The Interrelated Economic Problems of Exploitation of the Ocean Department with sectors on fuel-energy and interbranch problems; economic evaluation of ocean resources, and economic use of mineral and chemical resources;
- (3.) Technical Means of Exploitation of the Ocean Department with sectors on the economic use of maritime technology; maritime construction, and maritime transportation systems;
- (4.) Socio-economic Problems of the Use of Ocean Resources Department with sectors on economic and social development of the Maritime Region; economic use of maritime recreation resources and human adaptational abilities, and social problems of using ocean resources;
- (5.) International Problems of the Use of Ocean Resources Department with sectors on problems of maritime economics of the nations of the Pacific Region; international legal problems of the use of ocean resources; international economic and political problems of the use of ocean resources, and foreign economic problems of the use of ocean resources, and
- (6.) Problems of the Food Complex Department with sectors on efficiency of the development of the food complex and the efficiency of formation and development of the food subcomplexes. The institute has established relations with the University of Washington in Seattle, the East-West Center of the University of Hawaii, the National Oceanographic Agency of the Chinese Academy of Sciences,

other agencies of the Chinese government, universities in Japan and Korea and Vietnam. In 1989, the institute joined in the publication of a monograph on Russian-Japanese Economic Relations.



14. Complex Scientific Research Institute in Khabarovsk.

Babushkin, Mark N. Born in 1924 in Volgograd Oblast. Soviet scientist in control problems. Corresponding member of the Problems of Machine Building Department of the Academy since 1976. Also corresponding member of the Far Eastern Scientific Center. He graduated from the F. E. Dzerzhinskii Higher Naval School in 1947 and from the A. N. Krylov Naval Academy of Naval Architecture and Armaments in 1954. He served on the teaching staff of the academy from 1954 to 1972, becoming a professor there in 1968. In 1973, he was appointed Director of the Khabarovsk Scientific Research Integrated Institute of the Far Eastern Scientific Center (now department) of the AN SSSR. Since 1973, he has been Director of the Complex Scientific Research Institute in Khabarovsk. This institute studies the biogeochemical and geological processes of the earth, methods of mineral prospecting, and geochemical characteristics of ancient regions. It is subordinate to the academy's Far Eastern Scientific Center. His works have been in the theory of multivariable control systems and integrated ship automation, and the theory of analog computers. (GSE 30, p. 20.)

No date given in source. Studies the biogeochemical and geological processes of the earth, methods of mineral prospecting, and geochemical characteristics of ancient regions. Director Babushkin, Mark N., since 1973. Deputy Director Ivlev, Anatoli M., C. Agr. S., since '70. (See: Ruble, Vol. I., p. 260.)



15. Automation and Control Processes Institute in Vladivostok. Established in 1971. The institute specializes in developing computerized management systems for institutions in the Far East working on automated control systems theory and their practical applications to the region's industry and agriculture. The institute is especially strong in computer support services for oceanographic research. It maintains laboratories for economic modeling, ecological modeling, automated managerial systems and pilot navigation systems. It studies wages and prices, costs, and the management problems of industry in the region. Director Perchuk, Viktor L., D. Tech. S., since 1981. (See: Ruble, Vol. I, p. 139 where it is listed as Institute of Automation and Management Processes.)



16. Pacific Ocean Geography Institute in Vladivostok.

Khudiakov, Gleb I., D. GM. S. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the Academy since December 1987. Also member of the Far Eastern Department. From 1978 to 1980, he was Chief of a laboratory of the (Far Eastern) Geology Institute in Vladivostok. Since

1980, he has been Director of the Pacific Ocean Geography Institute in Vladivostok which was established in 1971 to do physical, economic geographical research and to forecast environmental changes caused by economic development. (LDA 89-11378.)

Established in 1971. Does physical and economic geographical research, and forecasts environmental changes caused by man's economic activities. It publishes its collected research materials under the title, *Voprosy geografii Dalnego Vostoka*. Director Khudiakov, Gleb I., D. GM. S., since 1980. Deputy Directors: Badenkov, Iurii, since '78; and Gasanova, Sh. Sh., C. GM. S., since '78;

Mathematical Modeling of Climate Laboratory: Head Sergin, Vladimir Ia., D. PM. S., since '78;

Oceanography Laboratory: Head Bogdanov, Konstantin T., since '74;
(See: Ruble, Vol. I., p. 261 and also listed in Vol. II, p. 38.)



17. Biological Problems of the North Institute in Magadan. Established in 1972. Institute scientists study the impact of human economic activity upon northern ecosystems and help to develop a mineral resources map of the region. They also conduct research on the structure, function, and productivity of ecosystems of the northern latitudes and methods of their preservation and improvement or adaptation to northern situations. Director Aidaraleev, A. A., since 1988. (See: Ruble, Vol. I., p. 273.) Since 1989, personnel includes: Director Aidaraleev, A. A., Apri'88; Deputy Director Kushnir, Anatoli, C. Bio. S., since '74; Scientific Secretary: Shatkauskas, Aleksandr V., since '76;

Parasitology Division:

Experimental Parasitology Laboratory: Head Lukashenko, N., D. Bio. S., since '76;

Hemninthology Laboratory: Head Kontrimavichus, Vitautas L., D. Bio. S., since '76; Senior Researchers: Bondarenko, S. K., C. Bio. S., since '76; and, Krasnoshchekov, Georgii P., C. Med. S., since '76;

Microbiology Laboratory

Zoology of Invertebrates Laboratory

Physiology Division: Head Pastukhov, Iurii F., C. Med. S., since '74;

Human Adaptation Laboratory

Physiology of Natural Adaptations Laboratory: Head Pastukhov, Iurii F., C. Med. S., since '76; Senior Researcher Kushnir, Anatoli, C. Bio. S., since '76;

Unicellular Adaptation Laboratory: Head Batov, V. A., C. Bio. S., since '76; Senior Researcher Vainrib, M. A., C. Med. S., since '76;

Soil Science and Botany Division: Head Ignatenko, Igor V., C. Agr. S., since '74;

Bio-Cenology Laboratory: Head Berman, DaniI., C. Bio. S., since '76;

Botany Laboratory: Head Khokhriakov, Andrei P., since '76;

Landscape Investigation and Nature Preservation Laboratory: Head Vaskovskii, Aleksei P., since '76; Senior Researchers: Khlinovskaia (aya), N., C. Geog. S., since '76; and Skripchinskii, K., since '76;

Soil Science Laboratory: Head Ignatenko, Igor V., C. Agr. S., since '76;

Zoology Division

Ichthyology and Hydrobiology Laboratory: Head Novikov, A., C. Bio. S., since '76; Senior Researcher Tarkhov, Vadim S., since '75;

Neuro-endocrine Regulation Laboratory: Head Tkachev, A. V., D. Med. S., since '76; Senior Researchers: Mosin, A., C. Med. S., since '76; Popovich, T., C. Bio. S., since '76; and, Volfson, C. Med. S., since '76;

Ornithology Laboratory

Theriology Laboratory: Head Cherniavskii, Feliks, C. Bio. S., since '76; Senior Researchers Kozlovskii, A. I., C. Bio. S., since '76; and, Krivosheev, V. G., since '76;

Biological Field Stations:

Cape Schmidt: Head Serdiuchenko, Valentin, since '76;

Chaun: Head Sorokin, Iurii I., D. Bio. S., since '76;

Coluchin Bay

Markovo: Head Tarkhov, Vadim S., since '76;

Omolon

Snow Valley

Stokovaia (aya): Head Korolev, Iurii, since '76;

Wrangel Island

(See: Ruble, Vol. I., p. 273.)



18. Pacific Ocean Oceanology Institute in Vladivostok.

Ili'ichev (Ilichev), Viktor I. Born in 1932 in the village of Tikhonovo, Vladimir Oblast. Russian hydrologist and hydroacoustics specialist. Corresponding member of the Oceanology, Atmospheric Physics, and Geography Department of the AN SSSR since 1976 and, academician since 1981. He graduated from the University of Gorkiy in 1955. Between 1955 and 1974 he was on the Acoustics Institute staff. In 1974, he became director of the Pacific Ocean Oceanology Institute in Vladivostok established in 1973 to study the complex hydrophysics of water masses, sea swell, energy exchange, and the interactions of the ocean. It is subordinate to the academy's Far Eastern Scientific Center (now an academy Department.) Since March 1986, he has served as chairman of the Far Eastern Department of the academy. He has been a vice-president of the academy and a member of the Presidium since October 1987. His works deal with acoustic and hydrodynamic cavitation, the resistance of liquids to cavitation, and marine hydrology. (GSE 30, p. 440.)

Established in 1973. Researches complex hydrophysical study of water masses, sea swell, energy exchange, and the interaction of the ocean. Director Ilichev, Viktor I., since 1974. **Personnel:** Deputy Director Akulichev, Viktor A., D. PM. S., since '81; Field Stations Operations Department: Deputy Head Kasianov, Vladimir L, since '79; Oceanographic Instruments Laboratory: Head Shevtsov, V. P., since '78.



19. Amur Interdisciplinary Scientific Research Institute in Blagoveshchensk.

Moiseenko, Valentin G., D. GM. S. Born in 1930. Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences department and of the Far Eastern department since December 1987. He heads up the Amur Interdisciplinary Scientific research Institute in Blagoveshchensk.

Established in 1980, from units of the Far Eastern Geological Institute and the Economic Research Division of the Institute of Economics, the institute has a subdivision on humanitarian problems and a laboratory on sociology that is headed by V. N. D'ianchenko. The laboratory works on the manpower problems in the Baikal-Amur region and on labor resources for the agroindustrial complex of the region. It maintains relations with the branch of the Chinese Academy of Sciences in Hilongjiang province. (LDA 89-11378.)

Established in 1980, from units of the Far Eastern Geological Institute and the Economic Research Division of the Institute of Economics, the institute has a subdivision on humanitarian problems and a laboratory on sociology that is headed by V. N. D'ianchenko. The institute has a staff of 12 researchers that includes one doctoral degree and two candidate degree holders. The laboratory works on the manpower problems in the Baikal-Amur region and on labor resources for the agroindustrial complex of the region. It maintains relations with the branch of the Chinese Academy of Sciences in Hilongjiang province. The institute is headed by Valentin G. Moiseenko, a corresponding member of the Russian Academy of Sciences.



20. Marine Geology and Geophysics Institute in Novo Aleksandrovsk.

Sergeev, Konstantin F., D. GM. S. Born in 1931. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Far Eastern Department since 1979. Since 1977, he has been Director of the Marine Geology and Geophysics Institute (formerly the Complex Scientific Research Institute--Sakhalin) in Novo Aleksandrovsk that is subordinate to the Far Eastern Department and that does research in the fields of oceanography and geophysics, including seismology, hydro-acoustics, and the study of tidal waves.

No date given in source. Research in oceanography and geophysics, tidal waves, hydro-acoustics, and seismology. Director Sergeev, Konstantin F., D. GM. S., since 1977. Scientific Personnel: Deputy Directors: Apanasenko, Valentin A., since '66; Gnibvidenko, Gelios S., D. GM. S., since '82; Lappo, Sergei S., C. PM.; S., since '75; and Sichev, Pavel M., C. GM. S., since '72. (**See: Ruble, Vol. I., p. 276. Listed as the Sakhalin Interdisciplinary Scientific Research Institute.**)



21. Marine Biology Institute in Petropavlovsk-Kamchatskii. Established in 1983. Studies biology of the Kamchatka Peninsula's coastal shelf.

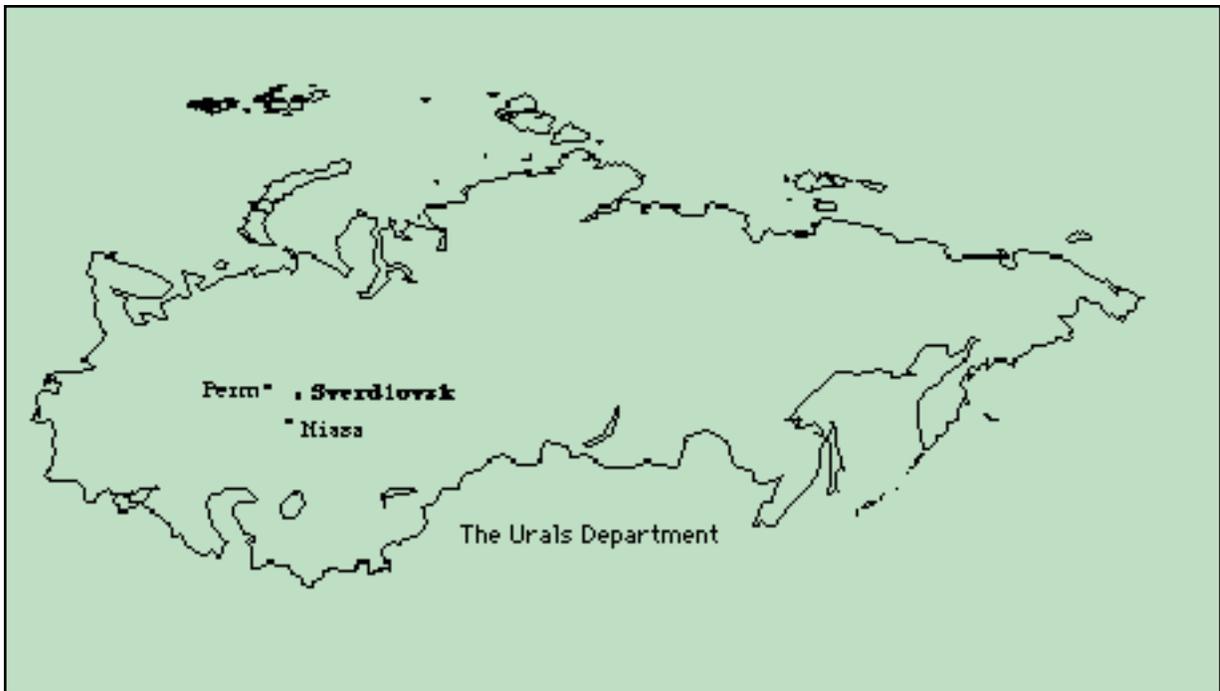


The Urals Department

The Urals Department--retrospect: The Urals Scientific Center was organized in 1971 in response to a 1969 resolution of the CC CPSU "On the Development of Scientific Institutions in Individual Economic Regions of the RSFSR." The center was created from the Urals Branch of the Academy of Sciences of the USSR, the Physics of Metals Institute, and the Mathematics and Mechanics Institute. It was established to expedite the economic development and improve the productive forces of the region. While conducting advanced training for scientists, it also coordinated research among institutes of the national academy, research entities of the ministries and of the VUZy institutions in the region.

The Work of the Urals Department: In an article in 1984 that appeared in *Izvestiya*, Sergei Vonsovskii who has been Chairman of the Presidium of the Urals Department since 1971, described the work of the Urals Center in fulfilling the

tasks laid down for it by the CC CPSU. The Center had begun to establish scientific production subdivisions in which academic and ministerial institutes, VUZy and industrial associations united their efforts in the attempt to improve production of goods and services in the area. Scientists had produced a study for economic develop from 1990 to 2000 that was discussed in the national GOSPLAN collegium. The Center was assigned the task of "taking charge" of the intensification of the economic enterprises in the Urals. It involved some 33 ministries and Departments, more than 150 scientific research institutes, planning organizations, VUZy, production associations and enterprises and national academy institutes in the development of the long range plan for development. As part of the long-range program for development, the Center began building experimental bases at Ekaterinburg (Sverdlovsk), Izhevsk, and Perm'. 6 In 1987, the Urals Scientific Center was officially declared to be the Urals Department of the AN SSSR, on the same footing as the Siberian Department had been from its inception.



Members of the Urals Department--administrative responsibilities: Of the 36 members of the Urals Department, three Directors and one Deputy Director of SRIs subordinate to the Urals Department are members of the Department. Ten of the 36 members were also members of the Communist Party in 1989. The Department has a Chairman a 1st Deputy Chairman and four Deputy chairmen.

Academicians--ages and schools: The birth dates of all ten academicians of the Urals Department are known. Two of them were in the 80s in 1991; of the remaining eight academicians, their average age was 61 years. Seven of the academicians had been or were Directors of scientific research institutes. Four of the academicians held a principal membership in three subject-matter Departments of the Russian Academy of Sciences: the Problems of Machine Building, Mechanics and Control Processes Department, the Physical Chemistry and Technology of Inorganic Materials Department, and the General Physics and Astronomy Department. Five of the academicians of the Urals Department graduated from three institutions: the S.

M. Kirov Urals Polytechnic Institute, two; Leningrad State University, one, and the University of Kazan', one. All academicians, however have advanced degrees.

Corresponding Members--ages and schools: Only ten birth dates of the 26 corresponding members is known. There are a disproportionate number of members in their 80s who are members of this department--a total of six in all. Of the four other with known birth dates the average age in 1991 was 60 years. Seven of the 26 corresponding members held joint memberships with six different subject-matter departments of the Russian Academy of Sciences. Seventeen of them were or had been Directors or Deputy Directors of research institutes subordinate to the Urals Department. Five institutions are known to have graduated at least five of the corresponding members. These include: the S. M. Kirov Urals Polytechnic Institute, two; the University of Kazan', one; the Sverdlovsk Institute of Geological Prospecting, one, and the Leningrad State University, one.

Chairman:

Mesiats, Gennadii A., D. PM. S. Born in 1936. Physicist. He has been an academician of the General Physics and Astronomy Department of the AN SSSR and the RAS since 1984. He is also a member of the Urals Department. Since 1986, he has served as a member of the Presidium of the Academy of Sciences of the USSR. Since 1977, he has been a co-Director of the High Current Electronics Institute in Tomsk, an affiliate of the academy's Siberian Department that researches thermonuclear and accelerator physics and laser technology and that was created in 1977 from the High Current Electronics Laboratory of the Atmospheric Optics Institute. Since 1986 he has been Chairman of the Urals Center (now Department), and since November of 1986, he has served as the Director of the Electrophysics Institute in Ekaterinburg (Sverdlovsk) that was established in 1986. In October 1987 he was named a Vice President of the AN SSSR for the Urals Department and continues in that position with the revitalized Russian Academy of Sciences.

First Deputy Chairman:

Tolstikov, Genrikh A., D. Chem S. Born in 1933. Academician of the General and Technical Chemistry Department of the AN SSSR from 1987, and first Deputy Chairman of the Urals Department since 1988. Since 1977, he has been Director of the Chemistry Institute in Ufa. Established in 1960, it studies the methods of processing sulfur crudes into fuels. He was named Chairman of the Bashkir Affiliate in 1984.

Deputy Chairmen:

Chichkanov, Valerii P., D. Econ. S. Russian economist. Corresponding member of the Economics Department and of the Urals Department of the Academy since 1981. From 1980 to 1987, he was Director of the Economics Study Institute at Khabarovsk under the Far Eastern Department that studied the economic development of the Russian Far East. In 1987, he was made Director of the Economics Institute in Ekatarinburg which sprang from a research group organized in 1941, to become a Department of Economic Studies of the Urals Branch of the Academy in 1951, and in 1971 of the Urals Department. In 1971, the Institute of Economics of the Urals Department was reorganized. Its scientists in the past have worked closely with the State Planning Committee. The Institute studies methods of improving production efficiency in the Urals region. Special attention is given to energy production, capital investment policies and the introduction of new technologies into production. (LDA 89-11378.)

Koroteev, Viktor A., C. GM. S. Corresponding member of the Geology, Geochemistry, Geophysics and Mining Sciences Department and of the Urals Department since 1987; academician since 1993. Since 1975, he has been Director of the V. I. Lenin Ilmenskii State Reserve in Miass in Cheliabinsk (Chelyabinsk)

Oblast. This organization was established in 1920 to conduct geological and biological research in the forests of the Southern Urals Mountains. He has been Deputy Chairman of the Urals Department since August 1988.

Roshchevskii, Mikhail P. Corresponding member of the Physiology Department of the Russian Academy of Sciences and of the Urals Department since December 1987; academician in 1993. He became Chairman of the Komi Scientific Center in February 1984. He was named a Deputy Chairman of the Urals Department in August 1988.

Head Scientific Secretary:

Kozhevnikov, G. N., D. Tech. S. Head Scientific Secretary to the Urals Department since 1980.

Academicians:

Avrorin, Evgenii N., D. PM. S. Corresponding member of the General Physics and Astronomy Department of the Russian Academy of Sciences and of the Urals Department since December 1987; academician in 1993. In 1992, he was listed as the Chief scientist of the Chelyabinsk-70 weapons design center located near Chelyabinsk.

Baraboshkin, Aleksei N., D. Chem. S. Born in 1925. Corresponding member since 1981, and academician of the General and Technical Chemistry Department of the Academy and of the Urals Department since December of 1987. He graduated from the Urals Polytechnical Institute in 1952 where he also did all of his graduate work. He joined the institute in 1958. Since 1977, he has been Director of the Electrochemistry Institute in Ekaterinburg (Sverdlovsk). Established in 1958, the main research thrusts of the institute include high-temperature electrochemistry of molten salts and solid electrolytes--investigations of their properties and the processes in these electrolytes--and the development of new ecologically pure technologies and devices. He has also headed the Electrocrystallization Laboratory of the institute since 1972. He is responsible for new scientific directions involving the electrocrystallization of metals out of salt melts, the theoretical foundation of galvanoplastics and galvanostegy of refractory metals and their alloys, chemistry and kinetics of electrode processes, and methods of obtaining single crystals and epitaxial layers of metals.

Bol'shakov, (Bolshakov) Vladimir N., D. Bio. S. Born in 1934. Corresponding member of the General Biology Department and of the Urals department since 1979, and academician of both departments since December 1987. Deputy Director of the Zoology Institute in Leningrad from 1971 to 1977. Since 1977, he has been Director of the Plant and Animal Ecology Institute in Ekaterinburg (Sverdlovsk). It was founded in 1948 and does research in the fauna and flora of the Urals Region, soil science, animal pathology, radiobiology, and cartography. It is the leading ecological research institute in Russia. In 1986, he was given the V. N. Sukachev Gold Medal named after the famed botanist, geographer, and plant scientist for his own work in botanical research. Institute scientists concentrate upon the impact of pollutants like Strontium 90 and its migration through the soil as well as the impact of other nuclear wastes upon the environment. He is a recipient of the Order of the Red Banner Badge of Honor Medal.

Chupakhin, Oleg N., Corresponding member of the General Technical Chemistry Department of the Russian Academy of Sciences and of the Urals department since 1987; academician in 1993.

Koroteev, Viktor A., C. GM. S. Corresponding member of the Geology, Geochemistry, Geophysics and Mining Sciences Department and of the Urals department since December 1987; academician in 1993.

Koval'chuk, (Kovalchuk) Boris M., D. Tech. S. Born in 1940. Engineer. Specialist in the fields of electronics and electrotechnics and electrophysics. Corresponding member since December 1987, and an academician since 1992. He has authored 130 scientific works and is credited with 11 inventions. He graduated from the Tomsk Polytechnical Institute imeni S. M. Kirov in 1962 and worked at the Nuclear Physics Electronics, and Automation Institute in Tomsk from 1962 to 1970. In 1970 he became Head of a laboratory of the Department of High Energy Electrotechnics and in 1978, he was made Head of the Pulsed Power Laboratory of the High Currents Electronics Institute in Tomsk. He is on the Scientific Council on Pulsed Power. Chairman of the section on the physical Technical Problems of controlling the sources of extra high power energy of micro and nano wave bands. He headed the base for the production of pulsed energy, including work on the synthesis of thermonuclear war heads on guided missiles, the study of the physics of powerful electronic and ionic rays, the generation of SVCh radiation, and research in laser technology. He has guided the research of two doctoral candidates and the work of five aspirants for the candidate degree. He was given the Laureate Lenin Komsomol Prize in 1968. He received the State Prize in 1981. He is a recipient of the Order of the Red Banner Badge of Honor Medal.

Krasovskii, Nikolai N. Born in 1924 in Ekaterinburg (Sverdlovsk). Russian scientist in the field of mechanics and control processes. Academician of the Problems of Machine Building, Mechanics and Control Processes Department of the Russian Academy of Sciences and of the Urals Department since 1968. He graduated from the Urals Polytechnic Institute in 1949, becoming a professor there in 1957 and a professor at Urals University in 1959. Since 1970, he has been the Director of the Institute of Mathematics and Mechanics of the Russian Academy of Sciences. His works are on the stability of motion and the dynamics of control systems. (GSE 13, p. 487.)

Kurzhanskii, Aleksandr B., D. PM. S. Born in 1939. Corresponding member of the Problems of Machine Building and Control Processes Department since 1981 and of the Urals Department since 1988; academician in 1993.

Mesiats, Gennadii A., D. GM. S. Born in 1936. Corresponding member since 1979; and an academician of the General Physics and Astronomy Department and of the Siberian Department since 1984. Vice President of the Academy for the Urals Department since 1987. He is a specialist in the fields of electronics and electrophysics. He received the Lenin Komsomol Prize in 1968, and the Laureate State Prize in 1978. Since 1986, as Chairman of the Urals Department, he has served as a member of the Presidium of the Academy of Sciences of the former Soviet Union. From 1977 to 1986, he served as Director of the High Current Electronics Institute in Tomsk, which is subordinate to the Urals Department. The institute researches thermonuclear and accelerator physics and laser technology and was created in 1977 from the High Current Electronics Laboratory of the Atmospheric Optics Institute. From November of 1986 to 1988, he served as Director of the Electrophysics Institute in Ekaterinburg (Sverdlovsk), established in 1986. Since 1986, he has been Chairman of the Urals Department of the Academy. (See above.)

Osipov, Iurii S., D. PM. S. Born in 1936. He has been a corresponding member since 1984; and academician of the Machine Building, Mechanics and Control Processes Department and of the Urals Department since 1987. From 1972 to 1981, he was Head of an unidentified laboratory of the Mathematics and Mechanics Institute located in Ekaterinburg (Sverdlovsk) that was established in 1962 to develop the theory of function and control, and study algebra and the problems of mathematical physics. He was Director of that institute succeeding V. D. Batkhtin. From 1987 to 1990, Dr. Osipov has been Director of the Mathematics and Mechanics Institute in Ekaterinburg. In 1990, he succeeded Marchuk as President of the Russian Academy of Sciences, a position which he continues to hold.

Roshchevskii, Mikhail P. Corresponding member of the Physiology Department of the Russian Academy of Sciences and of the Urals Department since 1987; academician in 1993. He became Chairman of the Komi Scientific Center in February 1984. He was named a Deputy Chairman of the Urals Department in August 1988.

Sadovskii, Mikhail A., D. Tech. S. Born in 1904 in St. Petersburg. Russian physicist. Corresponding member, 1953, and academician, 1966. Since 1970, academician of the Physical Chemistry and Technology of Inorganic Materials Department, and since 1970, an academician of the Urals Department of the RAS. He graduated from the Leningrad Polytechnic Institute in 1930. From 1932 to 1941, he worked at the Institute of Seismology of the Academy and from 1941 to 1944, in the special projects section of the Presidium of the Academy. He was Deputy Director of the Institute of Chemical Physics from 1946 to 1963. From 1963 to August 1988, he was Director of the O. Iurii Shmidt Earth Physics Institute that was established in 1956 and that is the leading center for the study of earthquakes and other seismic phenomena. It is subordinate to the Academy's Geology, Geophysics, and Geochemistry Department. He was originally elected to the Earth Sciences Department. In 1985, he was awarded the Lomonosov Medal for his work in geophysics and geology. His works are in the problems of the theory of explosions, the study of the destructive action of explosions, and the seismic effects of large-scale explosions. He substantiated the law of similarity for explosions. He participated in large-scale, directional blasting in Russia and is one of the founders of the science of the physics of explosions. He received the State Prize in 1948, 1949, 1951, and 1953; and the Lenin Prize in 1962. In 1986, he received the M. V. Lomonosov Gold Medal for his contributions to Russian Science. (GSE 22, p. 544.)

Shveykin, Gennadii P., D. Tech S. Born in 1926 in the city of Karabash, Cheliabinsk (chelyabinsk) Oblast. Russian chemist. Corresponding member, 1976, and academician, 1987. He is also a member of the Urals Department. He graduated from the S. M. Kirov Urals Polytechnical Institute in 1951 and joined the staff of the Institute of Chemistry of the Urals branch (now Department) of the Russian Academy of Sciences. Since 1972, he has been Director of the Chemistry Institute in Ekaterinburg (Sverdlovsk). The Institute of Chemistry, established in 1958, does research in high temperature synthesis of pure refractory combinations and polymer chemistry. His work deals with the chemistry of refractory metals and their compounds. (GSE 29, p. 649.)

Tolstikov, Genrikh A., D. Chem S. Born in 1933. Academician of the General and Technical Chemistry Department of the AN SSSR from 1987, and first Deputy Chairman of the Urals Department since 1988. Since 1977, he has been Director of the Chemistry Institute in Ufa. Established in 1960, it studies the methods of processing sulfur crudes into fuels. He has served as Chairman of the Bashkir Affiliate since 1984. (See above.)

Vatolin, Nikolai A., D. Tech. S. Born in 1926. Academician of the Physical Chemistry and Technology of Inorganic Materials Department and of the Urals Department since 1981. Since 1967, he has been Director of the Metallurgy Institute at Ekaterinburg (Sverdlovsk) that is subordinate to the academy's Urals Department. The institute develops physical-chemical fundamentals for new metallurgical processes. From 1980 to 1988, he served as Deputy Chairman of the Urals Department.

Vonsovskii, Sergei V., D. PM. S. Born in August 1910 in Tashkent. Russian physicist. He has been a corresponding member of the academy since 1953 and an academician since 1966--of the General Physics and Astronomy Department. He was originally elected to General and Applied Physics Department. He graduated from Leningrad State University in 1932 and from 1932 to 1939 he worked at the

Urals Engineering Physics Institute in Ekaterinburg (Sverdlovsk). From 1939 to 1947 he worked at the Metallography Institute, and at the Physics of Metals and Metallurgy of the Urals branch of the Russian Academy of Sciences. His principal works have dealt with the theory of the magnetic and electric properties of metals and semiconductors, the theory of ferromagnetism, and the theory of superconductivity. He proposed the so-called polar mode (with S. P. Shubin) and the s-d model of ferromagnetics. On the basis of these models, Vonsovskii and his colleagues have constructed a general theory of ferromagnetics close to the Curie point, and he has explained fractional atomic moments and some characteristics of kinetic properties as well as taken into account the effect of the multiplicity of the magnetic ions of these substances. Since 1967, he has been Deputy Director of the Metals Physics Institute in Ekaterinburg (Sverdlovsk). From 1971 to 1986, he served as Chairman of the Urals Department. In 1988, he was appointed an advisor to the national academy's Presidium. In 1982, he received the S. I. Vavilov Gold Medal in recognition of his contributions to Russian science. (GSE vol. 31, p. 315, and vol. 5, p. 590.)

Yushkin, Nikolai P. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Urals Department since December 1987; academician in 1993.

Corresponding Members:

Alekseev, Sergei S. Corresponding member of the Philosophy and Law Department of the Academy and of the Urals department since 1987. Since the establishment of the Philosophy and Law Institute in Ekaterinburg in 1988, he has been Director of that Institute which includes seven task groups on law and the individual, law and the economy, socialism and humanism, rational analysis of socialist society, philosophy of history and man, participation in the political process, and social rationality and humanism. It also houses a laboratory for collection of legal information. (LDA 89-11378.)

Bulashevich, Iurii P. Born in 1911 in Nizhny Novgorod, now Gorkiy. Russian geophysicist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department of the Russian Academy of Sciences and of the Urals Department since 1970. He graduated from the University of Kazan' in 1935 and started work at the Urals Branch (now Department) of the AN SSSR. In 1958, he became the Director of that department's Institute of Geophysics that since 1971 has been called the Institute of the Geophysics of the Urals Department of the AN SSSR. In 1952, he became a professor at the Ekaterinburg (Sverdlovsk) Pedagogical Institute and later professor at the Sverdlovsk Mining Institute. His main works are in geophysical methods of studying the earth's crust and with the exploration and analysis of useful mineral deposits. (GSE, 30, p. 29.)

Chichkanov, Valerii P., D. Econ. S. Russian economist. Corresponding member of the Economics Department and of the Urals Department of the Academy since 1981. From 1980 to 1987, he was Director of the Economics Study Institute at Khabarovsk under the Far Eastern Department that studied the economic development of the Russian Far East. In 1987, he was made Director of the Economics Institute in Ekatarinburg which sprang from a research group organized in 1941, to become a Department of Economic Studies of the Urals Branch of the Academy in 1951, and in 1971 of the Urals Department. In 1971, the Institute of Economics of the Urals Department was reorganized. Its scientists in the past have worked closely with the State Planning Committee. The Institute studies methods of improving production efficiency in the Urals region. Special attention is given to energy production, capital investment policies and the introduction of new technologies into production. (LDA 89-11378.) (See above.)

- Ivanov, Sviatoslav N.** Born in 1911 in Nizhny Novgorod (Gorkiy). Russian geologist. Corresponding member of the Geology, Geophysics, Geochemistry, and Mining Sciences Department and of the Urals Department since 1970. He graduated from the Sverdlovsk Institute of Geological Prospecting in 1932 and began working on the exploration and prospecting of copper deposits in the Urals. From 1940, he directed the Laboratory of Physical Geochemistry at the A. N. Zavaritskii Institute of Geology and Geochemistry of the Urals Branch (now Department) of the AN SSSR. Since 1966, he has been Director of that institute and Deputy Chairman of the Urals Department of the Russian Academy of Sciences. His works deal with the regularities of the location of pyrite-type cupreous deposits. He established the concept of the period and reasons for greenstone metamorphism, that he believes occurred before the uplifting of the sea floor and before the formation, in the volcanic region, of mountain structures connected with the intrusion of granite botholiths. Recipient of the State Prize, 1949. (GSE 10, p. 504.)
- Kozlov, Leonid N.** Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department of the Academy and of the Urals Department of the Academy since 1987. (LDA 89-11378.)
- Semikhatov, Nikolai A., D. Tech. S.** Corresponding member of the Problems of Machine Building and Control Processes Department since 1984, and of the Urals Department since 1988.
- Sidorov, Anatolii F.** Corresponding member of the Problems of Machine Building and Control Processes and the Urals Department since December 1987; academician in 1993.
- Skripov, Vladimir P.** Corresponding member of the Physical Technical Problems of Power Engineering Department and of the Urals Department since 1987; academician in 1993. In 1982, he received the I. I. Popzulinov Prize for his scientific work.
- Tsidilkovskii, Isaak M., D. PM. S.** Russian physicist. Corresponding member of the General Physics and Astronomy Department and of the Urals Department since 1987; academician in 1993. In 1964, he was listed as a senior researcher of unknown affiliation at the Metal Physics Institute in Ekaterinburg (Sverdlovsk) that was established in 1932 to work in magnetism and Metal Physics. In 1978, he received the A. F. Ioffe Physics Prize.
- Vershinin, Iurii N., D. Tech. S.** Corresponding member of the Physical Technical Problems of Power Engineering Department of the Academy and of the Urals Department since 1987. (LDA 89-11378.)
- Vyatkin, German P.** Corresponding member of the Physical Chemistry and Technology of Inorganic Materials Department and of the Urals department of the Academy since 1987. (LDA 89-11378.)
- Zeldovich, Boris Ia., D. PM. S.** Corresponding member of the General Physics and Astronomy Department and of the Urals Department since 1987. In 1978, he was a senior researcher in the Phase Conjugation department of the Quantum Radio Physics Laboratory of the Radio Physics Division of the P. N. Lebedev Physics SRI in Moscow. Since 1979, he has been a senior researcher in the Mechanical Action of Laser Beams Laboratory of the Problems of Mechanics Institute in Moscow which was established in 1955 to conduct research on gas dynamic processes, combustion instabilities, plasma, laser beams and shock waves. (LDA 89-11378.)

Research Institutes under the Urals Department:

In the mid-1980s the Urals Department added the status of a full academic department of the academy becoming the Urals Department. In 1987, there were 10 scientific

research institutes subordinate to the Urals Department, headquartered in Ekaterinburg (Sverdlovsk). The research institutes subordinate to the Urals department are presented here in the order of their establishment.

1. V. I. Lenin Ilmenskii State Reserve in Miass, Cheliabinsk (chelyabinsk) Oblast.

Koroteev, Viktor A., C. GM. S. Corresponding member of the Geology, Geochemistry, Geophysics and Mining Sciences Department and of the Urals Department since December 1987; academician since 1993. Since 1975, he has been Director of the V. I. Lenin Ilmenskii State Reserve in Miass in Cheliabinsk (chelyabinsk) Oblast. This organization was established in 1920 to conduct geological and biological research in the forests of the Southern Urals Mountains. Deputy chairman of the Urals Department since August 1988.

Organized in 1920 to conduct research in the geology and biology of the forests of the Southern Urals Mountains. Scientific Personnel: Director Koroteev, Viktor A., C. Gm. S., since '75.



2. Institute of Metal Physics Ural Branch Russian Academy of Sciences (formerly the Metal Physics Institute in Ekaterinburg (Sverdlovsk).

Address:

18, Kovalevskaya str, Ekaterinburg, GSP-170, 620219, Russia

Head:

Sherbinin Vitalii Yevgenievich

Phone:

(3432) 44-02-30

Fax:

(3432) 44-52-44

E-mail:

02699915

Founded: 1932

Employees: 1000

This institute was established in 1932. Its scientists work in Magnetism and Metal Physics. The Central Committee and the USSR Council of Ministers awarded the 1984 USSR State Prize in Science and Technology to scientists at the L. D. Landau Institute of Theoretical Physics, the Scientific Research Institute of Materials of Electronic Engineering, the Institute of Metal Physics of the Urals Department of the Academy of Sciences, the All-Union Scientific Research, Planning, Design and Technological Institute of Current Sources for the series of works "The Magnetism and Electron Structure of Rare Earth and Uranium Compounds," that were published during 1959-1982. Director Mikheev, Mikhail N., D. Tech. S., since 1982 **Structure and Scientific Personnel:** Deputy Director Vonsovskii, Sergei V., D. PM. S., since '67;

Diffusion in Solids Laboratory

Diurnal Studies and Phase Transformation Laboratory

Electrical Properties of Metals Laboratory

Ferromagnetism Laboratory: Head Shur, Iakov S., D. PM. S., since '61; Senior Researcher Ermolenko, Aleksandr S., since '69; High
Pressure Physics Laboratory: Head Beresnev, Boris I., D. Tech. S., since '76; Senior Researcher Bulichev, D. K., since '61;
High Pressure Treatment of Metals Department
Physics of Magnetism Under High Pressure Department
Low Temperature Laboratory
Magnetic Structure Analysis Laboratory: Head Mikheev, Mikhail N., D. Tech S., since '32;
Mechanical Properties of Metals Laboratory
Metallography and Heat Treatment Laboratory
Optics of Metals Laboratory
Radiation Laboratory
Semiconductor Laboratory
Solid State Laboratory: Head Iziumov, Iurii A., D. PM. S., since '76;
Theoretical Physics Laboratory: Head Turov, E. A., D. PM. S., since '67;
X-Ray Absorption and Emission Spectroscopy Laboratory
(GSE 27, p. 551.)



3. Metallurgy Institute in Ekaterinburg (Sverdlovsk).

Vatolin, Nikolai A., D. Tech. S. Born in 1926. Academician of the Physical Chemistry and Technology of Inorganic Materials Department and of the Urals Department since 1981. Since 1967, he has been Director of the Metallurgy Institute at Ekaterinburg (Sverdlovsk) that is subordinate to the academy's Urals Department. The institute develops physical-chemical fundamentals for new metallurgical processes. From 1980 to 1988, he served as deputy chairman of the Urals Department.

No date of founding given in source. Develops physical-chemical fundamentals for new metallurgical processes. Director Vatolin, Nikolai A., D. Tech. S., since 1967.

4. (Physical and Technical Institute of the Urals Branch of the RAS

Address: 132, Kirov Str., Izhevsk, 426001, Russia

Head: Shyrovskii Vadim Petrovich

Phone: (3412)23-0302

Fax: (3412)23-0614

E-mail: uufti@fti.udmurtia.su

Founded: 1983

Employees: 240)



5. Geophysics Institute in Ekaterinburg (Sverdlovsk).

Established in 1947. Researches prospecting methods and induction sounding of the earth's crust using a MHD Generator. Director Diakonov, Boris P., D. Tech. S., since 1977.



6. Plant and Animal Ecology Institute in Ekaterinburg (Sverdlovsk).

Bol'shakov (Bolshakov), Vladimir N., D. Bio. S. Born in 1934. Corresponding member of the General Biology Department and of the Urals Department since 1979, and academician of both Departments since December 1987. Deputy Director of the Zoology Institute in Leningrad from 1971 to 1977. Since 1977, he has been Director of the Plant and Animal Ecology Institute in Ekaterinburg (Sverdlovsk) that is subordinate to the academy's Urals Department. It was founded in 1948 and does research in the fauna and flora of the Urals Region, soil science, animal pathology, radiobiology, and cartography. It is the leading ecological research institute in Russia. In 1986, he was given the V. N. Sukachev Gold Medal named after the famed botanist, geographer, and plant scientist for his own work in botanical research.

Established in 1948. Researches the flora and fauna of the Urals region, soil science, animal pathology, radiobiology, and cartography. S. S. Shvarts as Director of this institute from 1955 until his death in 1976, established the institute as a leading ecological research institution in Russia. Its scientists have concentrated upon the impact of pollutants like Strontium 90 and its migration through the soil as well as the impact of other nuclear wastes upon the environment. The institute publishes Trudy and since 1970 has issued the journal Ekologia. Director Bol'shakov, Vladimir N., D. Bio. S. since 1977. (See: Ruble, Vol. I., p. 288.)



7. Chemistry Institute in Ekaterinburg (Sverdlovsk).

Shveykin, Gennadii P., D. Tech S. Born in 1926 in the city of Karabash, Cheliabinsk (chelyabinsk) Oblast. Russian chemist. Corresponding member since 1976, and academician since 1987 of the Physical Chemistry and Technology of Inorganic Materials Department and of the Urals Department. He graduated from the S. M. Kirov Urals Polytechnical Institute in 1951 and joined the staff of the Institute of Chemistry of the Urals Department of the RAN. Since 1972, he has been Director of the Chemistry Institute in Ekaterinburg (Sverdlovsk). The Institute of Chemistry, established in 1958, does research in high temperature synthesis of pure refractory combinations and polymer chemistry. He is also a member of the Urals Department. His work deals with the chemistry of refractory metals and their compounds. (GSE 29, p. 649.)

Established in 1958. It does research in high temperature synthesis of pure refractory combinations and polymer chemistry. Director Shveykin, Gennadii P., D. Tech.S., since 1972. Physical Methods of Solid State Research Laboratory: Head Gubanov, Vladimir A., C. Chem. S., since '79.



8. High-temperature Electrochemistry Institute in Ekaterinburg (Sverdlovsk) (Originally listed as the Electrochemistry Institute in Ekaterinburg (Sverdlovsk)).

Baraboshkin, Aleksei N., D. Chem. S. Born in 1925. Corresponding member since 1981, and academician of the General and Technical Chemistry Department of the

RAN and of the Urals Department since December of 1987. Since 1978, he has been Director of the Electrochemistry Institute at Ekaterinburg (Sverdlovsk) that is subordinate to the academy's Urals Department and that conducts research on the corrosion of alloys.

Established in 1958, the main research thrusts of the institute include high-temperature electrochemistry of molten salts and solid electrolytes--investigations of their properties and the processes in these electrolytes--and the development of new ecologically pure technologies and devices. **Scientific Personnel:** Director Dr. Aleksei N. Baraboshkin, born in 1925. D. Chem. S. from the Urals Polytechnical Institute in 1952 where he also did all of his graduate work. He joined the institute in 1958. He has served as Director of the institute since 1977. Professor M. V. Smirnov (born in 1918) D. Chem. S., graduated from Urals State Gorkiy University in 1941 and began working at the AN SSSR in 1944. It was he who determined the original thrust of research effort for the institute. He formulated new scientific conceptions on the nature of salt melts, on corrosion mechanisms, electrode processes in kinetics, and proposed a model of ionic liquids structure. He was the founding Director of the institute. Structure of the institute: The institute had eight laboratories in 1992 that included:

- 1) **The Electrocrystallization Laboratory:** Dr. Baraboshkin has been Head of this laboratory since 1972. He is responsible for new scientific directions involving the electrocrystallization of metals out of salt melts, the theoretical foundation of galvanoplastics and galvanostegy of refractory metals and their alloys, chemistry and kinetics of electrode processes, and methods of obtaining single crystals and epitaxial layers of metals;
- 2) **Chemical Cells Laboratory:** Professor N. N. Batalov, C. Chem. S., born 1942, graduated from Urals State Gorkiy University in 1969, joined the institute in 1967 and became Head of this laboratory in 1986. His interests are in the kinetics of electrode processes in salt melts, the transport properties of salt melts, the synthesis and properties of solid electrolytes and oxide electrode materials, high-temperature chemical cells and fuel cells with carbonate electrolyte, and the degradation phenomenon of solid electrolytes in high-temperature chemical cells;
- 3) **Melts Electrolysis Laboratory:** Dr. L. E. Ivanovskii, D. Tech. S., born in 1925, graduated from the Urals Polytechnical Institute in 1951 and joined the institute in 1958. He has been Head of this laboratory since 1961. His interests include applied electrochemistry of refractory and light metals, and the investigation of and development of ecologically pure electrochemical technologies;
- 4) **Molten Electrolytes Laboratory:** Dr. V. A. Khokhlov, D. Chem. S., born in 1940, graduated from Urals State Gorkiy University in 1962, joining the institute upon graduation. He has been Head of the laboratory since 1988. His research interests include the physical chemistry of molten electrolytes, the transfer of mass, charge, and energy pulse, and the theory of transfer phenomena in salt melts.;
- 5) **Corrosion Laboratory:** Dr. V. J. Kudiakov, D. Chem S., born in 1937, graduated from the Urals Polytechnical Institute in 1961, joined the institute in 1964. He was named Head of the laboratory in 1987. His studies include the properties of metal and nonmetallic materials in contact with salt melts, and the thermodynamics, complexing, kinetics, and mechanisms of corrosion processes;
- 6) **Laboratory of Interfacial Phenomena:** Dr. V. P. Stepanov, D. Chem. S., born in 1941, graduated from Urals State Gorkiy University in 1964, and has worked at the institute since 1963. He was named the assistant Director for scientific research for the institute in 1981--a position he still held in 1992. He has been Head of the Interfacial Phenomena Laboratory since 1991;
- 7) **Solid Electrolytes Laboratory:** Dr. E. I. Burmakin, D. Chem. S., born in 1946, graduated from the Urals Polytechnical Institute in 1969 and joined the institute

upon graduation. He has been Head of this laboratory since 1987. His research interests are in the synthesis of solid electrolytes and the study on physical-chemical properties of various ion-conducting solid electrolytes. One of the leading scientists in the laboratory is Dr. S. F. Paliguev, D. Chem. S., born in 1919, graduated from the Urals State Gorkiy University in 1941, joined the institute in 1958 at its founding, and served as Head of the Solid Electrolytes Laboratory from 1958-1987. He led investigations into solid electrolytes and their application to fuel cells, electrochemical pumps, sensor and other devices;

8) Theoretical Laboratory: Dr. I. V. Murygin, D. Chem. S., born in 1947, graduated from the Urals State Gorkiy University in 1970, and joined the institute in 1972. He has been the leading research worker of this laboratory since 1988. His interests include the theory of electrochemical processes in solid electrolytes.

Another distinguished scientist who is active in the institute is Dr. N. G. Ilyuschenko who was born in 1918, holds a doctorate in the Chemical Sciences from the Urals State Gorkii University (1941), and has worked in the AN SSSR since 1945--joining the institute in 1958. He served as Head of the Technological Laboratory from 1958 to 1963 and headed the Alloys Laboratory from 1963 to 1988. He discovered and studied the phenomena of metal transfer in salt melts without current with the formation of diffusion coatings, and developed techniques for obtaining coatings having preset properties on metals and alloys. (**Information provided in letter from Director Baraboshkin, dated 20 January 1992.**)



9. Institute of Mathematics and Mechanics of the Ural Branch of the RAS

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16, S.Kovalevs

Head:

Sidorov Anatol

Phone:

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(3432)44-2581

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imm@imm.e-burg

Founded: 1961

Employees: 420

Mathematics and Mechanics Institute in Ekaterinburg (Sverdlovsk).

Established in 1962. Develops the theory of functions and control, algebra, and problems of mathematical physics. Director Batukhtin, V. D., D. PM. S., from 1984 to 1987. Director Iurii S. Osipov, D. PM. S., from '87 to 1992 when he replaced Marchuk as President of the Russian Academy of Sciences.; Deputy Director: Chernikh, Nikolai I., November '86--probably the current Director. Unidentified Laboratory: Head Osipov, Iurii S., D. PM. S., since '72; Unknown affiliation: Senior Researcher Subbotin, Andrei I., D. PM. S., since '76; Junior Researcher Kazantsev, Vladimir S., since '79. Director Batukhtin, V. D., D. PM. S., from 1984 to '87

(1996 update)

INSTITUTE OF MATHEMATICS AND MECHANICS in Ekaterinburg

Introduction:

The Institute of Mathematics and Mechanics of the Urals Branch of Acad. Sci. of Russia is a theoretical successor to Sverdlovsk Branch of the V. A. Steklov Mathematical Institute of the USSR Acad. Sci. (the Russian abbreviation is SOMI) which was organized according to the decision of the USSR Council of Ministers dated of August 6, 1956, 4735-rs, and the decision of the Presidium of the USSR Acad. Sci. dated of September 17, 1956, 0138-2005.

In 1957 the construction of the building of SOMI started at the address 16 S. Kovalevskoy Str. , whose first was put into operation in April, 1961.

Professor S. B. Stechkin was nominated the first Vice-Director of the V. A. Steklov Mathematical Institute of the USSR Acad. Sci. in charge of the Sverdlovsk Branch. The first order on SOMI was issued on February 24, 1961.

According to the decision of the Presidium of the USSR Acad. Sci. since March 1967 D. Sc, Professor S. D. Volkov was nominated the acting Vice-Director in charge of SOMI, and since June, 1968 D. Sc., Professor A. I. Starostin was nominated the Vice-Director in charge of SOMI.

SOMI was reorganized as the Institute of Mathematics and Mechanics of the USSR Acad. Sci. according to the plan of the development of scientific institution in the Urals, in keeping with the decision no. 729 of the USSR Council of Ministers of August 38, 1969 and the decision no. 465 of the Presidium of the USSR Acad. Sci. of May 28, 1970.

The Institute was placed under the scientific supervision of the Branch of Mathematics of the USSR Acad. Sci. together with the Branch of Mechanics and Control Processes of the USSR Acad. Sci.

The main directions of scientific investigations of the Institute were specified:

- development of the mathematical theory of control processes
- theoretical investigation in the field of algebra, differential equations and the theory of functions
- elaboration and solving of problems with the help of computers, including economic problems, technological ones, problems of mathematical physics, with the development of calculation means of high productivity
- development of methods of nonlinear mechanics with application to problems of stability of oscillations and control
- development of mathematical methods of continuum mechanics

According to the decision the Institute of Mathematics and Mechanics (IMM) of the USSR Acad. Sci. was headed by Academician N. N. Krasovskiy (skii) .

Since March 1971 IMM was incorporated into Urals Scientific Center of the USSR Acad. Sci.

Since February 1977 D. Sc., Professor A. B. Kurzhanskiy became the Director of the Institute, and since December 1983 D. Sc., Professor V. D. Batukhtin became the acting Director of the Institute.

Since October 1986 IMM has been headed by Academician Iurii S. Osipov. In December 1991 Iurii S. Osipov was elected President of the Acad. Sci. of Russia.

Since December 1993 Academician A. F. Sidorov became the Director of the Institute, who is the present Director.

Due to the reorganization of the Urals Scientific Center in February 1987 IMM was included into the Urals Branch of the USSR Acad. Sci., and December 1991, because of the organization of the Acad. Sci. of Russia, the Institute was incorporated in the Urals Branch of the Acad. Sci. of Russia.

Within 30 years at the Institute of Mathematics and Mechanics acknowledged scientific schools have been formed on a number of important directions of modern and classic mathematics: mathematical theory of control processes, analytical and numerical methods of continuum mechanics, the theory of ill-posed problems and generalized functions, the theory of approximation of functions and operators, methods of convex optimization and pattern recognition, in the field of modern algebra and topology.

The traditions established in the sphere of mathematical research resulted in awarding Lenin Prizes in 1966, to Corresponding Member V. K. Ivanov together with Academician A. N. Tikhonov for the elaboration of the theory and methods of solution of ill-posed problems; in 1976, to Academicians N. N. Krasovskiy, A. B. Kurzhanskiy, Iurii S. Osipov, Corresponding Member A. I. Subbotin for a cycle of investigation in the mathematical theory of control problems.

On staff at the Institute there are 172 research associates, including 4 Academicians of the Acad. Sci. of Russia, 3 Corresponding Members of the Acad. Sci. of Russia, 23 D. Sc., 77 Ph. D.'s (date of January 1, 1992). The Institute incorporates the following departments and laboratories:

differential equations department
dynamical systems department
optimal control department
controlled systems department
approximation of function theory department
approximation and application department
algebra and topology department
mathematical programming department
operations research department
applied problems department
ill-posed problems of analysis and applications department
computer networks department
system software department
computing machinery department
personal computers laboratory
computer center
scientific and technological information department (library)
Administration

Director: Sidorov Anatolii Fedorovich

Deputy director: Berdyshev Vitalii Ivanovich

Deputy director: Reshetov Vitalii Mikhailovich

Institute Secretary on Sciences: Ustyuzhanin Aleksandr Mikhailovich

Academicians

Krasovskii Nikolai Nikolaevich
Sidorov Anatolii Fedorovich
Subbotin Andrei Izmailovich
Vasin Vladimir Vasilievich

Doctors and professors

Anan'ev Boris Ivanovich
Belonogov Viacheslav Aleksandrovich
Berdyshev Vitalii Ivanovich
Brykalov Sergei Arkadievich
Chentsov Aleksandr Georgievich
Chernykh Nikolai Ivanovich
Eremin Ivan Ivanovich
Filippova Tatiana Fyodorovna
Il'in Arlen Mikhailovich
Kleimenov Anatolii Fedorovich
Kondrat'ev Anatolii Semenovich
Kuzyakin Iurii Il'ich
Lelikova Elena Fedorovna
Mukhin Iurii Nikolaevich
Nikonov Oleg Igorevich
Pytkeev Evgeni Georgievich
Shishkin Grigorii Ivanovich
Starostin Al'bert (Albert) Ivanovich
Subbotin Iurii Nikolaevich
Trofimov Vladimir Ivanovich
Ushakov Vladimir Nikolayevich
Velichko Nikolay Vasilievich
Zavalishchin Stanislav Timofeevich

Algebra and Topology Department

The Department of Algebra was organized in 1961 and was headed by Professor S. N. Chernikov (who become later corresponding member of the Academy of Sciences of the Ukrainian SSR). After his move to Kiev in 1965 the Department was headed by Doctor A. I. Starostin (Professor in 1969). In 1986 the Department of Algebra was reorganized as the Department of Algebra and Topology including the Section of Topology under the guidance of Professor N. V. Velicko.

The main direction of the Department in algebra is an investigation of discrete and topological groups with some restrictions on given classes of subgroups. In the first years the linear inequalities systems theory was developed intensively. This direction has become basic for the Laboratory of Linear Programming which was separated from the Department.

At the last time in the sector of Algebra finite groups and its representations, applications of the group theory in combinatorics and in graph theory are studied mainly. The main topics studied in the section of Topology are following: the continuous functions, the spaces of continuous functions, Baire functions and Baire isomorphisms.

The most essential results:

description of a number of classes of infinite discrete and topological groups with given properties of systems of infinite subgroups (S. N. Cernikov, V. S. Carin, A. I. Starostin, I. I. Eremin, Iurii M. Gorchakov, A. N. Fomin)

classification of locally finite groups in which all centralizers of involutions have partitions (A. I. Starostin)

investigation of factorable groups with various additional restrictions (S. N. Cernikov, A. N. Fomin)

abstract (in particular, structural) characterizations of many classes of non solvable finite groups (A. I. Starostin, A. N. Fomin, V. M. Busarkin, V. D. Mazurov, V. A. Belonogov, V. T. Nagrebecky, V. M. Sitnikov, V. V. Kabanov, A. S. Kondrat'ev, A. A. Makeev)

study of maximal subgroups and modular representations of finite simple groups (in particular, this is important for the realization of obtained alternative approach to the classification of finite simple groups) (A. S. Kondrat'ev)

development of the structure theory of groups acting on graphs (V. I. Trofimov)

solution of the well-known problem on vertex stabilizers in graphs with projective subconstituents (V. I. Trofimov)

development of foundations of an original theory of interactions in finite groups (V. A. Belonogov)

development of the theory of topological groups with generalized conditions of finiteness and commutativity (V. S. Carin, Iu. N. Mukhin)

study of closed subgroup lattices of locally compact groups (Iu. N. Mukhin)

the proof of the existence of absolute Baire spaces not Baire isomorphic to any compact space (E. G. Pytkeev)

the proof of the fact that the space of continuous real-valued functions on Lindeloff space could not be 1-homeomorphic to similar space but on non-Lindeloff space (N. V. Velicko)

classification of classes of graphs by various regularity conditions (A. A. Makhnev)

investigation of the torsion of elliptic curves (V. A. Demjanenko)

Collaborators and aspirants of the department defended 17 candidate and 7 doctoral theses, from that group, eleven headed chairs in various higher educational institutes of the country.

At the present time the following investigations are carried on: finite groups and its matrix and permutation representations, various applications of the finite group theory, actions of groups on graphs, lattice theory of topological groups, spaces of functions and bicomact sets in them, the torsion of elliptic curves.

Applied Problems Department

Personnel:

Emel'yanov Konstantin Vasil'evich
Filimonov Mikhail Jur'ewich
Khairullina Olga Borisovna
Kokovikhina Olga Valentinovna
Lelikova Elena Fedorovna
Martyushov Sergei Nikolaevich
Rubina Ludmila Ilinichna
Sidorov Anatolii Fedorovich
Ulyanov Oleg Nikolaevich
Zvonareva Nina Sergeevna

The department of applied problems (DAP) was organized in February 1963 as a structural part of SOMI named after V. A. Steklov of the Academy of Sciences of the USSR. From May 1963 the DAP has been directed by A. F. Sidorov. Since then several other departments have been singled out of the DAP. In 1977 it was the control systems department, in 1978 - the laboratory of equations of mathematical physics, in 1990 - the department of ill-posed problems of analysis and applications.

The main direction of the DAP's activity is the development of mathematical methods of continuum mechanics, in particular, numerical and analytical methods of the solving of nonlinear partial differential equations and multidimensional problems of gas dynamics and near-by problems of ballistics and flight dynamics, and also the algorithms and programs for solving the big applied problems concerned with such subject creation.

An unbroken series of analytical investigations of classes of solutions of nonlinear gas- and hydrodynamics equations has been carried out in the DAP.

Some general results in traveling waves theory have been obtained in the DAP. Among them are the triple waves equations, wide classes of exact solutions, the theorems on joining of traveling waves of various ranks, the exact solutions of boundary problems of gas dynamics. There has established also been general law of weak discontinuities propagating on homogeneous background intensity change for wide class nonlinear equations of continuum mechanics.

The method of characteristic series for nonlinear problems of gas dynamics is developed. The problems of gas discharge into vacuum from closed volumes, of potential gas flows destruction, of weak shock waves propagation were solved with the help of such series. The classes of gas dynamic flows in which velocity components linearly depend on part of spatial variables were considered, its applications to the motion of rotational gas streams were investigated. The new constructions of series with recurrently calculating coefficients for the solving of the wide class of nonlinear equations of mathematical physics were proposed. With the help of such series new analytical representations of solutions of strongly nonlinear equations describing the processes of nonstationary filtration in a porous medium and thermal processes in the high-temperature plasma were constructed.

There were set and solved the problems of the choice of movement laws of impenetrable pistons, which provide arbitrary given degree of unshocking compression of plane, cylindrical and spherical layer of gas with barotropic state equation with the smallest expenditure of external energy to the piston movement. The offered control laws

allows sometimes to obtain essential energy economy comparatively to the traditional ways of the compression control. There were constructed and reasoned the asymptotic expansions of the solutions of boundary value problems for elliptic equations with a small parameter on the highest derivatives in the case when degenerate operator was of the first order and the region boundary was piece wise smooth. There were also built the asymptotic expansions of fundamental solution of the Cauchy problem for parabolic equation with lowest terms.

In the sphere of a new numerical methods of the complex multidimensional problems calculation development there were advanced the following directions.

There were wrought the effective numerical methods and there were created: two large programs (MOPS-2 and ADAPTATSYA) for calculation of the optimal curvilinear difference grids in two-dimensional domains of a complex shape. Among them are the grids adaptive to the peculiarities of solutions in boundary problems. The feature of this method is the special formalization of the criterion of the closeness of the grids to uniform ones, which allow to construct effective and stable procedures to build regular grids with good approximate properties in the very complex two-dimensional regions.

The method and corresponding program complex which were built in order to calculate the stationary subsonic flows of the gas in axisymmetric channels allow to calculate flows of a compressible gas in the very complex channels in a wide range of the Mach number when the closed vortex zones occur.

There were offered new effective methods of the Monte Carlo type for solving nonlinear Boltzmann equations without using of space-time grids. There were built the difference schemes possessing the uniform convergence on perturbation parameter for classes of linear and nonlinear singular perturbation differential equations.

There were wrought the difference methods and program MODAMS for calculations of stationary spatial flow about complex shape bodies (particularly - in the transonic range of velocities) and following blast diffraction by bodies.

Now the methods of mathematical simulation are developing in the DAP in order to optimize processes in gas and fluid mechanics. One proposes to calculate gas dynamic processes with limits on economy, energy expenditure and other parameters using this and new analytical and numerical approaches.

More than 250 scientific articles were published by the DAP employees.

Function Approximation Theory Department (DFAT)
Approximation and Applications Department (DAA)

Personnel:

Badkov Vladimir Mikhailovich
Berdyshev Vitalii Ivanovich
Gabushin Vladislav Nikolaevich
Koshcheev Viktor Alekseevich
Marinov Anatolii Viacheslavovich
Matveev Oleg Vladimirovich
Petrak Larisa Vladimirovna
Shevaldin Valerii Trifonovich

Subbotin Iurii Nikolaevich
Vlasov Leonid Petrovich
Zmatrakov Nikolai Leonidovich

The research theme of function Theory with emphasis on approximation Theory is represented in the Institute by the above mentioned departments.

DFAT is founded in December 1964, when the research group on approximation theory of Mathematical analysis Department of the Sverdlovsk Branch of Mathematical Institute (SOMI) was reorganized as an autonomous department. Until 1966 both earlier the group and later the department had been headed by vice director of the Steklov Mathematical Institute of the USSR Academy of Sciences in charge of SOMI Professor S. B. Stechkin. During 1.01.66-27.03.69, 27.03.69-22.08.73 L. V. Taikov and N. I. Chernykh used to be heads of the department consecutively. On 22.08.73 till present time department has been headed by Iurii. N. Subbotin. At 22.08.73 there was formed the Numerical Methods laboratory headed till now by V. I. Berdyshev. In March 1987 a self-sufficient department of approximation and application emerged from DFAT which was headed by N. I. Chernykh.

Apart from those on staff at the departments at present whose names will be mentioned below S. A. Teliakovskiy (skii), L. V. Taikov, P. K. Suetin, A. P. Chromov, Iurii. A. Shashkin, V. Iurii. Popov, I. A. Pakhnutov formerly used to worked at DFAT in due time.

Investigations Of The Departments:

classic problems of the Approx. Theory connected with the trigonometric polynomial approximation of the periodic functions, extreme properties of the algebraic and trigonometric polynomials, orthogonal polynomials and their approximating and extreme properties;

approximating and extreme properties of the polynomial splines and their generalizations (S--splines, D_m - splines, analytic splines, etc.), finite elements method;

best approximation of the unbounded operators by the bounded linear ones, inequalities between the norms of function and its derivatives, best recovery of the unbounded operators on classes of the elements known with error, best approximation of classes by means of more smooth function classes;

extreme problems of the best approximation theory, elaboration of the optimal methods of approximation and investigation of width of function classes;

geometric problems of the best approximation theory and approximating properties of the sets of Banach and metric spaces, properties of the metric projection and more general operators connected with the minimization problem of functionals in general spaces and strong unicity properties of the best approximation in spaces of continuous functions;

approximation of the vector-valued functions;

numerical methods of the approximation theory and due applications.

The most essential results:

On the classic part of the approximation theory there have been found final solutions of a series of approximation problems. Below a survey of the most substantial achievements is presented.

There have been accomplished the investigation on the asymptotically exact estimates of the deviations of the differentiable functions from their Fourier sums which are uniform for all parameters. The linear approximation method by the trigonometric polynomials has been constructed that provides Jackson-type estimates of the deviation with constant $3/2$ in all spaces L_p (S. B. Stechkin).

Estimates for approximations of differentiable functions of several variables which correctly depend on geometry of domain triangulation as well as for the Lebesgue constants of the interpolate polynomials in special domains have been found. (Iurii N. Subbotin).

Asymptotic formulae with non-improved in order sense on a function classes reminded terms for the values of the best approximations of individual functions in C and L_p -metric by algebraic and trigonometric polynomials with prescribed linear conditions have been established for the entire classes of such conditions and standard classes of differentiable or analytic onto interval functions (N. I. Chernykh).

The exact estimates have been found for the coefficients of the Fourier trigonometric series and for the upper bound of the L -mean deviation of functions from their Fourier sums on the classes of functions with given continuity characteristic (V. I. Berdyshev).

Investigation of the problems connected with the Jackson inequality for the best approximations by trigonometric polynomials in L_p -metric have been carried out (V. I. Berdyshev, N. I. Chernykh). Result on the exact constant in Jackson's inequality for L_2 has been generalized for discrete functions on an equidistant point set (A. G. Babenko).

The norm of convolution-type operators of the certain class onto space of trigonometric and algebraic polynomials in the integral v -metric has been calculated. In particular there has been solved the difficult problem about the best constant into Bernstein's inequality for L_p -metric with 0 . The fundamental research has been done to study extreme and asymptotic properties of orthogonal (algebraic on the interval or on the unit circle and trigonometric) polynomials and their derivatives in case when the weight function have the singularities. There also have been established approximating properties of corresponding Fourier's sums both almost everywhere, at L_p - and uniform- metrics (V. M. Badkov).

Analyzing the achievements of the ill-posed problems theory from the point of view of best approximation theory and their interconnection S. B. Stechkin formulated the problem on the best L_p -approximation of differential operator D_k on the class $W_n(L_r)$ of functions onto real axis or semi-axis by linear bounded operators with prescribed norm from L_s to L_p and found its solutions at some special cases, showing the links of this problem with extreme Kolmogorov's-type inequality for derivatives of functions and with problem of approximation an one class of differentiable function by such another class. These problems later were transformed at more general extreme problems of the approximation theory, the ill-posed problems theory and numerical mathematics.

The series of investigations on the spline theory was carried out. The existence theorems for the interpolating and interpolating in mean polynomial splines with uniformed knots in particular for different sets of nodal points of splines and interpolating points have been proved, the error bounds of approximations have been obtained for different classes of functions (Iurii. N. Subbotin). Analogous results have been achieved for L-splines connected with the ordinary linear differential operator L with constant coefficients and for periodic splines generated by convolution operator (V. T. Shevaldin).

There has been created a new method of approximation of functions by polynomial splines with unfixed knots and sharp estimates for degree of corresponding approximation have been established (Iurii. N. Subbotin, N. I. Chernykh).

The existence theorems have been proved for interpolating D_m -splines within the bounded and unbounded domains with Lipschitz's boundaries. Proper in the sense of order estimates of error approximation into W_{sq} -seminorm of classes W_{rp} was obtained for "almost equidistant" points of interpolation and for all permissible s, q, r, p (O. V. Matveev).

There have been found final results on approximation by the interpolating cubic splines and their derivatives in the presence of the local restriction on the neighboring intervals between the knots of splines (N. L. Zmatrakov). The exact, asymptotically exact or exact in the sense of order estimates have been established for the approximation by means of L-spline defined by ordinary differential operator with constant coefficients (S. I. Novikov, A. A. Sazanov).

There has been developed a theory of the best approximation of unbounded linear operators by means of bounded ones. Connections between this and other extreme problems have been discovered and in a several certain cases their solutions have been found.

The above mentioned S. B. Stechkin's result on the approximation of operators has to be pointed out here as the first one.

There have been established the relations between the continuity modulus of unbounded operator on a class within Banach space on the one hand and the best approximation of the operator by the linear bounded ones on the other as well as the connection of these problems with the problem of the operator's values recovery on inexact known elements of the class. The proper connections between first two problem and the problem of the best approximation of one class of elements by another was made clear. The problems of the best approximation of an invariant operator with respect to transference on an invariant class of element was investigated in details. It had been shown, that the error of the best approximation in L_p -spaces on the real axis of the k -order derivative operator on the class of functions with L_q -bounded derivations of order n could be represented by means of the best constant into inequality between the norm of derivatives in $L_{r,s}$ -spaces, which conjugate is the space of multipliers from L_r into L_s (V. V. Arestov).

The necessary and sufficient conditions have been found after which the boundness L_q -norm on of a n -variable function f and its Sobolev's $W_{lr}(R_n)$ -seminorm guarantees the boundness of its intermediate derivatives in L_p -metric and the corresponding inequality has been written out. In several new cases the best constant in such inequalities have been found. On the problem of optimal recovery of derivatives of a n -variable function from Sobolev's class on the basis of its inexact values the necessary and sufficient conditions have been found for the

errors of the best L_q -approximations to derivatives by means of arbitrary one valued or linear only operators to be finite. Some general results on existence, characterization and properties of the best approximating operators have been obtained. (V. N. Ghabushin).

Most of described questions have been investigated as extreme problems and the obtained results are exact, asymptotically exact or exact in the sense of order. Among the results immediately related to extreme problems of function theory noteworthy are the following.

Iurii. N. Subbotin solved the difficult extreme problem on prolongation of discrete function with bounded differences of order n onto the whole real axis so its derivative of order n became minimal for different metric. Here extreme functions in metric l_1 proved to be the functions nowadays called the polynomial splines of defect 1.

This result has been generalized for linear differential operator with constant coefficients and has been applied to estimates of corresponding Kolmogorov's width. The lower bounds have been found for the width of function classes generated by operators of convolution (V. T. Shevaldin).

Problems on the geometric theory of approximation in Banach and linear metric spaces connected with the best approximation by the subspaces of the finite dimension or codimension, properties of a Chebyshev set and their generalizations, stability (continuity) of metric projections and more general maps connected with the functional minimization problem have been investigated.

The space with the continuity modulus of the metric projection tending to zero uniformly on the class of all subspaces have been characterized. The set-valued map which transfers every convex set to its subset consisting of the conditional minimum points of the convex functional have been investigated. The criterion of the continuity of this map have been obtained (V. I. Berdyshev).

It have been shown that metric projection on the every non-empty convex closed set of the B -space X is one-valued and continuous if X is a strictly convex Efimoff-Stechkin space. It has been also proved that every Chebyshev set of uniform convex B -space is a connected one (L. P. Vlasov).

It has been shown that Chebyshev set of the uniform convex space with the Frechet differentiable norm is convex if cardinal number of the discontinuity set for the metric projections is at most continuum (V. S. Balaganskii).

The best on every parameter estimates have been established for the numerical characteristic of stability of the metric d -projection on the convex set M of linear metric space with respect to the data error namely of set M and the element to be projected. The criterion of the uniform strong unicity of the best Chebyshev approximation and solution of the more general extreme problem has been founded (A. V. Marinov). The questions of existence of Chebyshev system on the compacts, connected with generalization of Mairhuber theorem had been studied (V. A. Koscheev).

The numerical methods of approximation are applicable in the various branches of science concerned with the complicated functions and bulky massif of the test data known with an error to compress the great massives of an test data, to recover the information on incomplete data, to smooth out the inexact experimental information.

Methods of approximation have been developed in the Institute for one- and several-variable functions in various metrics by means of generalized polynomials and sums of exponents (V. P. Kondratjev), rational fractions (L. V. Petrak), splines (A. A. Sazanov, N. L. Patzko) etc. Software for mentioned methods was worked out. Proposed methods and software allowed us to solve many problems related with the development of a new technique: some questions, connected with the motion control of a material points, approximation of a bulky volumes of a meteorological information, the hardness calculus of rubber-metal details, elaboration of non-destructive testing of some details, diagnostic of the blood current disturbance in the pancreas, optimization of the geometry and characteristics of the hybrid reflector antennas and elaboration of the algorithms for the control of such system in particular of systems with only double-phase control.

The scientific research have been headed by V. I. Berdyshev, N. I. Chernykh, S. B. Stechkin, Iurii N. Subbotin. One of the problem has been developed jointly with the Steklov Mathematical Institute.

Operation Research Department

The Department was organized in 1967. Professor Mazurov Vl. D. has been Head of the Department from 1967 to the present time.

The main spheres of interests of the department are the theory and methods of Pattern Recognition, their program realization and, thus, on this basis solving the different practical problems of diagnostics and classification of the complex objects and decision making situations in the spheres of medicine, biology, technology, economics. The investigators in this area are Vl. D. Mazurov, V. S. Kazantsev, A. I. Smirnov, S. V. Plotnikov, A. I. Krivonogov, N. G. Beletsky (skii) , N. O. Sachkov, N. I. Potanin, A. D. Obukhov, T. V. Lyalina, A. Iurii. Ilyin

The other spheres of interest of the department are mathematical models of technico-economical systems, the invention of new methods and software for the problems of optimal planning of the work of the ore-mining and machine-building enterprises and the adoption of these methods and software in industry. (V. M. Kislyak, A. S. Sadchikov, A. Iurii. Ilyin, N. V. Chesnokova, A. D. Obukhov)

Further, the construction of the models of the mathematical biomedicine, corresponding methods and their realization in the software and expert systems - for the problems of biomedical informatics, diagnostics and the problems of selecting certain kinds of influence upon the states of organisms and systems of organisms and solving corresponding practical problems are also the spheres of interest of the department. (Vl. D. Mazurov, V. S. Kazantsev, A. I. Smirnov, N. G. Beletsky (skii) , N. I. Potanin, A. D. Obukhov, T. V. Lyalina, V. M. Kislyak)

The most essential results:

The committee method has been invented and well-found for the problems of Pattern Recognition and Mathematical Programming with contradictory constraints.

On the basis of committee constructions there have been created commercial software KVAZAR-IBM and KVAZAR-PC. They are intended for solving the problems of Pattern Recognition, diagnostics and forecasting. They are well-spread in the USSR.

The models for the conjugate problems of discriminant and cluster analysis have been invented and well-found.

Some methods of optimal planning, which use the Pattern Recognition for the consideration of non-formalized constraints and objectives, have been invented and well-found.

The mathematical models, methods and software have been invented and well-found for the problems of optimal planning of ore-mining enterprises. They have been accepted for practical use in industry.

The mathematical models, methods and software have been invented and well-found for the problems of optimal planning of machine-building enterprises. They have been accepted for practical use in industry.

The mathematical models and methods have been invented for the problems of medical diagnostics, selection of methods of treatment and optimization of the parameters of treatment. They have been accepted for practical use in the medical organizations of Sverdlovsk region.

Current Investigations:

The construction of the theory of the conjugate problems for the non-formalized models of decision making (including the models of Pattern Recognition).

The development of the software KVAZAR-PC for the purpose of expanding the user's possibilities and achievement of stable commercial demand for this software.

The development of the system of optimal planning of enterprises with its adoption in industry.

The development of expert systems and software for the mathematical biomedicine with their adoption in health services.

Optimal Control Department

The department was organized in 1973. From the very beginning up to 1984 Doctor of Science Professor Kurzhanskii A. B. (now Academician) was at the head of the department. Since 1984 A. B. Kurzhanskii being the leader of scientific program in the International Institute for Applied System Analysis (Austria) has been providing scientific supervision over the department researches. In 1986 the section of nonlinear analysis headed by Doctor of Science, Professor Zavalishin S. T. was incorporated.

Uncertainty is inherent in most dynamic systems, describing the evolutionary processes in physical, biological and social sciences (uncertainty in system's parameters, in initial data, in system's input etc.). The behavior of uncertain system is not predetermined by the past history of the system, but may depend on that history in a probabilistic or multivalued way. The information uncertainty can be clarified through measurements or observation of accessible parameters. Conventional schemes for describing the evolution and performance of dynamic systems with informational uncertainty are either stochastic or deterministic (the so-called guaranteed approach) or may combine these approaches.

Investigation of the department are concerned with the following new concepts, theories and mathematical techniques for analyses of the behavior of dynamic systems under conditions of uncertainty:

theory of observation, filtering and identification for ordinary and

partial differential systems with uncertain and/or statistically uncertain disturbances;
theory of differential inclusions and multivalued analyses with application to description of the evolution of uncertain dynamic systems; related problems of adaptive control;
inverse problems of control system dynamics;
multicriteria problems of decision making: theory and applications to the uncertain systems.

The most essential results:

The minmax theory of guaranteed parameter estimation for control systems with uncertain disturbances is developed. There have been obtained theorems which connect the solutions to the problems of minmax and stochastic filtering, and basic research on the theory of statistically uncertain systems has been carried out. There has also been developed a method of adaptive identification for the above system with a priori unknown coefficients.

For multistage systems and differential inclusions a method of stochastic approximation was proposed. A study on issues related to partial differential systems has resulted in the formulation of the observation theory for distributed systems. Questions related to the topics of combining the processes of control and observation, design of experiments, stability of solutions in inverse problems of dynamics have been studied. Numerical algorithms for several applied problems have also been developed.

Main research direction in the recent years.

Description of the attainability domains evolution for nonlinear differential inclusions with state constraints. Investigation of the new classes of evolutionary equations describing the solubility sets dynamics in state constraints control problems with disturbances in the system (A. B. Kurzhanskii, O. I. Nikonov, T. F. Filippova).

Determination of the classes of admissible nonlinear estimates for minmax estimation problems for nonlinear statistically uncertain systems, obtaining the optimality conditions and recurrent representation for such estimations (B. I. Ananjev).

A study of observability problems for distributed systems, finite dimensional approximations for related estimation problems and their convergence. The problems of the stability of estimates and relations to the results of ill-posed problems theory (A. B. Kurzhanskii, E. K. Kostousova, I. F. Sivergina, A. J. Khapalov).

Research into the new problem statements of the design of experiments theory for uncertain system (measurement allocation problems and optimal choice of inputs for system parameters identification) (M. I. Gusev).

Algorithms and numerical methods for identification and estimation of uncertain systems (E. K. Kostousova, A. M. Ustjuzhanin, V. A. Honin, S. A. Anikin).

Multicriteria inverse problems in control theory (A. B. Kurzhanskii, M. I. Gusev, O. I. Nikonov).

Problems of separation of observation and control for uncertain systems (S. V. Kruglikov).

Various applications to the problems of image processing theory,

identification of aerodynamic parameters, environmental monitoring.
Development of algorithms and programs for control of the gazlift
process of oil recovery.

Section of Non-linear Analyses

The main subjects of the investigations realized in the Section of Non-linear Analyses are:

the non-linear differential equations
non-regular problems of dynamic optimization
their extensions to generalized functions.

These investigations have resulted in the following.

The general scheme of divergence removing has been developed. The correctness condition of Hadamard in the spaces of generalized functions has been found (V. K. Ivanov).

The theory of non-linear operators in terms of convolutions has been constructed in the spaces of functionals (V. K. Ivanov, V. V. Perminov).

The theory of non-stationary linear operators in the space of the distributions has been developed (S. T. Zavalishchin).

The special product of generalized functions has been constructed. On the basis of this construction the correct extension of certain classes of non-linear differential equations to the spaces of generalized functions has been realized. These results have been applied to the problems of extension of mathematical models of manipulator motion in the viscous medium, the variable mass point motion in the central gravitational field with impulse control and to the problem of the extension of the Shrediger equation for stationary particle to the situation of pointwise potentials as well. These new models permit to solve some practical problems of dynamic optimization, resulted in impulse optimal control (S. T. Zavalishchin, V. V. Revenko).

The integral inclusion as the extension of non-linear differential equation to the distributions has been obtained. The problem of continuous dependence of the approximated solutions on the right parts of the equation has been investigated. The impulse extension in the energetic functional optimization problem has been constructed (A. N. Sesekin).

The basis of the theory of the singular linear differential equations in the spaces of generalized functions has been developed (F. Z. Rafikov).

System Software Department

Personnel:

Averbukh Vladimir Lazarevich
Ermakov Dmitri Germanovich
Igumnov Aleksandr Stanislavovich
Petrov Alexei Nickolaevich
Samofalov Victor Vladimirovich
Solovieva Li'a Alexandrovna
Sundukova Klavdiya Andreevna

System Software Department under V. V. Samofalov was established in 1986 as a successor to General Software Department under L. A. Solovieva founded in 1970.

The main interest of the Department activities is concerned with System Software for large computers. The Assemblers, Cross-Assemblers, Debuggers, Interactive Graphics Systems and Service Software systems were developed by the Department staff. The progress in debugging tools and debugger-compiler interface developing had led to the creation of the batch-dialog debugger for BESM-6 computer family (BESM-6, Elbrus 1-K2, Elbrus-B) working in terms of high-level programming languages. Great attention has been always paid to interactive graphics studies. Graphical information handling tools were designed: viewing, holding, hard copying facilities etc.

Nowadays the Department activities are concentrated on constructing the integrated Programming and Debugging Environment for Elbrus-B Computer with PC's as intelligent terminals. The FEYA (Fairy) User Monitor has been developed. The FEYA Monitor includes subsystems to provide interfaces with DISPAK Operating System, File System, processes, storage and other resources management, to supply system-user interface for editing, debugging and data visualization. The variety of FEYA Monitor functions will increase.

The most significant results of the Department activity are the following:

SOMI, Assembler for BESM-6 Computer [1] (L. A. Solovieva, T. D. Dumsheva, K. A. Sundukova et al.);
GRADIS, Interactive Graphical System for BESM-6 Computer and minicomputers [2] (L. A. Solovieva, V. L. Averbukh, N. V. Guseva et al.);
SLUGA, Symbolic Interactive Debugger (Servant) [3] for BESM-6 Computer and ELBRUS 1-K2 Computer (V. V. Samofalov, N. V. Guseva, T. D. Osmiatchenko);
FEYA, multi-user Editing System [7] for BESM-6 and ELBRUS 1-K2 Computers (V. V. Samofalov, S. V. Scharff, S. N. Konovalov, N. V. Guseva, T. D. Osmiatchenko, T. V. Popova, V. V. Bezelova, G. V. Kelareva);
ELGA, Interactive Graphical System for ELBRUS 1-K2 Computer with PC's as graphical terminals [6] (L. A. Solovieva, V. L. Averbukh, A. S. Igumnov, V. O. Belova, L. A. Yeremejeva, O. A. Ustinova, D. V. Manakov, A. V. Scharff.);
FEYA, User Monitor, an Integrated Programming and Debugging Environment for Elbrus-B Computer [7,8] (V. V. Samofalov, S. V. Scharff, S. N. Konovalov, G. P. Gilev, N. V. Guseva, T. D. Osmiatchenko, G. V. Volozhanin, V. V. Bezelova, G. V. Kelareva, E. V. Revenko).

The research results in areas of programming technology, debugging, graphics and command languages for multiuser computers were used to develop systems above. Some of the results were used in two Ph.D. Theses.

In 1991 the ES Computer System Programming Team was added to Department as a subdivision. The Team activities are oriented at the Maintenance and System Programming.

Various system utilities and drivers for non-standard units of ES have been constructed by the Team: Statistic Programs; the Disc Usage Information System and other System Programs; SCRIPT, the Text Formatter (Russian adaptation); File Archive System.

The remote computing system with IZOT-7925 terminal and ES Computer-PC's Interface Systems, Graphics System have been developed.

The developers are: A. N. Petrov (The head of the Team), V. Koshkin, V. Dergachev, N. Andreyev, D. Yermakov, L. Noskova, S. Ischenko, D. Filimonenkov, N. Zhangarina.

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Computing Center

The Computing Center is built around soviet large-scale computers connected to more than 100 video-terminals and personal computers.

Collaborating closely with scientific community of the Urals division of the Russian Academy of Science, the Computing Center is engaged in permanent hard and software improvements to support theoretical and applied studies. University, high-schools and the industry of Ekaterinburg regularly get computer and human services from the Center.

Alongside with leading scientific institutions of the country Computing Center took part in "AKADEMSET", the (Academy Computer Network) research project. Message switching node was built and Computing Center successful experiments in information exchange with Moscow, Riga, St.Petersburg and Novosibirsk were made. That experience was applied later to redesign the node and now it serves as Computing Centers to domestic and foreign information networks such as "RELCOM", "IASNET", "InterPIENET", "InterNET", "SPRINT", "AT&T" etc. Regional subnetwork "UralVES" is under development with the aim of linking the main scientific and industry cities of the Urals. Adding satellite communication channels will be much faster and more reliable than the telephone lines being planned for the immediate future.

Control system department

Personnel:

Berdyshev Iurii Ivanovich
Buslaeva Liya Trofimovna
Chentsov Aleksandr Georgievich
Dyatlov Vladimir Procopevich
Pak Vladimir Egorovich
Sabiryanova Klara Gilmanovna
Serov Viacheslav Petrovich

The Department was founded in 1977 on the basis of a laboratory of the department of the applied problems. Dr V. D. Batukhtin was at the head of the Department from 1977 to 1986, in 1986 he was replaced by Dr A. G. Chentsov.

In the first period (1977-1980) the subject of scientific research was the differential games problems and the problems of optimal control and observation with incomplete information about the state of the system and its perturbations [1]. Afterwards the

problems of non smooth optimization were investigated under the guidance of Dr Batukhtin. The solving method based on a special construction of approximated extremes was proposed by V. D. Batukhtin together with professor L. A. Myboroda [2].

From 1981 the problem laboratory in the structure of the Department has been headed by A. G. Chentsov. The collaborators of the laboratory and the Department have investigated consequent control problems involving the choice of optimal routing (Iurii I. Berdyshev, L. T. Buslaeva, L. N. Korotaeva, A. G. Chentsov), optimal decomposition (E. M. Nazarov, A. G. Chentsov) and dynamical optimization without decomposition in time. A. G. Chentsov considered the questions of finitely-additive measures and integrals, the results have been used for extensions of extreme problems, in particular of cone optimization problem [3]. A. G. Chentsov has established the conditions of universal Darbu integrability of bounded functions [4]. He has also investigated some new approximative versions of Radon-Nikodym property in the class of finitely-additive measures being universal related to various topologies, one of which corresponds to canonic duality with *-weak topology. In addition A. G. Chentsov has established some new conditions of asymptotic stability and non-sensitivity with regard to separate types of perturbations in extreme problems with restrictions on vector integrant [5]. Some practical applications have been made by L. V. Zudihin, V. E. Pak, V. P. Serov and A. G. Chentsov. Fast algorithms for impulse controlled systems were constructed by Iurii I. Berdyshev, L. A. Savinova, L. M. Yarosh. Last year the investigations in the theory of set function integral were made by E. M. Nazarov (the integral on countably-additive measure) and A. G. Chentsov (universal Darbu integrability).

At present the researchers of the Department carry out investigations of discrete-continuous extreme problems, asymptotic optimization and the questions of the theory of measure and integral.

Department of mathematical programming.

Personnel:

Eremin Ivan Ivanovich
Kisljak Valerii Makarovich
Korotajeva Ljudmila Nikolaevna
Plotnikov Sergei Vasil'evich
Popov Leonid Denisovich
Skarin Vladimir Dmitrievich

Mathematical programming department (originally linear programming laboratory attached to the algebra and geometry department) was organized in September, 1961. Candidate of physical and mathematical sciences (later, doctor of physical and mathematical sciences, professor, corresponding member of the Russian Academy of sciences) I.I.Eremin was appointed the chief of the laboratory.

The subjects of the department are theory, algorithms, and software for mathematical programming (MP) problems.

The following subdirections can be singled out:

theory and methods for linear and convex inequality systems (finite and infinite, consistent and inconsistent)

duality theory for solvable and unsolvable (improper) MP problems

inequality systems and optimization problems with uncertain data

saddle point methods for improper MP problems and their regularization
development of software packages for large scale MP problems

solving applied economic problems.

The most essential results:

Canonical duality theory for linear and nonlinear improper mathematical programming problems in finite and infinite dimensional spaces has been developed (I. I. Eremin, A. A. Vatolin).

Correction methods for such problems have been derived i.e. methods form mapping improper problems into proper (solvable) ones according to some optimal correspondence principle (I. I. Eremin, A. A. Vatolin, L. D. Popov, V. D. Skarin).

For inconsistent linear inequality systems and pattern recognition problems, the committee constructions methods has been developed, which has a number of mathematically important realizations. In exact penalty function methods, exact estimates for penalty constants or, otherwise, for variations have been obtained (I. I. Eremin, V. D. Skarin).

The principle of forming symmetric duality for the lexicographic formulation of linear and quadratic programming problems has been proposed; the cases of both proper and improper problems have been considered (I. I. Eremin).

Methodology of nonstationary MP processes as the method for Modeling evolutionary (economic, biological, etc.) optimization systems has been developed; formal analysis of the behavior of such processes has been given (I. I. Eremin, V. D. Mazurov).

A number of software packages for solving large scale linear and quadratic programming problems have been developed for various types of computers. These are OPTIMA, -PLAN, LAMBDA and some other more specialized packages (L. D. Popov, G. F. Kornilova, N. N. Glezer, L. T. Korotaeva, M. S. Khripun, M. A. Kostina). The second of the mentioned above packages realizes numerical analysis of improper linear programming problems i.e. their correction, which includes forming compromise model and its solution. -PLAN package presents a great number of programs for solving distributional type problems including improper ones. The role of testing ground for the considerable part of software was played by large scale OKP UZTM problem (production-planning problem for the Urals Heavy Engineering Works).

As, for applied problems, in addition to one quoted above we can mention a series of metallurgical problems (for Nizhny Tagil Metallurgical Works) as well as fuel and energy balance problem for the Urals region.

At present investigations are being carried on into practically all directions mentioned above. In theoretical investigations priority will be given to developing the theory of multicriteria MP problems with the orderings imposed both on the system of criterion functions and restrictions.

Differential equations department

Personnel:

Gasilov Vitalii Leonidovich
Il'in Arlen Mikhailovich
Kandoba Igor' Nikolaevich
Korotkij Aleksandr Illarionovich
Koustousov Victor Borisovitch
Kryazhimskij Arkadij Viktorovich
Kukushkin Aleksandr Petrovich
Maksimov Viacheslav Ivanovich

The department was set up in 1975 on the basis of the laboratory of differential equations (department of dynamical systems) organized in 1972.

the corresponding member of the USSR Academy of Sci., in 1989 the member of the Academy, in 1992 the President of the Academy of Sci. of Russia). Since 1986 there are three research groups in the department headed by Iurii S. Osipov, A. V. Kryazhimskii (Doctor of Mathematics) and V. I. Gasilov (Candidate of Mathematics).

Before 1981 the scientific researches in the department lied mostly in the field of positional differential games for control systems with infinite dimensional state spaces, namely, systems with aftereffect, distributed systems, and systems with incomplete information. Since 1981, three scientific directions have formed in the department. These are:

inverse problems of dynamics for control systems (groups headed by Iurii S. Osipov and A. V. Kryazhimskii) shape optimization (group headed by Iurii S. Osipov) control and navigation problems (group headed by V. L. Gasilov).

Applied research is also carried out in the department.

Within the framework of the first scientific direction, the problems of designing dynamical (feasible in real time) stable algorithms for reconstruction time-dependent parameters of control systems on the basis of inaccurate observation results are treated. The mathematical tool is based on the theory of positional (closed-loop) control and the theory of ill-posed problems.

The second scientific direction is devoted to region optimization problems for elliptic systems. It is focused on the questions of existence of an optimal region (with respect to a certain functional) and continuous dependence of a solution on a region.

The third direction involves working out and testing control and navigation algorithms for technical systems.

The most essential results:

Differential games.

For certain classes of game control systems with aftereffect, with distributed parameters and with incomplete information, as well as abstract dynamical systems in Hilbert spaces, the theorems of an alternative in positional differential game have been proved; they state solvability of one and only one of two control problems in a differential convergence-evasion game; for the case of linear dynamics the regularity conditions providing constructive solvability criteria for the problem of convergence have been found; for linear systems with aftereffect, analogous conditions have been stated for the problem of evasion (Iurii S. Osipov, A. V. Kryazhimskii, and S. P. Okhezin). Several methods for designing solution control strategies with the help of finite-dimensional approximation models have been proposed (V. I. Maksimov, A. I. Korotkii, and D. A. Serkov). Some basic elements of the theory of positional differential games (saddle point theorems for standard classes of closed-loop strategies, stochastic approximation of mixed strategies, unification theorems) have been developed for systems governed by ordinary differential equations with non-lipschitzian right hand side (A. V. Kryazhimskii).

Inverse problems for control systems.

For systems governed by ordinary differential equations, several dynamical algorithms for stable approximation of an input (control) on the basis of observation of states have been described; in case all state coordinates are observed, the bounds for mean square approximation within several classes of well-posedness have been obtained, and their exact order with respect to the upper bound for observation noises has been found; algorithms for stable approximation of a motion on the basis of observations of a part of state coordinates have been constructed, their order optimality has been shown, and conditions of asymptotical optimality have been derived; relationships between different formulations of inverse problems and solvability conditions are considered, nonsolvability examples have been presented (Iurii S. Osipov and A. V. Kryazhimskii).

For control systems governed by linear and nonlinear parabolic equations with monotonous operators, and parabolic variational inequalities, stable dynamical algorithms providing approximations to distributed controls (included into a right hand side, in general, nonlinearly) and coefficients, as well as to boundary ones have been constructed; the cases where the deviations of observation results from a trajectory are estimated in strong and weak metrics on the phase space have been considered; stable dynamical solutions for the problem of tracking the location of sources have been designed (Iurii S. Osipov, V. I. Maksimov, A. I. Korotkii, and A. V. Kim).

For systems governed by linear and nonlinear hyperbolic equations (special types of nonlinearity) and variational inequalities, stable dynamical approximations to distributed and boundary disturbances, and coefficients of the phase operator have been constructed (Iurii S. Osipov and A. I. Korotkii).

A general approach to the problems of stable dynamical approximation of time-dependent inputs for systems with distributed parameters has been described (Iurii S. Osipov, A. V. Kryazhimskii, and V. I. Maksimov).

Shape optimization.

The question of existence of an optimal (with respect to a certain functional) region for an elliptic system and that of continuous dependence of a solution on a region have

been matched with the question of convergence of solutions of certain variational problems on sequences of subspaces. The criteria for this convergence have been formulated conditions ensuring solutions of Dirichlet and Neuman boundary problems to depend continuously on a domain have been obtained classes of regions in which convergence of domain in the complimentary Hausdorff metric within these classes implies convergence of solutions have been found; for several problems (including well known ones), existence of optimal regions has been proved (Iurii S. Osipov, and A. P. Suetov) for a certain class of elliptic systems, an effective numerical algorithm for approaching an optimal region has been suggested (I. N. Kandoba).

Problems of control and navigation.

For a class of control objects important from the point of view of applications, the following problems have been studied: the correction of mo parameters, optimal control in the process of navigation and approaching a target, preparation of sample information for control, analysis of exterior information gauges, mathematical Modelling of control processes, analysis of the results of experiments, estimations of accuracy and stability with respect to noises of the considered class of control systems (V. L. Gasilov, V. B. Kostousov).

A new approach for constructing highly accurate control systems using navigation through geophysical fields, determining the technical structure of these systems, and designing the corresponding informational and algorithmic supply has been suggested (V. L. Gasilov, A. P. Kukushkin, I. N. Kandoba, M. E. Popov, and E. L. Safronovich).

The investigations were carried out by orders and in contact with industrial plants; several works were headed by the Institute. The results of investigations are used in industrial projects for designing new technical objects.

The above mentioned scientific directions are being developed in the department nowadays.

Dynamical Systems Department

Personnel;

Brykalov Sergei Arkadievich
Khripunov Alexei Petrovich
Kleimenov Anatolii Fedorovich
Krasovskii Nikolai Nikolaevich
Kumkov Sergei Ivanovich
Lukoyanov Nikolai Yur'evich
Patsko Nadejda Leonidovna
Patsko Valerii Semenovich
Pershin Igor Viktorovich
Subbotin Andrei Izmailovich
Subbotina Nina Nikolaevna
Tarasyev Aleksandr Mihailovich
Tselischeva Irina Vasilievna
Ushakov Vladimir Nikolayevich
Uspenskii Aleksandr Alexandrovich

The date of organization of the department, its leaders:

In 1966 a department of mechanics was organized at Sverdlovsk Branch of the Mathematical Institute. The department was created and headed by N. N. Krasovskii. At first the department of mechanics consisted of staff members of the chair of applied mathematics of the Urals State University, who worked at the department part time. In 1969 Sverdlovsk Branch of the Mathematical Institute was reorganized into the Institute of Mathematics and Mechanics of the USSR Acad. Sci. From 1970 till 1977 N. N. Krasovskii was the director of the institute and the head of the dynamical systems department formed on the basis of the department of mechanics. In 1977 A. I. Subbotin was nominated as the acting head of the dynamical systems department, since 1984 he is the head of the department.

The department's themes of investigation:

The main scientific topics of the department are concerned with the development of the mathematical theory of dynamical systems controlled on the basis of feedback in the presence of disturbances and counteraction, elaboration of mathematical technique and numerical algorithms for control problems with guaranteed result. There are also investigations of the generalized (minmax) solutions of Hamilton-Jacobi equations and other types of equations with first order partial derivatives. (The scientific supervisors are Academician N. N. Krasovskii and Corresponding Member A. I. Subbotin.)

The most essential results:

In 70s-80s at the dynamical systems department the positional differential games theory was developed, its system of basic notions was formed. For different types of differential games the theorems of existence of equilibria in the class of positional strategies were proved. The positional differential games theory is essentially constructive, which is a distinguishing feature of it. In the framework of this theory fundamental investigations were carried out, numerical methods and solving algorithms for control problems with guaranteed result were elaborated. The following results were obtained.

An extreme construction of solving strategies was worked out; this construction is used both to prove saddle points existence theorems, and in numerical algorithms. The notions of stable bridges and functions were introduced, which enable various mathematical technique to be involved in investigations of differential games.(N. N. Krasovskii, A. I. Subbotin)

There was introduced the concept of dynamical game based on an approximation model and a formal model considered together. The formal model is controlled according to the principle of extreme shift towards an accompanying point whose motion is described by the approximation model. This approach expands the class of problems which can be investigated and enriches the theory with new constructions, for example, with the construction of universal strategy which is optimal for any initial position in a given set.(N. N. Krasovskii)

The qualitative problems of the differential games theory were studied. To regularize the discovered instability of the extreme solutions the control procedures with a guide were proposed, the methods of the classical stabilization theory were developed to construct control procedures stable with respect to information errors (N. N. Krasovskii, V. M. Reshetov, A. I. Subbotin, V. N. Ushakov).

For finding solutions of positional differential games the method of program iterations was developed. This method was used to specify the classes of problems for which the differential game value finding is reduced to solving a finite number of program control problems. (A. G. Chentsov)

The duality principle was discovered for determinate positional strategies and nonanticipating stochastic programs. On the basis of this result the method of stochastic extreme aiming was founded for a wide class of systems controlled under lack of information; in these systems the unknown factors are dynamical disturbances and also information errors in measuring the phase state. (N. N. Krasovskii)

On the basis of the notion of stable functions a new approach to defining and studying the generalized (minmax) solutions of equations with first order partial derivatives was developed. The existence, uniqueness, and continuous dependence of the minmax solutions were proved. It was shown that the definition of viscosity solution introduced in early 80s by M. G. Crandall and P. -L. Lions, though of quite different origin and form, is equivalent to the definition of minmax solution. The minmax solutions provide technique facilitating studying a number of theoretical problems and elaborating numerical methods. (A. I. Subbotin, N. N. Subbotina, A. M. Taras'ev, V. N. Ushakov)

Non antagonistic differential games with several players were studied. Different types of equilibria in the class of positional strategies were considered, for example, the equilibrium in the sense of Nash, Stackelberg. Solutions of hybrid games, which combine properties of antagonistic and non antagonistic ones, were considered also. The existence theorems were proved, the structure of solutions was found. (A. F. Kleimenov)

In last years much attention was focused on developing numerical methods. Sets of programs and algorithms for solving differential games and control problems with guaranteed result were elaborated, including the programs for numerical construction of stable bridges, value functions, and solving strategies for the control systems linear in phase variable in the case when the target set or the pay-off function is convex. For nonlinear differential games the numerical algorithms were constructed for the case $n=2$ (n is the phase space dimension). (V. S. Patsko, V. N. Ushakov, N. D. Botkin, M. A. Zarkh, A. G. Ivanov, T. N. Reshetova, A. M. Taras'ev, V. L. Turova, A. A. Uspenskii, A. P. Khripunov)

At the dynamical systems department V. A. Baidosov and his group were working out and studying mathematical models of medical and biological phenomena, obtained important results on modelling the processes of accumulation and extraction of toxic substances, elaborated an original model of immune response of an organism.

Scientific activity at present:

In last years the interest in studying control problems with guaranteed result has been increasing, on the other hand, because they are vital for computer simulation of economic, ecological, and other phenomena, and because of the needs of new technology and engineering, on the other hand, due to the possibilities given by the modern mathematical theory of control including the differential games theory.

The dynamical systems department has become a group of highly qualified specialists on control theory and differential games. We should name among them A. F.

Kleimenov, V. S. Patsko, N. N. Subbotina, V. N. Ushakov. They are engaged in theoretical researches on control problems with guaranteed result, working out new methods and algorithms for synthesis of solving strategies, studying the minmax solutions of equations with first order partial derivatives, developing the differential games theory. Essential results in numerical study and theoretical researches are obtained by N. D. Botkin, T. N. Reshetova, A. M. Taras'ev, V. L. Turova, M. A. Zarkh. At the department a large amount of applied research is conducted, computer simulation of complicated control problems is implemented, a considerable part of this research is done by S. I. Kumkov.

Besides these directions, G. I. Shishkin and his group (V. A. Titov, I. V. Pershin, I. V. Tselishcheva) develop the grid methods for solving singularly perturbed problems for equations of parabolic and hyperbolic types. For nonlinear boundary value problems the conditions for solvability are investigated, this research is conducted by S. A. Brykalov.

The research workers of the dynamical systems department pay much attention to work with post-graduates and students. They regularly take part in organizing mathematical competitions for schoolchildren.

Function Approximation Theory Department (DFAT) Approximation and Applications Department (DAA)

The research theme of function Theory with emphasis on approximation Theory is represented in the Institute by the above mentioned departments.

DFAT is founded in December 1964, when the research group on approximation theory of Mathematical analysis Department of the Sverdlovsk Branch of Mathematical Institute (SOMI) was reorganized as an autonomous department. Until 1966 both earlier the group and later the department had been headed by vice director of the Steklov Mathematical Institute of the USSR Academy of Sciences in charge of SOMI Professor S. B. Stechkin. During 1.01.66-27.03.69, 27.03.69-22.08.73 L. V. Taikov and N. I. Chernykh used to be heads of the department consecutively. On 22.08.73 till present time department has been headed by Iurii. N. Subbotin. At 22.08.73 there was formed the Numerical Methods laboratory headed till now by V. I. Berdyshev. In March 1987 a self-sufficient department of approx. and appl. emerged from DFAT which was headed by N. I. Chernykh.

Apart from those on staff at the departments at present whose names will be mentioned below S. A. Teliakovskiy (skii) , L. V. Taikov, P. K. Suetin, A. P. Chromov, Iurii. A. Shashkin, V. Iurii. Popov, I. A. Pakhnutov formerly used to worked at DFAT in due time.

Investigations Of The Departments:

classic problems of the Approximation Theory connected with the trigonometric polynomial approximation of the periodic functions, extreme properties of the algebraic and trigonometric polynomials, orthogonal polynomials and their approximating and extreme properties;

approximating and extreme properties of the polynomial splines and their generalizations (S--splines, D_m - splines, analytic splines, etc.), finite elements method;

best approximation of the unbounded operators by the bounded linear ones, inequalities between the norms of function and its derivatives, best recovery of the unbounded operators on classes of the elements known with error, best approximation of classes by means of more smooth function classes;

extreme problems of the best approximation theory, elaboration of the optimal methods of approximation and investigation of width of function classes;

geometric problems of the best approximation theory and approximating properties of the sets of Banach and metric spaces, properties of the metric projection and more general operators connected with the minimization problem of functionals in general spaces and strong unicity properties of the best approximation in spaces of continuous functions;

approximation of the vector-valued functions;

numerical methods of the approximation theory and due applications.

The most essential results:

On the classic part of the approximation theory there have been found final solutions of a series of approximation problems. Below a survey of the most substantial achievements is presented.

There have been accomplished the investigation on the asymptotically exact estimates of the deviations of the differentiable functions from their Fourier sums which are uniform for all parameters. The linear approximation method by the trigonometric polynomials has been constructed that provides Jackson-type estimates of the deviation with constant $3/2$ in all spaces L_p (S. B. Stechkin).

Estimates for approximations of differentiable functions of several variables which correctly depend on geometry of domain triangulation as well as for the Lebesgue constants of the interpolate polynomials in special domains have been found. (Iurii. N. Subbotin).

Asymptotic formulae with non-improved in order sense on a function classes reminded terms for the values of the best approximations of individual functions in C and L_p -metric by algebraic and trigonometric polynomials with prescribed linear conditions have been established for the entire classes of such conditions and standard classes of differentiable or analytic onto interval functions (N. I. Chernykh).

The exact estimates have been found for the coefficients of the Fourier trigonometric series and for the upper bound of the L -mean deviation of functions from their Fourier sums on the classes of functions with given continuity characteristic (V. I. Berdyshev).

Investigation of the problems connected with the Jackson inequality for the best approximations by trigonometric polynomials in L_p -metric have been carried out (V. I. Berdyshev, N. I. Chernykh). Result on the exact constant in Jackson's inequality for L_2 has been generalized for discrete functions on an equidistant point set (A. G. Babenko).

The norm of convolution-type operators of the certain class onto space of trigonometric and algebraic polynomials in the integral v -metric has been calculated. In particular there has been solved the difficult problem about the best constant into Bernstein's inequality for L_p -metric with 0 . The fundamental research has been done to study extreme and asymptotic properties of orthogonal (algebraic on the interval or on the unit circle and trigonometric) polynomials and their derivatives in case when the weight function have the singularities. There also have been established approximating properties of corresponding Fourier's sums both almost everywhere, at L_p - and uniform- metrics (V. M. Badkov).

Analyzing the achievements of the ill-posed problems theory from the point of view of best approximation theory and their interconnection S. B. Stechkin formulated the problem on the best L_p -approximation of differential operator D_k on the class $W_n(L_r)$ of functions onto real axis or semi-axis by linear bounded operators with prescribed norm from L_s to L_p and found its solutions at some special cases, showing the links of this problem with extreme Kolmogorov's-type inequality for derivatives of functions and with problem of approximation an one class of differentiable function by such another class. These problems later were transformed at more general extreme problems of the approximation theory, the ill-posed problems theory and numerical mathematics.

The series of investigations on the spline theory was carried out. The existence theorems for the interpolating and interpolating in mean polynomial splines with uniformed knots in particular for different sets of nodal points of splines and interpolating points have been proved, the error bounds of approximations have been obtained for different classes of functions (Iurii. N. Subbotin). Analogous results have been achieved for L -splines connected with the ordinary linear differential operator L with constant coefficients and for periodic splines generated by convolution operator (V. T. Shevaldin).

There has been created a new method of approximation of functions by polynomial splines with unfixed knots and sharp estimates for degree of corresponding approximation have been established (Iurii. N. Subbotin, N. I. Chernykh).

The existence theorems have been proved for interpolating D_m -splines within the bounded and unbounded domains with Lipschitz's boundaries. Proper in the sense of order estimates of error approximation into W_{sq} -seminorm of classes W_{rp} was obtained for "almost equidistant" points of interpolation and for all permissible s, q, r, p (O. V. Matveev).

There have been found final results on approximation by the interpolating cubic splines and their derivatives in the presence of the local restriction on the neighboring intervals between the knots of splines (N. L. Zmatrakov). The exact, asymptotically exact or exact in the sense of order estimates have been established for the approximation by means of L -spline defined by ordinary differential operator with constant coefficients (S. I. Novikov, A. A. Sazanov).

There has been developed a theory of the best approximation of unbounded linear operators by means of bounded ones. Connections between this and other extreme problems have been discovered and in a several certain cases their solutions have been found.

The above mentioned S. B. Stechkin's result on the approximation of operators has to be pointed out here as the first one.

There have been established the relations between the continuity modules of unbounded operator on a class within Banach space on the one hand and the best approximation of the operator by the linear bounded ones on the other as well as the connection of these problems with the problem of the operator's values recovery on inexact known elements of the class. The proper connections between first two problem and the problem of the best approximation of one class of elements by another was made clear. The problems of the best approximation of an invariant operator with respect to transference on an invariant class of element was investigated in details. It had been shown, that the error of the best approximation in L_p -spaces on the real axis of the k -order derivative operator on the class of functions with L_q -bounded derivations of order n could be represented by means of the best constant into inequality between the norm of derivatives in $L_{r,s}$ -spaces, which conjugate is the space of multipliers from L_r into L_s (V. V. Arestov).

The necessary and sufficient conditions have been found after which the boundness L_q -norm on of a n -variable function f and its Sobolev's $W_{l,r}(R^n)$ -seminorm guarantees the boundness of its intermediate derivatives in L_p -metric and the corresponding inequality has been written out. In several new cases the best constant in such inequalities have been found. On the problem of optimal recovery of derivatives of a n -variable function from Sobolev's class on the basis of its inexact values the necessary and sufficient conditions have been found for the errors of the best L_q -approximations to derivatives by means of arbitrary one valued or linear only operators to be finite. Some general results on existence, characterization and properties of the best approximating operators have been obtained. (V. N. Ghabushin).

Most of described questions have been investigated as extreme problems and the obtained results are exact, asymptotically exact or exact in the sense of order. Among the results immediately related to extreme problems of function theory noteworthy are the following.

Iurii N. Subbotin solved the difficult extreme problem on prolongation of discrete function with bounded differences of order n onto the whole real axis so its derivative of order n became minimal for different metric. Here extreme functions in metric l, C proved to be the functions nowadays called the polynomial splines of defect 1.

This result has been generalized for linear differential operator with constant coefficients and has been applied to estimates of corresponding Kolmogorov's width. The lower bounds have been found for the width of function classes generated by operators of convolution (V. T. Shevaldin).

Problems on the geometric theory of approximation in Banach and linear metric spaces connected with the best approximation by the subspaces of the finite dimension or codimension, properties of a Chebyshev set and their generalizations, stability (continuity) of metric projections and more general maps connected with the functional minimization problem have been investigated.

The space with the continuity modules of the metric projection tending to zero uniformly on the class of all subspaces have been characterized. The set-valued map which transfers every convex set to its subset consisting of the conditional minimum points of the convex functional have been investigated. The criterion of the continuity of this map have been obtained (V. I. Berdyshev).

It has been shown that metric projection on the every non-empty convex closed set of the B-space X is one-valued and continuous iff X is a strictly convex Efimoff-Stechkin space. It has been also proved that every Chebyshev set of uniform convex B-space is a connected one (L. P. Vlasov).

It has been shown that Chebyshev set of the uniform convex space with the Frechet differentiable norm is convex if cardinal number of the discontinuity set for the metric projections is at most continuum (V. S. Balaganskii).

The best on every parameter estimates have been established for the numerical characteristic of stability of the metric d -projection on the convex set M of linear metric space with respect to the data error namely of set M and the element to be projected. The criterion of the uniform strong unicity of the best Chebyshev approximation and solution of the more general extreme problem has been founded (A. V. Marinov). The questions of existence of Chebyshev system on the compacts, connected with generalization of Mairhuber theorem had been studied (V. A. Koscheev).

The numerical methods of approximation are applicable in the various branches of science concerned with the complicated functions and bulky massifs of the test data known with an error to compress the great massives of an test data, to recover the information on incomplete data, to smooth out the inexact experimental information.

Methods of approximation have been developed in the Institute for one- and several-variable functions in various metrics by means of generalized polynomials and sums of exponents (V. P. Kondratiev), rational fractions (L. V. Petrak), splines (A. A. Sazanov, N. L. Patzko) etc. Software for mentioned methods was worked out. Proposed methods and software allowed us to solve many problems related with the development of a new technique: some questions, connected with the motion control of a material points, approximation of a bulky volumes of a meteorological information, the hardness calculus of rubber-metal details, elaboration of non-destructive testing of some details, diagnostic of the blood current disturbance in the pancreas, optimization of the geometry and characteristics of the hybrid reflector antennas and elaboration of the algorithms for the control of such system in particular of systems with only double-phase control.

The scientific research have been headed by V. I. Berdyshev, N. I. Chernykh, S. B. Stechkin, Iurii N. Subbotin. One of the problem has been developed jointly with the Steklov Mathematical Institute.

Ill-posed Problems Department

The Department of ill-posed problems of analysis and application was organized in November 1990 (formerly it was a section (underdepartment) of the Department of applied problems). Its chief is Professor V. Vasin.

The principle field of the Department research is the investigation on the theory and methods of ill-posed and inverse problems solutions.

The optimality of some classes of regularizing algorithms has been proved for linear and non-linear operator equations as well as for the problem of evaluating of values for unbounded operator.

The general scheme of discrete approximation for the extreme problems has been suggested. Necessary and sufficient conditions for convergence of the finite-

dimensional approximations in Hilbert spaces for the Tikhonov regularizing algorithms have been provided.

Non-linear iterative methods for the stable solution of ill-posed problems with a priori constraints (convex inequality type) have been constructed. On its basis effective computing procedures for the numerical solution of some theoretical and applied problems (finite moment problem, spectroscopy, geophysics) have been created. These results were obtained by Professor V. Vasin.

The achievements of senior research associate Dr. A. L. Ageev are mainly concerned with constructing of the eigen functions for the linear operators with non-isolated point of spectrum as well as for solving the un-uniqueness solutions problem. He offered analogies of the variational regularizing methods for the solution of this problem and reconstructing problems of discontinuous solutions of operator (integral) equations.

Suggested regular methods for solving ill-posed problems were realized in computer programs which were jointly created with colleagues from the Institute of metal physics for processing x-ray spectrums (EXAFS and x-ray diffraction) on finding an atomic structure of amorphous alloys. These computer programs have been passed through experience at the Institute of atomic energy (Moscow), Physics Institute (Yerevan), LURE (Orse, France), University Calgary (Italy).

Another field of the Department research is concerned with constructing numerical methods for solving an elasticity problem within the bounds of the small elasto-plastic deformations theory.

Approaches based on the difference-variational method, the finite element method and the method of boundary integral equations have been realized in computation programs designed for the computation stress deformed state for three dimensional contractions and temperature fields (G. Perestoronina, T. Serezhnicova, O. Kokovichina, L. Timerchanova, L. Barashkova)

Recently investigations on parallel algorithms for network problems of mathematical physics concerned with the solution of band linear algebraic systems have been started (E. Akimova).

Mathematical Programming Department

Mathematical programming department (originally linear programming laboratory attached to the algebra and geometry department) was organized in September, 1961. Candidate of physical and mathematical sciences (later, doctor of physical and mathematical sciences, professor, corresponding member of the Russian Academy of sciences) I. I. Eremin was appointed the chief of the laboratory.

The subjects of the department are theory, algorithms, and software for mathematical programming (MP) problems.

The following subdirections can be singled out:

theory and methods for linear and convex inequality systems (finite and infinite, consistent and inconsistent)

duality theory for solvable and unsolvable (improper) MP problems

inequality systems and optimization problems with uncertain data
saddle point methods for improper MP problems and their regularization
development of software packages for large scale MP problems
solving applied economic problems.

The most essential results:

Canonical duality theory for linear and nonlinear improper mathematical programming problems in finite and infinite dimensional spaces has been developed (I. I. Eremin, A. A. Vatolin).

Correction methods for such problems have been derived i.e. methods for mapping improper problems into proper (solvable) ones according to some optimal correspondence principle (I. I. Eremin, A. A. Vatolin, L. D. Popov, V. D. Skarin).

For inconsistent linear inequality systems and pattern recognition problems, the committee constructions methods has been developed, which has a number of mathematically important realizations.

In exact penalty function methods, exact estimates for penalty constants or, otherwise, for variations have been obtained (I. I. Eremin, V. D. Skarin).

The principle of forming symmetric duality for the lexicographic formulation of linear and quadratic programming problems has been proposed; the cases of both proper and improper problems have been considered (I. I. Eremin).

Methodology of nonstationary MP processes as the method for modelling evolutionary (economic, biological, etc.) optimization systems has been developed; formal analysis of the behavior of such processes has been given (I. I. Eremin, V. D. Mazurov).

A number of software packages for solving large scale linear and quadratic programming problems have been developed for various types of computers. These are OPTIMA, -PLAN, LAMBDA and some other more specialized packages (L. D. Popov, G. F. Kornilova, N. N. Glezer, L. T. Korotaeva, M. S. Khripun, M. A. Kostina). The second of the mentioned above packages realizes numerical analysis of improper linear programming problems i.e. their correction, which includes forming compromise model and its solution. -PLAN package presents a great number of programs for solving distributional type problems including improper ones. The role of testing ground for the considerable part of software was played by large scale OKP UZTM problem (production-planning problem for the Urals Heavy Engineering Works).

As, for applied problems, in addition to one quoted above we can mention a series of metallurgical problems (for Nizhny Tagil Metallurgical Works) as well as fuel and energy balance problem for the Urals region.

At present investigations are being carried on into practically all directions mentioned above. In theoretical investigations priority will be given to developing the theory of multicriteria MP problems with the orderings imposed both on the system of criterion functions and restrictions.

Visual Systems Laboratory

Prokhorov Vladimir Valentinovich
Smirnov Dmitrii Vladimirovich



10. Economics Institute in Ekaterinburg (Sverdlovsk) (1971)

Chichkanov, Valerii P., D. Econ. S. Russian economist. Corresponding member of the Economics department and of the Urals department since 1981. From 1980 to 1987, he was Director of the Economics Study Institute at Khabarovsk subject to the Far Eastern Scientific Center which studies the economic development of the Russian Far East. In 1987, he was made Director of the Economics Institute in Sverdlovsk which studies ways to improve production in the Urals region. (LDA 89-11378.)

This Institute sprang from a research group organized in 1941, which became a Department of Economic Studies of the Urals branch of the USSR Academy of Sciences in the 1951, and in 1971 with the establishment of the Urals Department in 1971, the Institute of Economics of the Urals Department was reorganized and established. Its scientists in the past have worked closely with the State Planning Committee. The Institute studies methods of improving production and production efficiency in the Urals region. Special attention has been given to energy production, capital investment policies and the introduction of new technologies into production. Directors of the earlier department and the institute have included: A. N. Efimov (1948-54), N. M. Kokosov (1954-58), V. M. Slobodin (1958-62), P. P. Shirin (1962-69), M. A. Sergeev (1971-86) and since 1986, its Director has been Dr. Valerii P. Chichkanov, corresponding member of the Russian Academy of Sciences. Structure of the institute: the institute is organized into nine departments and in two autonomous sectors:

- (1.) the territorial planning and management department;
- (2.) the socio-economic problems of production department;
- (3.) the economic mechanism department;
- (4.) the development of branches of the national economy department;
- (5.) the natural resources department;
- (6.) the public opinion and information department;
- (7.) the Perm' socio-economic research department;
- (8.) the Cheliabinsk (chelyabinsk) (chelyabinsk) socio-economic research department;
- (9.) the Udmurt socio-economic research department in Izhevsk.

The independent sectors include:

- (1.) the Orenburg regional economic development sector, and
- (2.) the Kurgan regional economic development sector.

The staff of the institute numbers 194 researchers of whom 13 hold the doctorate and 85 the candidate degree. Two corresponding members of the Russian Academy of Sciences are on the staff. Dr. Valerii P. Chichkanov, D. Econ. S., has directed the institute since 1987. (**See: Ruble, Vol. I, pp, 129-130.**)



11. Electrophysics Institute in Ekaterinburg (Sverdlovsk). Established in 1986 and subordinate to the Urals Department of the academy. Director Mesiats, Gennadii A., C. GM. S., since 1986. Mesiats is also Director of the Urals Department and a former Head of the High Current Electronics Institute in Tomsk.



12. History and Archeology Institute in Ekaterinburg (Sverdlovsk) was founded in 1988. Structure of the institute: The institute is comprised of four Departments with subordinate sectors and laboratories. The departments include:

- (1.) archeology and ethnography,
- (2.) the history of Soviet society;
- (3.) pre-1917 history, and
- (4.) source study and special historical disciplines.

The staff of the institute numbers 70 researchers of whom eight hold the doctorate and 37 the candidate degree. There is one corresponding member of the Russian Academy of Sciences on the staff. The institute has established relations with the University of Chicago, scholars at the Uppsala University in Sweden, and scholars in Belgium, Czechoslovakia, Germany, Great Britain, Hungary, Poland, and Yugoslavia. The archives of the institute house manuscripts and early books of the 16th to the 19th centuries. The Director of the institute is Dr. Veniamin V. Alekseev, D. Hist. S., and a corresponding member of the Russian Academy of Sciences.



13. The Philosophy and Law Institute in Ekaterinburg (Sverdlovsk) was established in 1988. Structure of the institute: the institute is comprised of seven task groups:
law and the individual;
law and the economy;
socialism and humanism;
rational analysis of socialist society;
philosophy of history and man;
participation of citizens in the political process, and social rationality humanism,
and a
laboratory on legal information.

The staff of the institute numbers 34 of whom three hold the doctorate and 22 hold candidate degrees. One staff member is a corresponding member of the Russian Academy of Sciences. Sergei S. Alekseev, is Director of the institute and a corresponding member of the academy.



Komi Scientific Center

Chairman: Roshchevskii, Mikhail P. Corresponding member of the Physiology Department of the AN SSSR from December 1987. Deputy Chairman of the Urals

Department since August 1988. He was made Chairman of the Komi Scientific Center in February 1984. Research institutes subordinate to the Komi scientific center listed by order of their founding:

1. **Geology Institute** in Syktyvkar. No date given in source. Studies the mineralogy and tectonics of the northern European territories of Russia. Subordinate to the Komi Affiliate.



2. **Economic Research Department** in Syktyvkar. Founded in 1949, this Department is subordinate to the Komi Affiliate of the USSR Academy of Sciences and plays an important role in the coordination of economic research within the Komi Autonomous Republic. They have particularly studied energy and water resources of the region. (See: Ruble, Vol. I., p. 132.)



3. **Language, Literature and History Institute** of the Komi Scientific Center of the Urals Department in Syktyvkar. The institute was founded in 1970 and is subordinate to the Komi Science Center of the Urals Department of the Russian Academy of Sciences. In 1991, personnel included some 108 scientific workers--67 scientists and 41 technicians. More than half of the scientists (36) held candidate degrees in one of the sciences. In the summer of 1991 a position of Deputy Director for Science was established and given to Dr. Eleonora Savelieva. There were eight Departments in the institute in 1991, although that number may decrease in the near future. **Personnel and structure:** Director Dr. Anatolii D. Napalkov, (born in 1939), graduate of Academy of Social sciences in Moscow in 1980--interests include the history of Soviet society, particularly of the local authorities (soviets); Deputy Director for Science Dr. Eleonora Savelieva; Deputy Director Iurii P. Shabaev, D. Soc. S., (born 1952 in Estonia) graduate of Syktyvkar University, 1988--interests modern ethic and national problems and the family. The institute is comprised of eight departments:

- (1.) Ethnography Department: Dr. Nikolai D. Konakov, (born 1946), graduate of Leningrad State University in 1979--interests the traditional use of nature and the traditional world view of the Finno-Ugric peoples;
- (2.) Archaeology Department: Dr. Eleonora Savelieva, (born 1937), graduate of Sverdlovsk University in 1970, headed history of the USSR Department at Syktyvkar University until her return to the institute in 1985--interests are in excavations of medieval monuments;
- (3.) Language Department: Dr. Galina Feduneva, (born 1953), graduate of Syktyvkar University in 1986--interests in morphology and word-formation in the Finno-Ugric languages;
- (4.) Sociology Department: Dr. Tamara Kalanova;
- 5.) Folklore and Folk Art Department: Dr. Iurii G. Rochev, graduate of the Komi Pedagogical Institute in Syktyvkar in 1974--interests are in children's folklore, Komi legends and fairy tales;
- (6.) Literary Studies Department: Dr. Vladimir N. Demin;
- (7.) History Department (Feudalism and Capitalism): Dr. Vladimir I. Chuprov;
- (8.) History Department (Socialism): Dr. Afanasi N. Turubanov.

Other research scientists of note in the institute include: Evgenii A. Cypanov, scientific worker in the Language Department (born in 1960), graduate of Syktyvkar

University in 1987--his interests are in the Finno-Ugric languages; Gennadii G. Baraksanov, scientific worker in the Language Department, (born in 1934) graduate of the Komi Pedagogical Institute in Syktyvkar in 1968--his interest are in the Finno-Ugric languages; Lidia Ashikhmina, scientific worker in the Archaeological Department, (born 1940), graduate of the Sverdlovsk University in 1985--her interests are in excavations of the late Bronze and early Iron Age monuments; Pavel I. Pavlov, scientific worker in the Archeology Department, (born 1957), graduate of Perm' University in 1989--his interests are in excavations of monuments of the Palaeolith and Metholith ages, and Oleg V. Kotov, scientific worker in the Ethnography Department, (born 1953), graduate of the Sverdlovsk Archive Institute in 1988--his interests are in local ethnic groups, traditional deer breeding, and in modern ethnic processes. The museum that is maintained by the institute consists of some 3,000 exhibits divided into the ethnological and the archaeological. Komi utensils and clothes, and archaeological artifacts from the Stone Age to the Iron Age, including a bonze ancient calendar of the Komi People are included in these exhibits. Anatolii D. Napalkov, C. Hist. S. is Director of the institute.

(Information provided by letter dated November 1991 from Deputy Director Iurii P. Shabaev.) (See: Ruble, Vol. III, p. 106.)



4. Economic and Social Problems of the North Institute of the Komi Scientific Center of the Urals Department in Syktyvkar was organized in 1988 from the Department of Economics of the Komi Subdivision of the AN SSSR, that had originally been founded in 1949.

Structure of the institute: the institute is organized into five departments:

the improvement of the regional economic mechanism Department; the social problems of the North Department;
the integrated economic problems Department;
the economic and social development of the agroindustrial complex Department, and
the systems research Department in Arkhangel'sk.

The staff numbers 54 researchers of whom four hold the doctorate and 21 hold candidate degrees. Director of the institute is Dr. Aleksandr I. Shchelokov, D. Tech. S.



5. Institute of Biology Komi Scientific Center Ural Branch of the Russian Academy of Sciences

Address: 28, Kommunisticheskaya str., Syktyvkar, 167610, Russia
Head: Taskaev Anatolyi Ivanovich
Phone: (82122) 2-52-98
Fax: (82122) 2-01-63

Founded: 1962

Employees: 320

6. Mathematics Department of the Komi Scientific Center of the Ural Branch of the RAS

Address: 24, Kommunisticheskaja str., Syktyvkar, 167610, Russia
Head: Gromov Nikolai Alekseevich
Phone: (82122) 25-298

Founded: 1993
Bashkir Scientific Center

Chairman: Tolstikov, Genrikh A., D. Chem S. Born in 1933. Academician of the General and Technical Chemistry Department of the AN SSSR from 1987; first Deputy Chairman of the Urals Department since 1988. Since 1977, he has been Director of the Chemistry Institute in Ufa. Established in 1960, it studies the methods of processing sulfur crudes into fuels. He has acted as Chairman of the Bashkir Affiliate since 1984.

Deputy Chairman: Kuzeev, Rail G., D. Hist. S. Deputy Chairman since 1979.



Research Institutes Subordinate to the Bashkir Scientific Center, by order of the date of establishment

1. Biology Institute in Ufa. No founding date in source. It does research on botany, Agricultural crops, woody species, and forest ecology. Its scientists participate in the development of national soil and forestry maps. Director Akhmetov, Radik R., D. Bio. S., since 1982. (See: **Ruble, Vol. I., p. 292.**)



2. Economic Research Department of the Bashkirtostani Scientific Center of the Urals Division in Ufa (1964). Established as a sector of economic research in 1951, the sector was designated a Department in 1952. In 1960, two Departments--industry and agriculture--were established from the economics Department and when the Bashkir Subdivision was disbanded in 1964, these Departments were merged again and became the Ufa Department of Economic Research that was made directly subordinate to the Economics Department of the AN SSSR. In 1968, when the Bashkir Subdivision was reestablished, the Economic Research Department was again assigned to it. Scientists of this department are engaged in research on oil, petrochemical and machine construction industries as well as on Agricultural development. Its scholars have worked closely with the GOSPLAN offices in the region in the past.

Structure of the Department: The “institute” is organized into 10 departments:

rates and proportions in social reproduction;
the fuel and energy complex;
efficiency in the siting of social production;
forecasting the production of food;
the economic mechanism in the agro-industrial complex;
systems analysis;
management of production;
problems of territorial management;
sociopolitical problems, and,
social development.

Dr. Khamid N. Gizatullin, D. Econ. S. is Director of the Department.

(See: **Ruble, Vol. I., p. 135.**)(See: **A Scholars’ Guide. . . .**)



3. History, Language and Literature Institute of the Bashkirtostani Scientific Center of the Urals Department in Ufa.

Established in 1951 when the Bashkir Subdivision first came into being. From 1964 to 1967, it was called the Ufa Institute of History, Language, and Literature of the AN SSSR. Institute Directors have included: M. Solianov (1932), G. S. Amantaev (1933-36), A. M. Tagirov (1936-37), A. N. Usmanov (1938-39), Kh. Kh. Khammatov (1939-41), Sh. Sh. Baikov (1941-42), A. N. Usmanov (1943-51), M. Ia. Iangirov (1951-52), Sh. I. Tipeev (1952-55), A. I. Kharisov (1955-63), Kh. S. Saiaranov (1963-79), and Kh. F. Usmanov (1980-88). Since 1988, the Director has been Dr. Z. G. Uraksin, D. Philolical S. This institute can claim S. I. Rudenko whose historico-ethnographic study republished in 1955 of the peoples of Bashkirskaiia (aya) ASSR initiated a series of significant scholarly contributions from other members of the institute. The institute reported on a series of systematic archeological investigations dating from the mid-1950s in Bashkiria. The institute publishes a journal *Arkheologiiia i etnografiia Bashkirii*. It maintains a major library with strong holdings in archeology, ethnography and linguistics.

Structure of the institute: the institute is organized into nine departments:

**peoples of the Southern Urals region,
archeology,
ethnography,
history of the prerevolutionary period,
history of Soviet society,
language,
dialectology and history of language,
literature, and folklore and art.**

The staff of the institute numbers 88 researchers of whom six hold the doctorate and 37 hold the candidate degree. Dr. Zinnur G. Uraksin, D. Philological S. is the current Head of the institute.(See: **Ruble, Vol. III., p. 112.**)



4. Chemistry Institute in Ufa. Established in 1969 from the Institute of Organic Chemistry of the Bashkir Branch of the USSR Academy of Sciences. The institute

studies methods of processing sulfur crudes into fuels. Scientific Personnel: Director Tolstikov, Genrikh A., D. Chem. S., since 1977. (GSE 28, p. 116.)



5. The Superplastic Metals Institute in Ufa was established in 1986.



Perm' Scientific Center

Director: Vacant

Vice President: Dr. Vasilii V. Moshev

Institutions under the Center:

1. Continuous Media Mechanics Institute in Perm was founded in 1980. It evolved from the former Polymer Physics Department of the Russian Academy of Sciences. Studies the physical and mechanical properties of polymers and composite materials, including methods of mathematical and physical modeling, flow mechanics of composite matter, and hydrodynamic processes of molten metals in a magnetic field. Its personnel totals some 200 persons of whom 120 are scientific researchers of whom 13 hold the doctorate and 53 the candidate degree. Research in the institute centers around two main areas: fluid mechanics and the mechanics of elastic solids. Various kinds of flow such as convection, transfer from laminar to turbulent states, the flow behavior at microgravity conditions, the generation of large-scale vortices like typhoons, flows of highly viscous liquids with extensive free surfaces, and flows of polymers accompanied by large elastic effects are objects of current research activity. Structural properties of complicated liquids such as magnetic fluids or highly filled suspensions are investigated too. The elastic solids studies cover material science investigations such as the influence of structural features of composite materials on their effective mechanical behavior and, structural analysis problems oriented to boundary problem solutions taking into account complicated properties of materials, intricate geometry of the bodies, static, dynamic and impact loading, self-induced and forced vibrations, and stability conditions. A new approach to computation called geometrical immersion method has been suggested for using in complex three-dimensional problems. These and other fundamental investigations have found industrial applications. Scientists in the institute have designed small-scale extruders for cattle mixed feed fabrication, and special installation for extrusion of Teflon sealing rings. They have suggested a new method of processing of metals with nano-grain structure. Many computer programs for the stress-strain analysis of construction are being used in industry.

Structure and Personnel: Director Professor Valerii V. Moshev, D. Chem. S., born in 1927, graduated from the Polytechnic Institute in Novotcherkassk (Rostove region) in 1949; until 1978, he worked in the industrial research Institute of Plastic Materials, receiving his candidate degree in 1958, his doctorate in 1965, and his professorship in 1968; in 1978, he joined the Perm Polymer Physics Department of the Academy of Sciences that, in 1980 became the Continuous Media Mechanics Institute of the academy; in 1986, he became Director of the institute; his scientific interests are in the field of particle-filled elastomers and plastics; he heads the micromechanics of structurally inhomogeneous media laboratory of the institute. Scientific Vice-Director: Dr. Valerii P. Matveenko, D. Chem. S., born in 1948, graduated from the Perm Polytechnic Institute in dynamic and strength of machines

and joined the Polymer Physics Department in 1972, receiving his candidate in mechanics of elastic solids in 1978 from the Moscow Institute of Electronic Engineering and his doctorate from that institute in 1987. He became Vice-Director of the Continuous Media Mechanics Institute in 1985. His scientific interests are in the analysis of stresses and strains in composite bodies of complicated shapes based on the finite element approach. He is also a member of the Urals Branch of the Russian Academy of Sciences. The institute is organized into 12 laboratories as follows:

- (1.) **The Physical Hydrodynamics Laboratory** under Professor Valerii D. Zimin, who was born in 1941, graduated from the Perm State University as a physicist-theorist in 1967, joining ICMM in 1971. He received his candidate degree on hydrodynamic stability from the Perm State University in 1971, and his doctorate on closed volume turbulent flows from the Novosibirsk Thermophysics Institute in 1985. He was appointed a professor at Perm State University in 1988. His scientific interests are in the generation of the large-scale structures in turbulent media and in the general theories of turbulence. Researchers in the laboratory study turbulence, turbulent convection, hydrodynamics of thin layers of fluid, large scale motions in atmosphere and oceans, optical methods in fluid investigations, and the evaluation of the stress-strain states in elastic solids.
- (2.) **The Hydrodynamic Stability Laboratory** under Vladimir A. Briskman, C. Chem. S., who was born in 1937, graduated from the Perm State University as a theoretical physicist-theorist in 1959, joined the Department of Polymer Physics in 1970, and received his candidate degree in fluid and gas mechanics from Moscow State University in 1977. His principal interests are in the hydrodynamics of heat and the mass transfer in microgravity problems and hydrodynamic stability. Researchers in the laboratory study hydrodynamic stability--including transition to stochasticity--gravitational and nongravitational mechanisms of heat and mass transfer, hydrodynamics in microgravity, and applications of these findings to space technology, oceanology, and ecology. V. Briskman is a member of the European Space Agency work group under the ESA-Russian agreement of 1990. A number of joint studies are underway with European institutes and universities.
- (3.) **The Dynamics of the Dispersion Systems Laboratory** under Aleksandr F. Pshenichnikov, who was born in 1946, graduated from the Perm State University as a physicist-theorist in 1969 --receiving his candidate degree in hydrodynamic stability from the Alma-Ata State University in 1978--and joined the Continuous Media Mechanics Institute in 1983. His interests are in the physical properties and hydrodynamics of solutions and suspensions. The laboratory researchers conduct experimental and theoretical investigations into the magnetic, optical and rheological properties of the magnetic fluids (ferrocolloids), and physical hydrodynamics.
- (4.) **The Kinetic of Anisotropic Fluids Laboratory** under Iurii L. Raikher, who was born in 1948, graduated from the Perm State University as a physicist-theorist in 1971, joining ICMM in that same year. He received his candidate degree in Solid State Physics from the Perm State University in 1974. His interest are in the statistical physics of suspensions. He is a member of the American Mathematical Society. Researchers in the laboratory focus on theoretical research--analytical calculations and numerical simulation--in the physics of orientable systems, and in Laminar and turbulent convection in Newtonian Fluids.
- (5.) **The Computational Rheology Laboratory** under Igor K. Berezin, who was born in 1947, graduated from the Perm Polytechnic Institute as a mechanical engineer in 1971, joined the institute in that same year, receiving his candidate degree in 1982 on the laminar flows of viscous liquids with expanded free surface from the Kazan Technological Institute. He belongs to the Russian Rheological Society. Laboratory scientists study rheology and equations of state of non-

Newtonian liquids (viscous, plastic, visco-elastic), mathematical modeling of polymer processing, and informational monitoring in natural environments.

- (6.) **The Physics of Fracture Laboratory** under Professor Oleg B. Naimark, who was born in 1950, graduated from the Perm Polytechnic Institute as a mechanical engineer in 1973, joining ICMM in 1976. He received his candidate degree on rheological properties of polymers from the Urals Polytechnic Institute in Ekaterinburg in 1977. He received his doctorate on kinetics of deformation and fracture of solids having cracks from the Tomsk Institute of Physics of Strength and Material Science. His scientific interests are in nonlinear physics and the mechanics of solids with defects, superplasticity, deformation and fracture of materials under high-energy influence, and phase transformations in solids. He is on the National Committee on Mathematical Modeling as well as on two Scientific Councils of the Russian Academy of Sciences. Laboratory scientists study high-energy influences on plasticity and strength of alloys, composites and ceramics.
- (7.) **The Micromechanics of Structurally Inhomogeneous Media Laboratory** under Institute Director Professor Valerii V. Moshev, whose interests are on the theoretical and experimental study of various internal micro-mechanisms determining the specific macroscopic behavior of particulate polymeric composites, on the integration of the individual models of structural mechanisms into the macroscopic model of mechanical behavior as well as on the transition from scattered microdamages to macroscopic fracture. Scientists in the laboratory are studying the basic structural damage micro-mechanisms in particulate elastomers and plastics, the irreversible stress softening, the specific permanent mechanical memory, the voids formation and the increase of volume compressibility under the action not only hydrostatic but also shear stresses--viewed as consequences of material damaging.
- (8.) **The Thermo-mechanical Phenomena in Visco-elastic Solids Laboratory** under Professor Valerii P. Matveenko, Vice-Director of the Institute for Science, has interests in numerical simulation of static vibrational processes in elastic and visco-elastic bodies as well as various stability problems. Laboratory scientists are working on the numerical solutions of boundary problems; numerical simulation of deformations processes, vibration, three-dimensional elasticity and inelastic stability; project optimization for machines and processes; thermo-mechanical modeling of polymeric materials undergoing polymerization and glassy transition, and, the interaction of acoustic waves with elastic solids.
- (9.) **The Impulse Deformation of Solids Laboratory** under Professor Valerii N. Aptukov, who was born in 1952, graduated from the Perm State University as a mechanical theorist in 1974, joining ICMM in 1978. He received his candidate degree in building mechanics from the Perm Polytechnic Institute in 1979, and his doctorate in elasticity theory from the Moscow Institute of Electronic Engineering in 1988. His main interests are in the development of models and methods for numerical analysis of impulse deformation and the fracture of solids. Laboratory scientists are developing mechanical models for complex media based on phenomenological thermodynamics with internal state variables. Damage growth in metals under various impulse loadings (impact, explosion, electromagnetic radiation), deformation of porous metals under impact compression, non-isothermal non-equilibrium crystallization in polymer melts are also being studied.
- (10.) **The Nonlinear Mechanics of Elastic, Elasto-Plastic and Visco Elastic Solids Laboratory** under Anatolii A. Rogovoi, who was born in 1944, graduated from the Perm Polytechnic Institute as a mechanical engineer in 1970, joining ICCM in 1971. He received his candidate degree on elastic bodies mechanics from the Moscow Institute of Electronic Engineering in 1976. His main interests are in the development of mechanical constitutive relations for elastic and elasto-plastic materials and the numerical solutions development applied to the

domain of finite deformations. Laboratory scientists are working on the development of constitutive equations and functionals for slightly compressible and incompressible elastic materials undergoing finite deformations., making use of the generalized elasticity modules.

(11.) The Thermoplastics Mechanics Laboratory under Professor Evgenii V. Slavnov, who was born in 1942, graduated from the Perm Polytechnic Institute as a mechanical engineer in 1964, joining ICMM in 1972. He received his candidate degree in the technology of metals processing from the Urals Polytechnic Institute (Ekaterinburg) in 1973 and his doctorate in thermoplastic processing from the Moscow Institute of Chemical Physics in 1990. His interests are in physical and mathematical modeling of thermoplastic mechanical processing. Laboratory scientists are studying the mechanical aspects of polymer processing, including hydro-extrusion in solid state, extrusion by the single- and two-screw extruders, plunger extrusion and the spraying process accounting for hydro-mechanical, thermal, and rheological effects.

(12.) The Physical-Mechanical Properties of Polymeric Materials Laboratory under Professor Gennadi B. Kuznetsov, who was born in 1939, graduated from the Kuibyshev Building Institute as a building engineer in 1961, joining the ICMM in 1971. He received his candidate degree on building mechanics problems from the Perm Polytechnic Institute in 1969, and his doctorate on the mechanics of elastic solids from the Moscow Institute of Electronic Engineering in 1991. His interests are in studying the experimental and theoretical material properties as well as the mechanical behavior of constructions under various static and dynamic loadings in a wide temperature range. Laboratory scientists test the mechanical properties of materials and constructional elements under static, cyclic and vibrational loadings in a wide range of temperature and operating conditions.

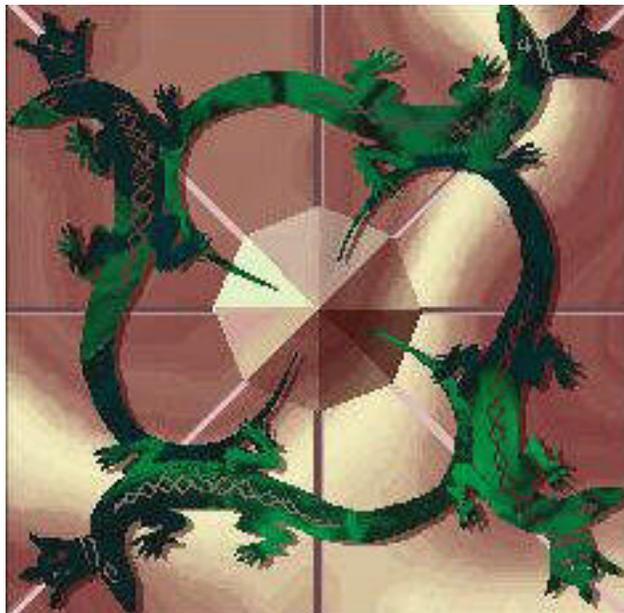
(Information provided in a letter dated November 12, 1991 from the Director of the Institute Professor V. V. Moshev. Additional materials on the 12 laboratories of the institute were sent January 4, 1992 by Professor Moshev.)



2. History, Language, and Literature of Udmurtia Institute of the Perm'

Scientific Center of the Urals Department in Izhevsk was established in 1988 when the Scientific Research Center under the Council of Ministers of the Udmurt ASSR was transferred to the Russian Academy of Sciences system. Structure of the institute: The institute has five Departments: history; archeology; ethnography; literature and folklore, and linguistics. Its staff numbers 56 researchers of whom one holds the doctorate and 19 hold candidate degrees. The institute has relations with institutes in Finland and Hungary. Archeological items in the archives number 400,000 items as well as important manuscript files of expeditions and unpublished works. Kuz'ma I. Kulikov, C. Hist. S. is Director of the institute. **(See: A Scholars' Guide. . . .)**





Symbol used on Chelyabinsk Homepage on the net

**CHELYABINSK SCIENTIFIC CENTER 454000
(1997 update)**

**THE CHELYABINSK SCIENTIFIC CENTER OF THE RUSSIAN
ACADEMY OF SCIENCES URAL BRANCH**

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The formation of the Chelyabinsk Scientific Center (CSC) was begun on the strength of a number of resolutions by the administrative organs of Chelyabinsk oblast, the Executive Board of the Urals Branch of the Russian Academy of Sciences (UB RAS), and the State Committee of Higher Education of the RF from 1991-1993.

In 1995, the Executive Board of the UB RAS formed and ratified the General Assembly of the CSC UB RAS. The General Assembly is the Center's highest managing body. In the same year, the General Assembly, in accordance with its charter, elected the Executive Board of the Center to manage the everyday work. In 1996, the Scientific Councils were organized under the direction of the Executive Board. The members which compose the Scientific Council are leading scientists in their fields from Chelyabinsk oblast.

The Center was established for the purposes of developing fundamental research and solving scientific and technical problems to further the socio-economic development of Chelyabinsk oblast and the national economy.

In order to achieve these goals, the Scientific Center is, in accordance with its charter, implementing the following activities:

assisting in carrying out fundamental research and the preparing a highly-qualified scientific cadre;

coordinating the research of regional programs and those scientific projects which are geared toward socio-economic regional and national development;

the coordination of research and cooperation between member scientific institutions and between member and branch scientific-research institutions involved in solving fundamental and applied problems;

integrating science, education, and industry;

drawing up a strategy for scientific-technical progress;

organizing scientific and scientific-technical councils, commissions, structural groups to cope with composite, regional, interuniversity, and intergovernmental problems, and, if necessary, establishing temporary scientific collectives to solve problems which may arise;

the organization and conducting of expertise and consultation in the spheres of conservation, the regional use of natural resources, and the development of industrial strength in the region;

providing information support to the organizations of the Scientific Center.

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