INTERNATIONAL SCIENCE AND TECHNOLOGY CENTER

ANNUAL REPORT [2000]

CONTENTS

ISTC IN BRIEF

NONPROLIFERATION THROUGH SCIENCE COOPERATION

The objectives of the ISTC are to:

- Provide weapons scientists in the CIS the opportunity to redirect their talents to peaceful activities
- Support basic and applied research and technology development
- Contribute to the transition to market-based economies
- Foster the integration of scientists and engineers from CIS states into the global scientific community
- Contribute to solving national and international technical problems

The International Science and Technology Center (ISTC) was established by international agreement in November 1992 as a nonproliferation program to provide peaceful research opportunities to weapons scientists and engineers in Commonwealth of Independent States (CIS) countries. The Center continues to expand its capabilities, coordinating the efforts and resources of numerous member governments, public and international organizations, and private industry. Many ISTC programs and activities support other nonproliferation initiatives. The ISTC retains its central role in the nonproliferation of weapons technologies and through this contributes to global security.

STATEMENT FROM THE EXECUTIVE DIRECTOR

Prof. Dr. Michael Kröning was born in Weixdorf/Dresden, Germany, and received his Ph.D. in experimental nuclear physics from the Johannes Gutenberg-University in Mainz in 1974. Dr. Kröning has held positions of Research Scientist at the Max Planck Institute for Chemistry, and headed quality assurance research at Siemens AG – Kraftwerk-Union in Erlangen. In 1990, he was appointed Director of the renowned Fraunhofer-Institut for Nondestructive Testing IZFP and named Professor at the University of Saarbrücken as Chair of Nondestructive Testing and Quality Assurance. He was member of the German Reactor Safety Commission RSK until 1999.

His professional memberships include the scientific advisory board of the German Society of Nondestructive Testing, Chairman of the advisory board of Q-Net GmbH. Dr. Kröning is an Honorary Fellow and Professor at several societies and universities in the Russian Federation and India.

It is my pleasure to address the ISTC community in this latest Annual Report. Since October, I have been honored to accept the invitation of the ISTC Governing Board to the position of Executive Director. From my first acquaintance, I have been very impressed with the ISTC, its mission, and the dedication of the Parties' representatives and Center staff who work to strengthen international scientific cooperation in its many forms. The ISTC's most recent Executive Director, Dr. Alain Gérard, whom I am replacing, deserves a special mention for the great care and devotion he has shown in bringing the ISTC into the forefront of scientific organizations. The Center demonstrates the efficiency and broad-based support of a mature organization.

The Center's focus on international scientific cooperation to meet its nonproliferation goals has provided a diverse range of activities and programs that enjoin scientists from across several continents. In 2000, the Center's project funding nearly doubled compared to the previous year. Partners and international organizations are adding their resources to the ISTC because they recognize the benefits of working through a Center that has a clear history of trust and confidence. In 2001 and beyond, the ISTC will work to build on its achievements, becoming a center of excellence in its operations and scientific activities.

It is important that the Center be recognized not only for its promotion of world security through nonproliferation, but also as an excellent platform for the contributions of Russian and CIS scientific talent to international scientific progress. In this way, the world community can best benefit from the scientific knowledge and innovation that are present in so many aspects of our daily lives.

In closing, I wish to thank the ISTC Governing Board for the trust they have placed in me, and all of the ISTC supporters — especially the staff members in the Moscow Secretariat and Branch Offices — who work tirelessly to promote the international scientific cooperation that embodies the ISTC.

MICHAEL KRÖNING

STATEMENT FROM THE CHAIRMAN

OF THE ISTC GOVERNING BOARD

Dr. Ronald F. Lehman II, the Chairman of the Governing Board of the ISTC, is the Director of the Center for Global Security Research at Lawrence Livermore National Laboratory. Previously he was the Director of the U.S. Arms Control and Disarmament Agency, Assistant Secretary of Defense, Chief START Negotiator, and Deputy Assistant to the President of the USA. In 1995 he was named to the President's Advisory Board on Arms Proliferation Policy.

The Year 2000 marked a new century; the Year 2001 heralds a new millennium. As measures of time, these increments are far too large for any organization as young as the ISTC. Not even ten years have passed since the basic agreement calling for creation of the ISTC was signed. Also, the past century and the past millennium stand above the comparable periods before them in the expansion of science and technology. Yet, in some technical disciplines, more has been accomplished in the last ten years than in the previous one hundred years and more in the last one hundred years than in the previous one thousand years. Thus, the ISTC can rightly join in the celebration of these symbolic milestones on the basis of its own recent achievements in world class technology. Indeed, cooperation in science for peace is a perfect theme for the new century and the new millennium.

The ISTC was established in full recognition of the fact that technology can be used for war or for peace. In this age, in which weapons of mass destruction were invented, the ISTC is a unique organization committed to the nonproliferation of such weapons through cooperative science. In the short period of its existence, the ISTC has created a number of tools to achieve its objectives. In some cases, it funds scientists directly to assist them in applying to civilian use skills originally developed for the military. In other cases, the ISTC provides training and travel to facilitate the advance of basic science. In yet further cases, especially through its Partner Program, the ISTC creates opportunities for the development of products that can be commercialized. The ISTC even funds research in support of arms control monitoring and verification. The ISTC continues to create new tools and to increase its efforts as support has expanded. All of this is possible because the ISTC serves the interests of all its members.

As an organization, the ISTC has demonstrated a new, focused model for intergovernmental cooperation. It has not lost sight of its mission, nor has it lost its energy. Expansion of membership and projects has not been at the expense of vitality. The Secretariat continues to seek ways to implement best practices itself and to encourage best practices in all projects funded. Maintaining this efficiency and effectiveness requires that the ISTC always be a transparent organization. Oversight by the Governing Board, self-inspection, independent audits of the Secretariat, and peer review all contribute to sustaining strengths and identifying weaknesses.

The ISTC operates by consensus, but this has not prevented timely, decisive action. Real economic, political, and social challenges face all participants, but common

challenges have thus far permitted the bridging of differences. This is a remarkable accomplishment given the geographical span and cultural diversity reflected within this small organization. Much of this success must be attributed to the goodwill of the Parties, but much credit must also be assigned to the very fine staff that has been assembled within the Secretariat and within the support structures of the Parties. Teamwork has continued to grow.

Even the best team, however, requires leadership. From February 1997 until October 2000, the ISTC was privileged to have Dr. Alain Gérard as its Executive Director. Alain was one of the true founders of the ISTC, having served since 1993. Much of the strength of the ISTC resulted from his personal efforts. Many of the bold initiatives such as the Partner Program, the increase in Branch Offices, the modernization of administration and management, and the expansion of scope to include biological and chemical weapons technologists would not have been possible without his leadership. The excellence to be found in the ISTC is a reflection of his own personal excellence. Alain Gérard has earned the right to return to science to contribute in yet more ways to the advancement of mankind. The ISTC is fortunate to have as its new Executive Director, Prof. Dr. Michael Kröning, who brings with him immense experience in international science cooperation and a strong sense of how to help scientists commercialize technology. Moreover, he has demonstrated a strong commitment to best practices and to meeting the highest international standards.

ISTC projects continue to advance public health, energy, the environment, and international security for all the Parties. Both the public and private sectors continue to benefit from projects supported by the ISTC. On behalf of all members of the Governing Board, I wish to express our appreciation to the Parties, to their delegations, and to our ISTC staff in Moscow and the Branch Offices for their personal sacrifices and for their superb performance.

RONALD F. LEHMAN II

2000 OVERVIEW

The Center, which began operations at its Moscow headquarters in early 1994, continues to consolidate its central role in nonproliferation – coordinating the resources and talents of numerous governments, national and international laboratories, and public and private sector organizations to provide CIS weapons scientists with material and logistic support for their peaceful research projects. All ISTC activities and programs encourage the integration of CIS scientists into the international community.

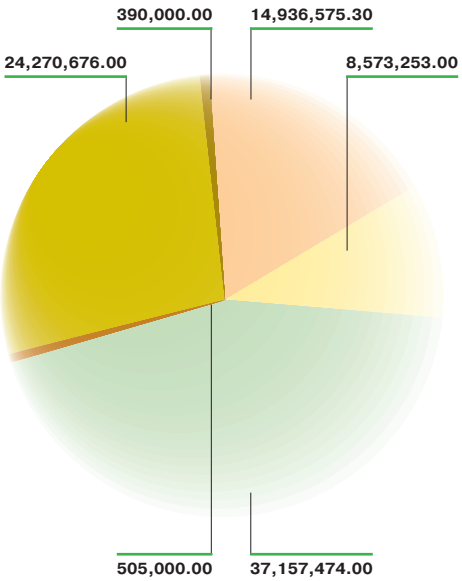
Accomplishments

- $61.8 million in new funding for 237 projects through the Science Project Program; $24.1 million for 76 projects through the Partner Program. Areas receiving special emphasis in 2000 include: environmental monitoring and remediation; biotechnology research; disposal and safeguarding of nuclear materials; efficient power production.
- Direct grant payments to 21,275 scientists and their team members at 400 CIS institutes in 2000, amounting to $26.8 million. Total redirection supported by the ISTC in 2000 equivalent to 5,670 full-time person-years.
- Addition of 31 new Partner organizations, bringing the total of ISTC Partners to 98. Partner projects have contributed over $41 million to project funding since program inception.
- Visit by the ISTC Governing Board to Georgia for its 22nd meeting and for discussions with President Shevardnadze. Opening of a new ISTC Branch Office in Tbilisi.
- Three scientific seminars and nine workshops and separate events dedicated to promoting ISTC technical excellence and opportunities for participation in Center programs.
- Expanded Business Management Training courses for 280 project participants in seven (7) cities throughout the CIS.
- Funding for travel support to over 1,590 scientific team members, who participated in conferences and technical meetings to enhance foreign participation in the development and execution of ISTC projects.

In November 2000, the ISTC Parties completed the "Year 2000 Review of the ISTC," confirming their continuing commitment to the Center's goals and objectives. The Parties recognize that the ISTC is now a mature organization and effective platform from which solutions to national and international technical problems can be explored and organized. Efficiency, transparency, and accountability are the foundations of ISTC progress in nonproliferation.

2000 FINANCIAL SUMMARY

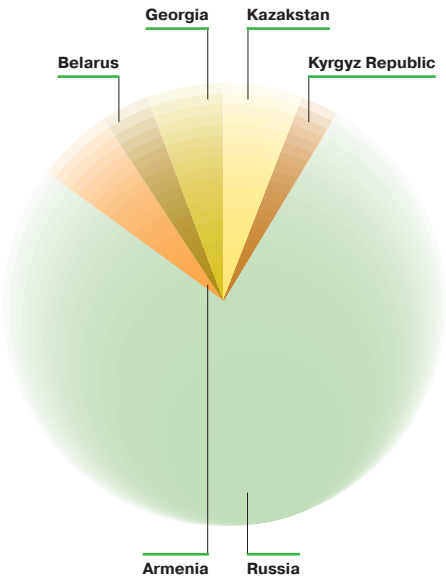
To fulfill its nonproliferation mission, the ISTC Parties, Partners, and project Collaborators contribute financial, in-kind, and human resources to the Center. These resources are used to engage weapons scientists and technical team members in peaceful scientific projects through the Science Project and Partner Programs. Additionally, the European Union, Japan, United States, Norway, and the Republic of Korea contribute to the Center Administrative Operating Budget and other ISTC programs that support nonproliferation. For detailed information, refer to the audited Financial Statements.



NEW PROJECT FUNDING BY SOURCE

- EU [17.40%]
- Japan [9.99%]
- USA [43.29%]
- Rep. of Korea [0.59%]
- Partner [28.28%]
- Other [0.45%]

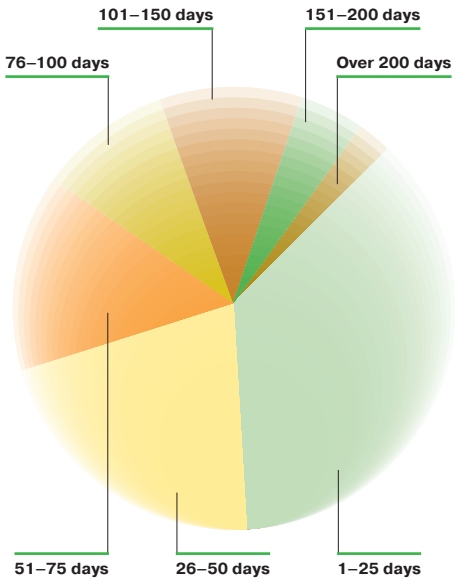
New Funding Total:
US$85.83 M



NEW PROJECT FUNDING BY LOCATION OF LEAD INSTITUTE

- 18 projects
- 11 projects
- 17 projects
- 20 projects
- 9 projects
- 238 projects

New Projects Total:
313 projects



DAYS REDIRECTED TO ISTC PROJECTS IN 2000

- 7,716 people
- 4,436 people
- 2,959 people
- 2,372 people
- 1,994 people
- 1,222 people
- 576 people

Total: 21,275 people

The ISTC paid 21,275 project participants US$26,848,000 in grant payments for a total of 1,247,613 person-days of effort on ISTC projects in 2000.

EVENTS 2000

MARCH

On the occasion of the 21st Governing Board, ISTC Party delegations visited the State Enterprise "Krasnaya Zvezda" (Red Star) in Moscow, for visits to its scientific laboratories. The ISTC Party delegations were honored to be received at a reception hosted by the Ambassador of Japan to the Russian Federation, His Excellency Minoru Tamba, at his residence.

APRIL

The ISTC welcomed Deputy Minister of Emergency Situations Faleev for discussions on Ministry participation in developing new ISTC projects, and utilization of project results in applications of assistance to the Ministry.

JUNE

The ISTC received confirmation from the Ministry of Foreign Affairs of the Kyrgyz Republic of the accreditation of the ISTC Branch Office located in Bishkek. The Executive Director visited Bishkek to evaluate Kyrgyz Branch Office operations.

The ISTC conducted the Scientific Advisory Committee seminar "Towards More Efficient Utilization of Research Results from Russian/CIS Research Institutions."

The ISTC co-sponsored and co-chaired the 10th International Conference "Laser Optics-2000" in St. Petersburg.

Governing Board members meeting with President Shevardnadze

Branch Office agreement signing in Tbilisi

At the invitation of the Government of Georgia, the 22nd Governing Board was held in Tbilisi. The Governing Board was honored to be received by the Georgian President Shevardnadze at his residence. Among other events, the ISTC Party delegations visited the Institute of Cosmic Facilities and the Institute of Stable Isotopes, to review progress in ISTC project activity.

JULY

The Executive Director visited The European Center for Nuclear Research in Geneva for signing two new Partner projects, and for general review of ISTC–CERN activity.

AUGUST

ISTC hosted the Mayor of Serpukhov N. Adushev and his staff involved in cooperation on ISTC project activity.

SEPTEMBER

The ISTC participated in meetings with European Commissioner for Research Philippe Busquin at the Ministry of Atomic Energy in Moscow. Commissioner Busquin was briefed on EU activities within the framework of the ISTC, and reviewed bi-lateral EU-Russia progress in science cooperation.

The ISTC welcomed the President of the National Center for Scientific Research of Iran for discussions on ISTC activities and goals.

OCTOBER

The ISTC welcomed Prof. Dr. Michael Kröning as its new Executive Director, succeeding Dr. Alain Gérard, who has served in this position since February 1997.

With ISTC support, the Armenian Academy of Science organized the seminar "Conversion of Scientific Research in Armenia in the Framework of ISTC Activity" in Yerevan, with the participation of Armenian and international scientists.

NOVEMBER

On the occasion of the 23rd Governing Board, the ISTC Party delegations were honored to be received at a reception hosted by the Ambassador of France to the Russian Federation, His Excellency Claude Blanchemaison, at the Embassy in central Moscow. The event recognized the contribution to the ISTC of its former Executive Director, Dr. Alain Gérard.

The agreement establishing a Branch Office of the International Science and Technology Center in Georgia was signed by Deputy Minister of Foreign Affairs Z. Chumburidze and the ISTC Executive Director.

The ISTC Executive Director visited the European Center for Nuclear Research in Geneva for overview discussions on joint ISTC–CERN activities.

French Ambassador Blanchemaison and Japanese Ambassador Tamba welcome ISTC delegations at embassy receptions in Moscow on the occasions of the March and November Governing Board meetings

ISTC Executive Director and Vice-President of the Academy of the Sciences of Belarus P. Vitiaz opening the new ISTC premises

DECEMBER

The ISTC welcomed a delegation from the Committee on Franco-Russian Scientific and Technological Cooperation, including members of the Ministry for Research, Ministry of National Education, Ecole Polytechnique, and the Embassy of France in Moscow.

The ISTC Executive Director visited the Republic of Belarus for meetings with the Vice Prime Minister M. Demchuk, and to sign the agreement providing additional premises for the ISTC Branch Office at the Stepanov Institute of Physics in Minsk.

The ISTC hosted a US congressional delegation led by Senator Richard Lugar, for visits to several ISTC supported institutes and participation in a round-table review of cooperation in biotechnology.

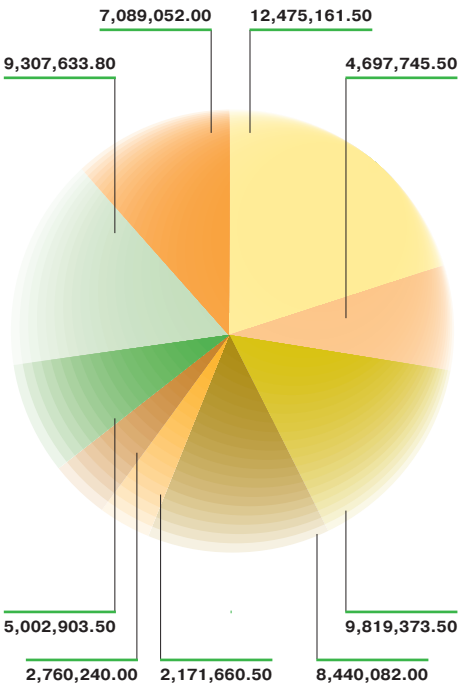
Senator Lugar and ISTC Deputy Executive Director – United States, R. Beatty are welcomed to the Institute of Molecular Diagnostics and Therapy

ISTC PROGRAMS

SCIENCE PROJECT PROGRAM

The Science Project Program is the most comprehensive nonproliferation activity conducted by the ISTC. Through this program, the ISTC solicits scientific project proposals from institutes throughout the CIS and provides funding and logistic support to project teams. Project teams receive written concurrence from the host country on whose territory their research will be conducted, and then develop and execute their project with foreign collaborating organizations. Foreign collaborators ensure the project goals contribute to the state-of-the-art in the field, and that results will find applications to real problems in basic and applied research. The ISTC has funded hundreds of project teams through this program and directed the efforts of over 30,000 CIS researchers to peaceful science.

Terms for participation in the ISTC Science Project Program are codified in binding Project Agreements signed by the ISTC and CIS institute management. Based on the Project Agreement, grant payments and equipment for project research are provided free of taxes and import duties to the CIS scientific teams. Project Agreements also stipulate terms for monitoring and auditing of the project and site, to ensure adherence to the financial and technical goals set out in the Agreement. The ISTC Secretariat and Parties' representatives regularly participate in monitoring project progress.



FUNDING BY TECHNOLOGY AREA IN 2000

- Biotechnology and Life Sciences [20.2%]
- Chemistry [7.6%]
- Environment [15.9%]
- Fission Reactors [13.7%]
- Information and Communications [3.5%]
- Instrumentation [4.5%]
- Materials [8.1%]
- Physics [15.1%]
- Other [11.5%]

New Funding Total, Science Project Program: US $61.76 M

Activity in 2000

- Four hundred fifty (450) new project proposals were registered at the ISTC Secretariat.
- Projects were reviewed and approved at three (3) ISTC Governing Board meetings, allocating $61.76 million to 237 projects.
- Over 250 technical on-site monitoring visits were conducted by ISTC Secretariat staff and members from the ISTC Parties; over 200 projects in 300 CIS institutes were subject to financial audits.
- 21,275 scientists and their technical team members were paid for at least one day of activity on ISTC projects; average number of days team members worked on an ISTC project: 59

FULL-TIME JOB CREATION IN KAZAKSTAN FROM ISTC PROJECTS

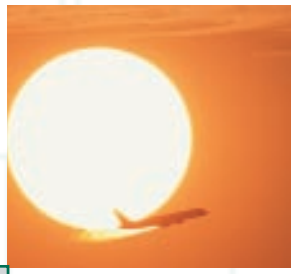
In a letter to the ISTC Executive Director, Ulba Metallurgical Plant (UMP) Executive Director Boris A. Kuznetsov announced several recently concluded multi-million dollar commercial contracts to supply beryllium-based materials to foreign customers. Deliveries, valued at approximately $10 million, will begin in 2001 to customers in Russia, Germany, and the United States. Further, he informed that annual deliveries could grow to $20–30 million in coming years.

The conversion of UMP beryllium production to commercial beryllium-based materials was made possible through a series of ISTC projects K-040 begun in 1996 totaling over $4 million. The projects provided for the development of new technologies for the production of beryllium content materials, and the application of modern laboratory equipment to analysis and quality control of new alloys. The UMP testing laboratory in Kazakstan is now certified to an ISO 9002 standard. Additional project resources were used to create a medical database on health effects for workers in beryllium production.

In a separate announcement from its company headquarters in Cleveland, Ohio, USA, Brush Wellman, Inc. President William Seelbach confirmed several long-term agreements with a grouping of Kazak companies including the Ulba Metallurgical Plant for the delivery of copper-beryllium alloys and other beryllium content materials.

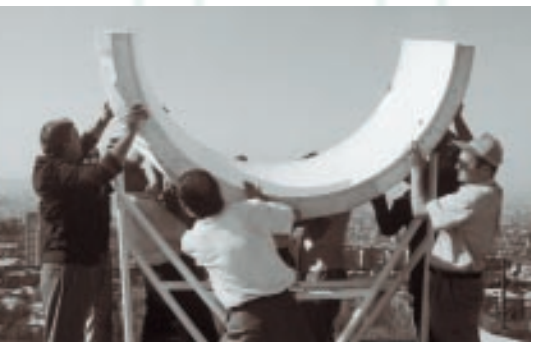
"The ISTC project resulted in the creation of 150 new full-time jobs at UMP, and allowed us to redirect technologies and production from the military complex of the former USSR to world market demands."

Boris Kuznetsov — Executive Director
Ulba Metallurgical Plant



PARTNER PROGRAM

The Partner Program provides opportunities for private industry, scientific institutions, and other governmental or non-governmental organizations to fund research at CIS institutions via the ISTC. Partners benefit from the ISTC infrastructure which permits tax-free direct payments to CIS project teams and duty-free import of project equipment. CIS institutes and project teams benefit from their close cooperation with foreign Partners and the application of their technical skills to important and current scientific and industrial problems.



Antenna system for real-time data and video transmission, installed in Armenia as part of ISTC Project #A-135

Summary of Advantages available to ISTC Partners:

- Established ISTC project management infrastructure
- Exemption from all taxes and customs duties on payments and imports
- Direct payments in US$ to project scientists
- Financial control and regular audits, in compliance with GAAP
- Project agreements stipulating rights and privileges of the Partner and Institute
- Host government support and pre-approval for projects
- Strict protection of business confidential information

New Partner organizations are introduced to the ISTC by the ISTC Party on whose territory the Partner is located. Full information on becoming an ISTC Partner is available from the Parties, ISTC Secretariat, and is located on the ISTC website.

Activity in 2000

- Thirty-one (31) new Partner organizations joined the ISTC; total Partners at the end of 2000: 98.
- Seventy-six (76) Partner projects representing $24.1 million were approved for funding. Total Partner contribution since program inception exceeds $41 million.

NEW ISTC PARTNERS IN 2000

- Air Products and Chemicals, Inc., Allentown, PA, USA
- Antibody Systems, Inc., Hurst, TX, USA
- Arch Chemicals, Inc., Norwalk, CT, USA
- BASF, Ludwigshafen, Germany
- Boeing Company, Long Beach, California, USA
- Boston Laser Incorporated, Norwood, MA, USA
- COGEMA, Velizy, France
- Crompton Corporation, Greenwich, CT, USA
- DERA/Winfrith Technology Centre, Winfrith Newburgh, Dors, UK
- DFS German Air Navigation Services, Offenbach am Main, Germany
- DSM Research, Geleen, Netherlands
- EEV Ltd., Cheimsford, UK
- EVOTEC BioSystems AG, Hamburg, Germany
- Forschungszentrum Julich, Julich, Germany
- Fraunhofer Gesellschaft, Munich, Germany
- ITAC Ltd., Tokyo, Japan
- Japan Nuclear Cycle Development Institute, Ibaraki, Japan
- National Aeronautics and Space Administration, Washington, DC, USA
- NGK Insulators, Ltd., Tokyo, Japan
- PPG Industries, Inc., Allison Park, PA, USA
- RedZone Robotics, Inc., Pittsburgh, PA, USA
- Samsung Electronics Co., Ltd./ Samsung Advanced Institute of Technology, Yongin City, Korea
- Shell International Exploration and Production B. V., Rijswijk, Netherlands
- Sumitomo Corporation, Tokyo, Japan
- Taiyo Yuden Co., Ltd., Gunma-Gun, Japan
- Technology Development Company/ Moscow Representative Office, Moscow, Russia
- Tokyo Electric Power Company, Tokyo, Japan
- Transmutation Technologies, Inc., Tacoma, WA, USA
- US Department of Energy/Initiatives for Proliferation Prevention Program, Washington, D.C., USA
- US Department of Energy/Office of Civilian Radioactive Waste Management, Washington, D.C., USA
- US Department of Health and Human Services, Rockville, MD, USA

PARTNERS IN ENVIRONMENTAL AND PERSONNEL SAFETY

A newly agreed Partner project (#1815) addresses the safety and storage of liquid radioactive wastes. Water-jet abrasive cutting technology, developed by scientists at VNIITF in Snezhinsk will be combined with the robotic systems of US Partner RedZone Robotics to analyze storage conditions at the Mayak fuel reprocessing plant and to develop concepts for accelerated tank clean-up. Results from the project are planned to be used for a commercial joint venture, removing personnel from dangerous or complex clean-up procedures.

"This project expands our boundaries for markets and technical resources. Since RedZone is a small business founded and managed by technologists, we simply could not undertake this project without the ISTC."

Todd Simonds — Chair and President
RedZone Robotics, Inc.

BIOLOGICAL AND ECOLOGICAL SAFETY SCIENTISTS RECEIVE $1.2M IN NEW PROJECT FUNDING

The ISTC and the State Research Center for Applied Microbiology in Obolensk, Russia (SRCAM) announced over $1 million in new funding for SRCAM scientific research. The announcement was made at the conclusion of an international workshop meeting on "Biological and Ecological Safety," during which participants addressed new directions for research, and examined the 5-year relationship in cooperative science between the ISTC and SRCAM.

The $1.2 million in funding will be provided to SRCAM by two new projects through the ISTC Partner Program. The ISTC Partner organizations — United States Department of Agriculture and Cooperative Threat Reduction Agency — who are providing the funding, will use the ISTC infrastructure to provide grant payments to the SRCAM scientists, procure equipment for the projects, and monitor progress in meeting project milestones. To date, the ISTC has committed over $6 million in total to funding 34 scientific projects at SRCAM, in such areas as public health, immunology, genetics, and microbiology. SRCAM scientists are among the most actively supported by ISTC project activity.

"Cooperation on ISTC projects provides an outstanding example of the redirection of the science center in Obolensk. Our 5-year experience has validated the earlier decision taken during a critical period to support Russian science through the ISTC. Most importantly, we have demonstrated that the most complex biological and ecological concerns — such as protection from infectious diseases and biological terrorism — can be successfully addressed only through joint efforts by the specialists of different countries."

Dr. Nicolai Urakov —
General Director SRCAM

PARTNERS IN NEW MATERIALS

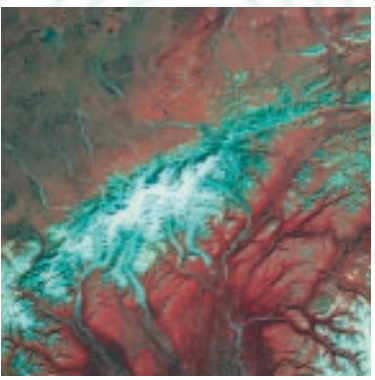
As follow-on to ISTC project #0796, the Institute of Metals Superplasticity Problems in Ufa, Russian and General Electric have agreed a new ISTC Partner project for sophisticated methods in titanium alloy processing. Developments under this project could find applications in civil aviation and aerospace — reducing manufacturing steps and ensuring greater engine reliability.

"Our research teams have made significant technical progress on these ISTC projects — with advances well beyond what either Partner was positioned to achieve independently. The ISTC is an invaluable resource for industry interested in innovation in the CIS."

Dr. Paul S. Follansbee —
Laboratory Manager
Physical Metallurgy Laboratory
General Electric Corporate
Research and Development Center

SEMINAR PROGRAM

The ISTC organizes and conducts seminars toward heightening the awareness of CIS scientific potential and improving the cooperation between foreign and CIS scientists. Seminars strengthen ISTC project proposals through technical exchanges at the earliest stages of proposal development. Seminar topics are of broad technical interest and support the objectives of the Center and of other international nonproliferation initiatives.



Activity in 2000

3rd SAC Seminar: Towards More Efficient Utilization of Research Results from Russian/CIS Research Institutions

DATE: 19–23 June
PLACE: Volga River, on cruise ship "Kronstadt"
BUDGET: $50,000

The 3rd SAC Seminar compared the approaches used in the ISTC member-states for solving the problem of utilization of research and development results. Seminar sessions were devoted to the issues of national policies covering the role of public research centers, current status of utilization of research results from Russian and CIS Institutes, and experiences of research results transfer from public research centers to industry applications.

SAC Seminar participants on the Volga River

CERN-ISTC: CRYSTAL CLEAR SUCCESS

The European Center for Nuclear Research (CERN) — the ISTC's first Partner organization — in 2000 has the distinction of funding the single largest project through the ISTC. Partner Project #1718 funding of $8.7 million builds on the early technology demonstration projects that developed new-generation dense scintillation crystals for high-precision particle detectors. This new project will provide for the production of 30,000 crystals for delivery to CERN, and the joint testing and certification by CERN scientists and their colleagues from JSC Bogoroditsk Plant of Technochemical Products in Russia, and the Scientific Research Institute of Nuclear Problems in Belarus. In all, over 500 CIS physicists and technical team members are involved in the project activity.

To further assist the project scientists, CERN initiated "Crystal Clear Collaboration" to organize spin-off activities and assist in technology transfer. The scintillation crystals have promising applications in medical diagnostic imaging using tomograph scanners. CERN, the ISTC, and the Bogoroditsk plant will — through a new series of ISTC projects — explore the medical uses of the crystals produced by this international collaboration.

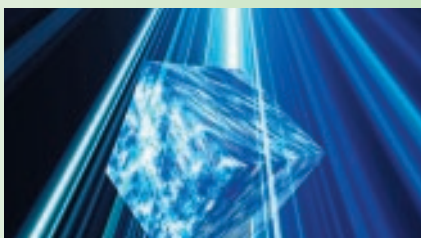
One of the sessions was dedicated to the ISTC approaches to the valorization of its project results. ISTC representatives presented an overview of the general principles of the "technology-push" activity and its implementation. About 100 participants from over 15 countries attended the Seminar. An important result was engaging a diverse audience in discussions of the problems of ISTC technology commercialization. Several Secretariat staff have maintained their contacts with participants from other organizations, continuing the constructive dialogue. Industry participants were afforded the opportunity of becoming more closely acquainted with the ISTC bodies and individuals representing them.

10th International Conference "Laser Optics-2000"

MAIN ORGANIZER:	Research Institute for Laser Physics
DATE:	26–30 June
PLACE:	St. Petersburg
BUDGET:	$20,000 (ISTC co-sponsor)

Laser Optics-2000 was an international meeting of the laser community, providing a forum for presentations on all aspects of lasers, quantum electronics, and laser applications. In the course of LO2000, participants visited the accompanying exhibition "Window to the Future" – a Symposium on High Power Fiber Lasers and their Applications and the First International Conference on Laser Optics for Young Scientists.

The ISTC chaired a Workshop session with a general overview on ISTC laser related projects and on achieved results. Sixteen papers were presented and discussed. LO2000 and the ISTC Workshop have offered unique opportunities for Russian scientists, including those involved in former Soviet weapons programs, to meet their colleagues from abroad to evaluate their interest and chances for further joint collaboration.



EUROPEAN AND RUSSIAN EXPERTS ADVANCE RE-ENTRY TECHNOLOGY

On 09 February, the first test of a new type of re-entry shield was successfully completed following launch on the Russian Soyuz Fregat rocket from the Baikonur Cosmodrome. The Inflatable Re-entry and Descent Technology (IRDT)— developed through ISTC Project #1469 by the Babakin Center (formerly NPO Lavochkin) near Moscow — is intended to replace bulky re-entry heat shield and parachute systems in recovering flight experiments.

The new shield and test were jointly funded by the European Space Agency, the aerospace consortium Astrium, and the European Commission. Total project cost was $1.8 million, with the ISTC project team from the Babakin Center receiving $1.35 million for their contributions. Based on the test success, two new ISTC projects on IRDT were signed in December.

"ESA, the European Commission, and Astrium agreed on a joint financing package in very little time. We all agreed last summer on this and we are flying in February. That is quick turnaround in this industry. The ISTC was instrumental in helping us meet this schedule."

Dr. Dieter Kassing — IRDT Project Lead
European Space Agency

IRDT is intended to replace bulky re-entry heat shield and parachute systems in recovering flight experiments

CIS Seminar: Conversion of Scientific Research in Armenia in the Framework of ISTC Activity

MAIN ORGANIZER:	Armenian Academy of Science
DATE:	2–7 October
PLACE:	Yerevan, Armenia
BUDGET:	$30,000

This Seminar continued the series of CIS seminars that had been held in Georgia, Kazakstan, the Kyrgyz Republic, and Belarus. The Seminar highlighted recent progress in the most advanced fields of science and technology in the Republic of Armenia. Fifteen Armenian governmental agencies and about 60 scientific-research institutes from Armenia participated in the seminar; more than 400 scientists from Armenia and abroad took part at 160 oral and poster presentations. Two special sessions were devoted to project valorization and sustainability activities.
ISTC Executive staff members and high level Party representatives — including the Chair of the ISTC Governing Board — met relevant Armenian official representatives, learning of the state of science and technology in Armenia and discussing related issues, such as the future role of Armenian science in the frame of the ISTC, project management, patenting, and the commercial potential of project results.

EXCELLENCE IN PHYSICS LEADING TO COMMERCIAL CONTRACTS

Through a series of ISTC projects (#0767), scientists at the Budker Institute of Nuclear Physics and VNIITF in Snezhinsk created a slow positron source of high brightness for the Japanese "SPring-8" synchrotron radiation facility. The slow positron source will be used in fundamental and applied research in chemistry, physics, and materials science. The installation-created through collaboration with Japanese scientists from the Institute of Physical and Chemical Research in Saitama, Japan — was delivered to the Spring-8 facility in October 2000, greatly improving the quality of available and existing radiation sources. Several commercial contracts valued at nearly $2 million from the German BESSY and Italian ELETTRA synchrotron radiation center are either signed or near conclusion, which will sustain the Russian scientists in their international collaboration.

Project team and collaborators meet at the SPring-8 facility in Japan

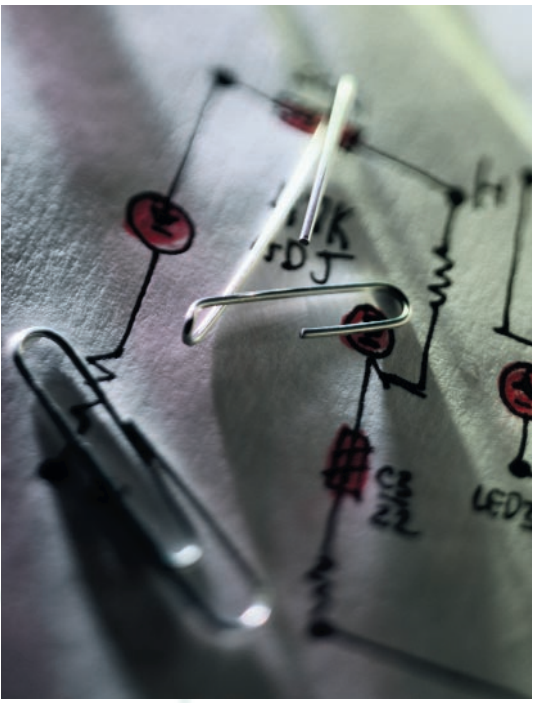
BUSINESS MANAGEMENT TRAINING PROGRAM

The Business Management Training Program is conducted by the ISTC Secretariat to assist ISTC project managers in developing their general business knowledge, presentation skills, and understanding of intellectual property rights. The training complements the technical aspects of the ISTC project, toward helping the project manager in future commercialization of the project results and in securing funding from sources beyond the ISTC.

The program is conducted mainly through Regional Training Centers in locations convenient to ISTC project managers. Training typically spans several days and covers practical topics of interest for ISTC project managers and their team members: business planning, project and financial analysis for securing investment, marketing of innovative products, intellectual property protection, strategies for effective presentations to the business community, and others.

Activity in 2000

- Local companies with experience in business training and consulting started their activity as Regional Training Centers (RTC) in seven cities: Moscow, St. Petersburg, Ekaterinburg, Nizhny Novgorod/Sarov, Almaty (Kazakstan), Yerevan (Armenia), Tbilisi (Georgia).
- More than 280 ISTC project participants received training at 12 training courses conducted by RTCs on various aspects of technology commercialization.
- The four month training course "Entrepreneurial Manager" was held in Sarov for 25 VNIIEF specialists.
- The training seminar on "Commercialization of High Technologies" was held in cooperation with the "Urals Education and Research Center for Innovative Business" within the 2nd practical conference "The Role of Innovations in Economics of the Urals Region".
- More than 120 participants received training and upgraded their skills in the field of Information Technology and Software Engineering during a 9-month project provided in Yerevan in cooperation with American University of Armenia and Eastern Michigan University (USA).



- A two week intensive English language course was conducted for ISTC project participants from VNIIEF, VNIITF, and VECTOR.
- The second edition of the ISTC training manual on Intellectual Property Rights was published.
- Three training sessions were held for nearly 300 project managers and accountants of newly funded ISTC projects to assist them in executing their work.
- Twenty-six project participants received professional training in various laboratories in the European Union and the United States within project specific training.

TRAVEL SUPPORT PROGRAM

The ISTC strongly encourages CIS scientific teams to develop their project proposals with the participation of foreign collaborating organizations. The Travel Support program fosters collaboration by reimbursing travel and related expenses for CIS scientists who wish to begin or continue technical consultations on the proposals they submit to the ISTC. Program funds also cover travel expenses for scientist participation in international meetings and conferences relevant to their specialization.

Funding for the program is provided by voluntary contributions supporting specific technical areas and CIS institutes.

Activity in 2000

- Scientists and technical team members were funded on 360 individual trips to collaborating organizations, seminars, and conferences located worldwide: Russia, Europe, Japan, USA, Republic of Korea, China, Australia, Brazil, Mexico.
- Grants were provided for two groups of CIS scientists to participate in an international seminar in Sarov.

CASPIAN SEA EXPEDITION — RUSSIAN AND KAZAK INVESTIGATION OF SEAL EPIDEMIC THROUGH ISTC TRAVEL SUPPORT

In April 2000, Kazak scientists observed strange behavior and abnormally high death rates in seals living in the Caspian Sea. The Kazak experts consulted with epidemiology specialists from the State Research Center of Virology and Biotechnology (VECTOR) in Russia, and in July 2000 mounted a joint Russian-Kazak expedition to the Caspian Sea.

The goal of this international expedition was to identify reasons for the sickness and death of the seals, and to study its possible extension to other animal and human populations in the region.

The joint expedition was made possible through the International Science and Technology Center Travel Support Program, providing $25,000 in expenses for 5 VECTOR and 2 Kazak scientists. The expedition collected large quantities of materials. Scientists at VECTOR continued comprehensive studies of the expedition samples and discovered the illness is linked to the flu virus. Research results will be presented to an international audience, including members of the World Health Organization.

"This is an example of cooperation between international teams of scientists on the importance of emerging viruses and their threats to animals and to humans. We are awaiting the findings on this epidemic by the joint Russian-Kazak scientific teams, which will assist in combating similar outbreaks in other countries. The International Science and Technology Center should be commended for its timely contributions which made this expedition possible."

Dr. Robert Webster — Director
Collaborating Center for Studies
on the Ecology of Influenza
in Animals and Birds
World Health Organization

TECHNOLOGIES DATABASE PROGRAM

Through its contacts with hundreds of research institutes and centers throughout the CIS, the ISTC has uncovered many innovative technical projects either planned or now underway which conform to the nonproliferation objectives of the ISTC. The ISTC established the Technologies Database Program (formerly Promising Research Abstracts) to establish and expand information exchange infrastructure concerning research activities, toward promoting the expertise of CIS research institutes and cooperation between CIS and foreign technical experts.

Activity in 2000

- New Promising Research Abstracts (Version 3) with 1,410 abstracts were compiled and distributed on CD-ROM and via the ISTC website.
- The Secretariat continued to collect new abstracts; Version 4 with 1,620 abstracts will be published in early 2001.

ISTC CONVENES EXPERTS IN THE "RADIATION LEGACY OF THE USSR"

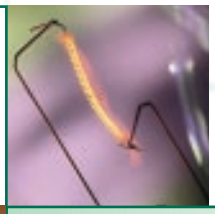
On 30 March, the ISTC conducted a press conference dedicated to the "Radiation Legacy in the USSR" and innovative technologies for the monitoring and safe disposal of radioactive materials. The event highlighted two ISTC team contributions. Questions from the Russian and foreign press were addressed by the presenters, and by members of the Russian Federation Ministry of Atomic Energy and the Ministry of Emergency Situations, who oversee civilian safety and emergency response. Academician Nikolai Laverov — Vice President of the Russian Academy of Sciences, and Chair of the interdepartmental Commission for Ecology of the Russian Federation Security Council — provided closing statements.

The manager of ISTC "RadLeg" Project #245 and Head of the MinAtom Laboratory for Environmental Protection, Dr. Anatoli Iskra, presented a database containing all potential and actual dangerous radiation sources on the territories of all CIS countries. The project led to the formation of the "RadLeg Geo-Informational Center" under MinAtom, where the database is maintained. "This comprehensive computerized database allows for radiation monitoring, and permits the prioritization of territories by potential dangers," noted Dr. Iskra. Under ISTC Project #869, scientists from the Institute of Chemical Physics in Chernogolovka adapt previously developed "super-adiabatic" combustion technologies to safe reprocessing of radiation-contaminated materials. The technologies enable burn by-products to be compressed into compact blocks for future storage. "Together with our Ukrainian colleagues, we are planning to construct a facility for destroying radiation-contaminated materials

left in the area of the Chernobyl accident," announced Dr. Georgi Manelis — Deputy Director of the Institute of Chemical Physics and Scientific Director for Project #869.

"Since its inception, the ISTC has provided Russian scientists with nearly $55 million, which represents about 10% of the entire budget for environmental research in the country. With these funds, and in collaboration with foreign colleagues, Russian scientists are solving fundamental problems in radiation safety. A significant number of the Center's environmental projects are dedicated to the problems posed by the largest radio-chemical industries in Russia."

Academician Nikolai Laverov — Chair
Interdepartmental Commission
for Ecology
Russian Federation Security Council

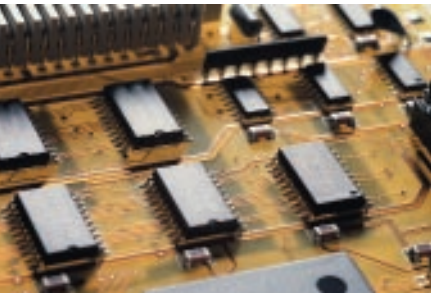


NUCLEAR POWERED SUBMARINE DEACTIVATION AND RECYCLING

Since the 1950s, nearly 500 nuclear-powered submarines have entered service worldwide; in Russia alone, approximately 180 of these are no longer in service. Decommissioned nuclear-powered submarines pose ecological threats until their nuclear materials are properly removed and stored.

In the course of ISTC project #0968, 135 team members — including 106 former weapons specialists — are investigating new technologies for cutting apart submarine hulls and their internal equipment, and handling and transporting the submarine radioactive materials to safe disposal areas. The company NPO Zvezdochka in the northern Arkhangelsk Region of Russia is leading the study. Zvezdochka specialists, following their training in France and Great Britain, have created a regional center for ecologically safe nuclear submarine recycling. Further, the project has lead to parallel contracts at Zvezdochka for the storage of liquid and solid radioactive wastes with Kvaerner Maritime in Norway and other companies.

Progress in nuclear submarine recycling



WORKSHOP PROGRAM

The ISTC regularly organizes workshops to highlight technologies and topics of global significance and to facilitate the development of project proposals and the inclusion of Partners and collaborators in ISTC activities. Workshop funding covers travel expenses of CIS scientists who participate in these workshops, and related organizational expenses.

Activity in 2000

EVENT	DATE	LOCATION
Research Activities in Siberian and Far Eastern Regions of Russia	25–26 January	Tokyo, Japan
Laser Optics Berlin 2000	07–09 March	Berlin, Germany
New Research Opportunities for Mev-range Synchrotron Radiation	10–11 May	Osaka, Japan
Biological and Ecological Safety	21–24 May	Obolensk, Russia
Japan–Russia Advanced Science and Technology Exchange Promotion Forum	05 July	Tokyo, Japan
New Materials Research in Russia	11–12 September	London, England
ConSoil 2000	18–22 September	Leipzig, Germany
SITEF — Advanced Technologies	18–21 October	Toulouse, France
Titanium and Magnesium Alloys	20–21 November	Niigata, Japan

COMMUNICATION SUPPORT PROGRAM

Communications Support aims to improve the telecommunication infrastructure of institutes where current capabilities inhibit the successful accomplishment of ISTC work and the development of commercial opportunities.

Activity in 2000

The ISTC implemented support plans at 8 research institutes: 6 in Russia, 2 in Kazakstan, and made technical support assessments at 2 other institutes for later implementation.

VALORIZATION SUPPORT PROGRAM

Valorization Support is directed to projects whose results have commercial and scientific potential that can produce long-term economic support for weapons scientists and engineers and support their redirection to peaceful endeavors.

Activity in 2000

- Three laser and three surface modification technologies projects were designated for technology, market research, and competitive analysis.
- Technology assessment software was purchased to assist ISTC staff members in evaluating project commercial potential.
- Licenses and subscriptions to on-line technology transfer databases and market research were added to the ISTC inventory of valorization resources.
- Monograph series based on ISTC project results was established, with publication beginning in 2000.

PATENTING SUPPORT PROGRAM

The Patent Support Program recognizes the contribution of ISTC projects and their participants to new inventions and ideas that have commercial value. The ISTC Secretariat administers this program to provide financial support to CIS institutes. Program funds are used to pay costs associated with the initial stages of patenting.

Activity in 2000

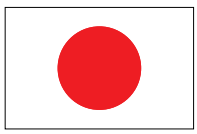
The Patent Review committee received 29 applications and provided financial support to 21 patent applications arising from ISTC project results.

ISTC ORGANIZATION

PARTIES TO THE ISTC AGREEMENT

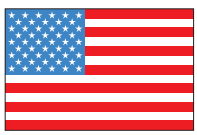
FOUNDING PARTIES

European Union



Japan

Russian Federation



United States of America

OTHER PARTIES

Norway

Republic of Korea

CIS PARTIES

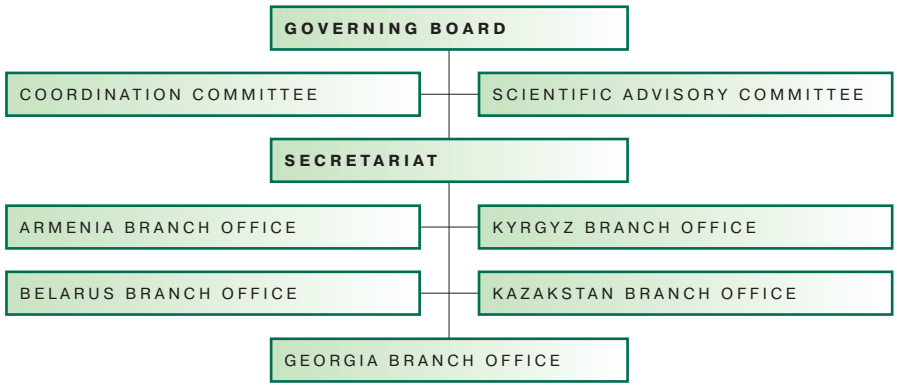
Armenia

Belarus

Georgia

Kazakstan

Kyrgyz Republic



The **Governing Board** include representatives of the European Union, Japan, Russian Federation, and United States, plus one rotating seat for a member CIS country, held by Armenia in 2000.

The **Coordination Committee** representatives are appointed by the Parties and meet prior to Governing Board meetings to review details of projects to be considered by the Board, discuss coordination of project funding, and exchange views on policy and other issues to be brought before the Governing Board.

The **Scientific Advisory Committee** provides expert scientific evaluation of project proposals, determines new directions for project and program activities, and evaluates ongoing projects.

MEMBERS OF THE GOVERNING BOARD:

Chair (USA)	**Ronald F. Lehman II**
European Union	**Achilleas Mitsos**
Japan	**Norio Hattori**
	Chihiro Atsumi
Russian Federation	**Lev Ryabev**
	Vladimir Pavlinov
United States of America	**Victor Alessi**
Armenia	**Artashes Petrosyan**

MEMBERS OF THE SCIENTIFIC ADVISORY COMMITTEE:

Chair (Japan)	**Hiroshi Maekawa**
	Yutaka Murakami
European Union	**Jean-Pierre Contzen**
Russian Federation	**Evgeny Avrorin**
	Yuri Trutnev
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	Diane Snyder

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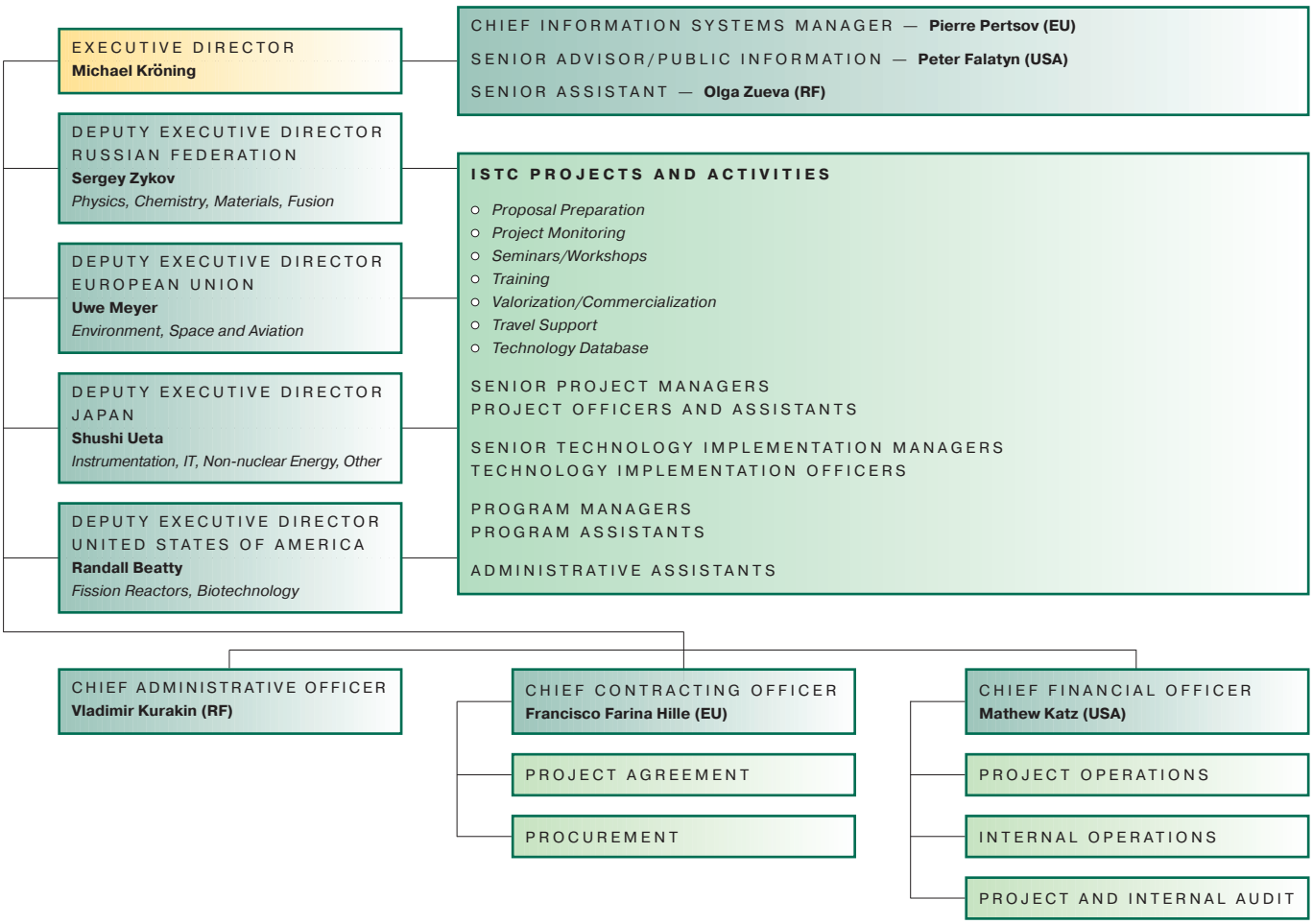
BELARUS
GEORGIA
KAZAKSTAN
KYRGYZ REPUBLIC

Refer to Secretariat
Branch Office
contact information

ISTC SECRETARIAT

Headquartered in Moscow with Branch Offices in 5 CIS countries, the Secretariat is the executive body of the ISTC. It implements the decisions of the Governing Board and manages the daily operations of the Center. Its international staff of over 140 scientific and administrative personnel oversees and monitors more than 600 active projects, provides training and business support to CIS project managers, and implements the many Center programs that support nonproliferation.



To accommodate growing activities at the Center, in 2000 the Governing Board created one additional project and program Division in the Secretariat. Former Project Agreement and Procurement Divisions were consolidated into the Contracting Division. Names indicate Management Committee Members as of 31 December 2000.

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SUMMARY OF ISTC

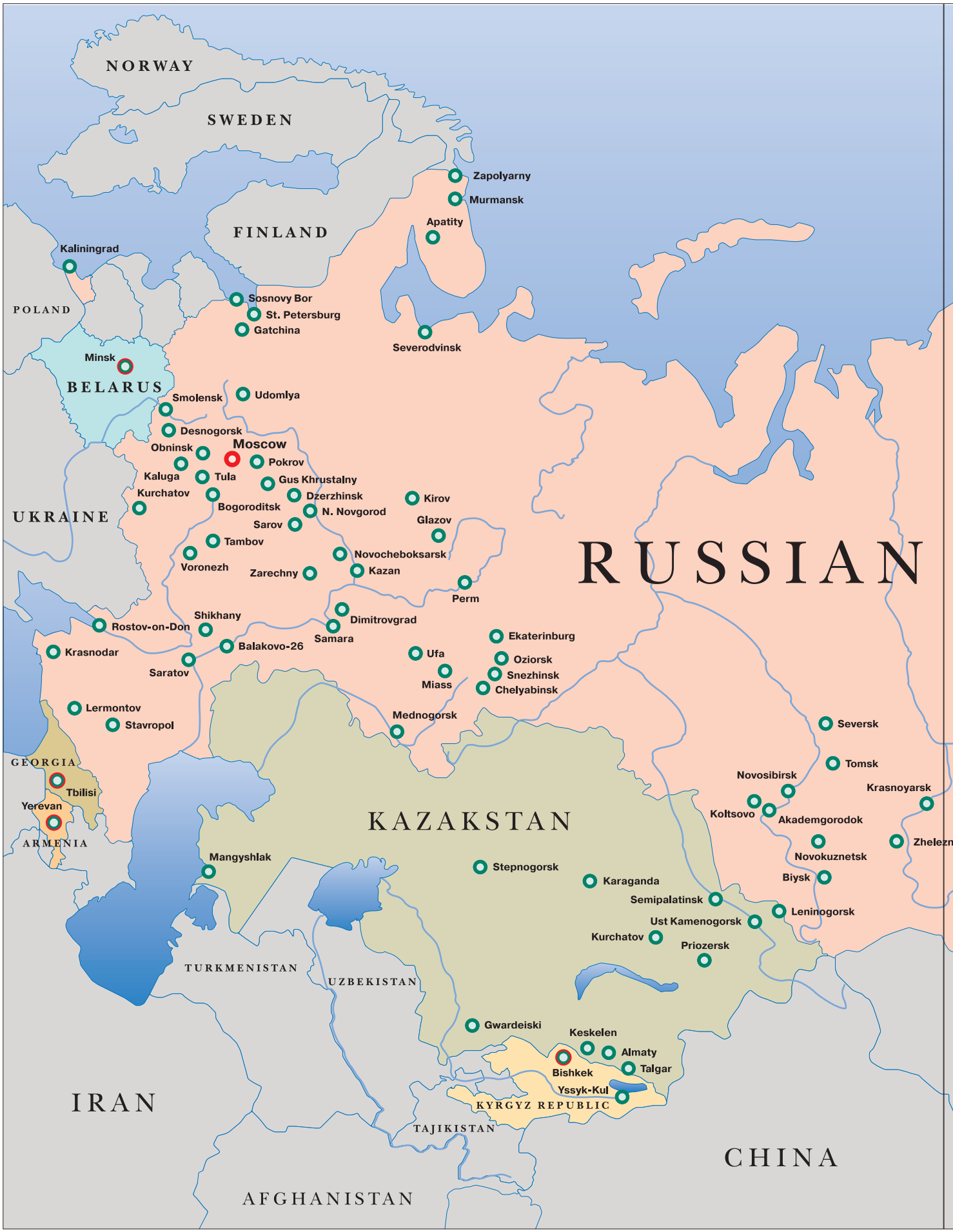
PROJECT FUNDING

TECHNOLOGY AREA / TECHNOLOGY FIELD	2000 FUNDED # Proj.	2000 FUNDED $ Value	2000 COMPLETED # Proj.	2000 COMPLETED $ Value	1994–2000 FUNDED # Proj.	1994–2000 FUNDED $ Value
Biotechnology and Life Sciences Biochemistry, Cytology, Genetics and Molecular Biology, Ecology, Immunology, Microbiology, Nutrition, Pathology, Pharmacology, Physiology, Public Health, Radiobiology	69	21,667,686	11	1,499,121	208	50,243,324
Chemistry Analytical Chemistry, Basic and Synthetic Chemistry, Industrial Chemistry and Chemical Process Engineering, Photo and Radiation Chemistry, Physical and Theoretical Chemistry, Polymer Chemistry	17	4,878,245	1	25,000	49	11,753,733
Environment Air Pollution and Control, Environmental Health and Safety, Modeling and Risk Assessment, Monitoring and Instrumentation, Radioactive Waste Treatment, Remediation and Decontamination, Seismic Monitoring, Solid Waste Pollution and Control, Waste Disposal, Water Pollution and Control	42	11,291,213	13	3,885,494	197	60,945,504
Fission Reactors Decommissioning, Experiments, Fuel Cycle, Isotopes, Materials, Modeling, Nuclear and Other Technical Data, Nuclear Instrumentation, Nuclear Safety and Safeguarding, Reactor Concept, Reactor Engineering and NPP, Reactor Fuels and Fuel Engineering	31	8,825,082	7	2,171,000	133	43,044,251
Fusion Hybrid Systems and Fuel Cycle, Inertial Confinement Systems, Magnetic Confinement Systems, Plasma Physics	3	896,162	4	1,155,000	31	9,381,013
Information and Communications Data Storage and Peripherals, High-Definition Imaging and Displays, High Performance Computing and Networking, Microelectronics and Optoelectronics, Sensors and Signal Processing, Software	15	3,396,996	6	798,714	49	11,107,439
Instrumentation Detection Devices, Measuring Instruments	14	2,806,240	10	1,848,350	74	20,532,479
Manufacturing Technology CAD and CAM, Engineering Materials, Machinery and Tools, Manufacturing, Planning, Processing and Control, Plant Design and Maintenance, Robotics, Tribology	10	1,758,144	3	133,870	26	3,887,808
Materials Ceramics, Composites, Electronic and Photonic Materials, Explosives, High Performance Metals and Alloys, Materials Synthesis and Processing	21	12,493,383	9	2,139,550	107	35,488,241
Non-Nuclear Energy Batteries and Components, Electric Power Production, Fuel Conversion, Fuels, Geothermal Energy Heating and Cooling Systems, Miscellaneous Energy Conversion, Solar Energy	10	2,086,186	3	1,470,000	24	6,376,936
Other	1	40,000	1	30,000	7	593,540
Other Basic Sciences Agriculture, Building Industry Technology, Electrotechnology, Geology, Natural Resources and Earth Sciences	9	1,752,174	1	240,000	14	2,510,130
Physics Atomic and Nuclear Physics, Fluid Mechanics and Gas Dynamics, Optics and Lasers, Particles, Fields and Accelerator Physics, Plasma Physics, Radio-frequency Waves, Solid State Physics, Structural Mechanics	64	12,036,468	13	3,078,260	185	42,066,658
Space, Aircraft and Surface Transportation Aeronautics, Astronomy, Extraterrestrial Exploration, Manned Spacecraft, Space Launch Vehicles and Support Equipment, Space Safety, Spacecraft Trajectories and Flight Mechanics, Surface Transportation, Unmanned Spacecraft	7	1,904,996	7	1,987,995	59	16,733,812
TOTALS:	313	85,832,978	89	20,462,354	1,163	314,664,868


map inside

ISTC PROJECT FUNDING IN 2000

NO.	SHORT TITLE	LEAD INSTITUTE	FUNDING (US$)	FUNDING SOURCE
	Biotechnology and Life Sciences		**21,667,686.50**	
1436d	New Broncholytic Preparations	GosNIIOKhT	30,000.00	US
1434d	Organomineral Fertilizer as Powder Destruction Products	Center for International Environmental Cooperation (INENCO)	30,000.00	EU
B-488p	Early Radiation Data for Chernobyl Accident	Center for Environmental Control and Radiation Monitoring	40,000.00	Partner
K-235	Plutonium in Human Organism	Institute of Physics and Technology	75,000.00	US
1642p	Tuberculosis Drug-resistant Strains	GosNIIPM (Applied Microbiology)	102,500.00	Partner
1845p	Comparative Genomics for Mycobacteria	GosNIIPM (Applied Microbiology)	105,000.00	Partner
K-374	Wheat Rusts in Kazakstan	Scientific Research Agricultural Institute	110,000.00	US
G-349	Cellular Effects of Cr(VI) Compounds	Institute of Physics (Ge)	132,210.00	US
1547	Production of Fatty Emulsion	Design Bureau of Special Mechanical Engineering	138,440.00	US
1711	Orthopedic Device for Extremities	VNIIEF	176,980.00	US
K-376	Epizootic Lymphangitis Immunology	Scientific Research Agricultural Institute	180,000.00	US
G-408	Activation Analysis of Spirulina Platensis	Institute of Physics (Ge)	181,439.00	US
1723	Technetium(I), Rhenium(I) Carbonyl Complexes as New Radiopharmaceuticals	Khlopin Radium Institute	186,320.00	EU
0893	Gamma Recorder for Tomography	MIFI	203,856.00	US
K-487	Selection of Heavy Metal Accumulating Plants	Institute of Plant Physiology, Genetics and Bioengineering	210,000.00	US
1198-2p	Antiviral Activity of Glycyrrhyzic Acid Derivatives	NPO Vector/Institute of Molecular Biology	210,127.00	Partner
G-446	Biocomposites with Bacteriophages	Georgian Technical University/ Research Center for Medical Polymers and Biomaterials	210,201.00 218,000.00	US Partner
1197p	Lipopolysakharides for Immune Preparations	GosNIIPM (Applied Microbiology)		
1273	Corrosion Protection in Fuel Cells	VNIIEF	219,600.00	EU
1846p	Nutrient Media for Tuberculosis Vaccine	GosNIIPM (Applied Microbiology)	220,000.00	Partner
1721	Brown Rust and Host Plant Genetics	Phytopathology Research Institute	228,800.00	US
G-362	Donor Organs Alternative	CNIL and Organs and Tissues Transplantation Laboratory	230,000.00	US
G-420	Antiepileptic Compounds	Beritashvili Institute of Physiology	230,000.00	Japan
B-550p	Thyroid Pathologies in Chernobyl Area	Research and Clinical Institute of Radiation Medicine and Endocrinology	230,000.00	Partner
1747	Anthrax Pathogen Contamination	Central Research Institute of Epidemiology	234,388.00	EU
1438	Polycomponent Vaccine for Aerosol Application	Research Center of Toxicology and Hygienic Reglementation of Biopreparations	234,520.00	US Korea
1439	Pertussoid Aerosol Vaccine	Research Center of Toxicology and Hygienic Reglementation of Biopreparations	241,500.00	US
1062	Improvement of Radiation Therapy	ITEF (ITEP)	250,000.00	US
1428p	Building for Processing Dangerous Bio-Substances	GosNIIPM (Applied Microbiology)	250,000.00	Partner
1995p	Viral Diseases in Small Grain Crops	Phytopathology Research Institute	250,000.00	Partner
1881p	Influenza Viruses in Birds	NPO Vector	250,000.00	Partner
A-418	New Sorbents for Chromatography	Chemtech	253,742.00	EU
K-318	Brucellosis Peculiarities in Kazakstan	Kazak Anti-Plague Research Institute/ Kazak Institute for Research on Plague Control	254,564.00	US
1996p	Natural Bioactive Molecules against Nematodes	Phytopathology Research Institute	255,000.00	Partner
1685p	New Drag Based on Orthopoxiviral Protein	NPO Vector/Institute of Molecular Biology	259,930.00	Partner
0822	Multichannel Clinical Dosimetry	NIIIT (Pulse Techniques)	271,717.00	US
1640	Phytophthora Infestans Resistance	Phytopathology Research Institute	274,200.00	US
1552	Anti Tumors Laser Methods	NPO Astrophysica	279,000.00	EU
1730	Nitric Oxide Monitoring in Exhaled Air	VNIIEF	281,000.00	US
0799-2	Biological Effects of Pulsed Fields	Medical Radiological Scientific Center	290,000.00	US
1782	Cell Culture of Natural Plants	AO BioChimMash	292,500.00	EU Korea
K-525p	Immuno-Stimulating Complex	Institute of Microbiology and Virology	294,000.00	Partner
1379-2	Symbolic Sequences in Genetic Analysis	MIFI	294,890.50	EU
1720p	Microbial Antagonists	GosNIIPM (Applied Microbiology)	295,000.00	Partner
A-361	New Amino Acid Derivatives Synthesis	Research Center of Radiation Medicine and Burns	298,000.00	EU
Kr-482	Bioprotection of Plants	KORGOO	300,000.00	US
1291.2p	Genome Structure of Hemorrhagic Fever Virus	NPO Vector/Institute of Molecular Biology	300,000.00	Partner
0787-2	Polyfunctional Compounds for Environment Decontamination	VNIITF	300,000.00	US
G-391	Brain Functions Corrections	Beritashvili Institute of Physiology	300,000.00	Japan
1758	Next-Generation Therapeutic Bio Agents	GosNIIPM (Applied Microbiology)	306,000.00	EU
1839p	Recombinant Vaccine for Veterinary	GosNIIPM (Applied Microbiology)	310,000.00	Partner
1883p	Genome Influence on Infection Susceptibility	NPO Vector	310,000.00	Partner
1519	Monitoring of Viral Hepatitis	Research Center of Toxicology and Hygienic Reglementation of Biopreparations	350,000.00	US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NO.	SHORT TITLE	LEAD INSTITUTE	FUNDING (US$)	FUNDING SOURCE
1032	Development of Radioprotectors for Energy Absorption of Ionizing Radiation	GosNIIOKhT	360,000.00	US
1734	Bioobjects Detection by Scanning Probe	ITEF (ITEP)	380,000.00	US
1759	Targeted Delivery of Bio Active Compounds	Research Center of Molecular Diagnostics and Therapy	420,000.00	US
1233-2p	Express-Diagnostic Test-Kits	Research Center of Molecular Diagnostics and Therapy	449,447.00	Partner
1847	Persistence of M. Tuberculosis	Research Center of Molecular Diagnostics and Therapy	450,000.00	US
B-434	Identification of New Pharmacology Active Substances	Belarussian State University/Institute of Physical Chemical Problems	450,000.00	EU
1215-2p	Monitoring of Anthrax Infection	GosNIIPM (Applied Microbiology)	455,000.00	Partner
1554	Novel Anti-Drug Abuse Peptide	Institute of Bioorganic Chemistry	499,847.00	US
1878	Induced Apoptosis in Cancer Cells	Institute of Immunological Engineering	509,847.00	EU
1550	Anti Tumor and Cardiac Medicines	Institute of Chemical Physics (1)	589,200.00	US
1637p	Hepatitis "C" Viruses in Siberia	NPO Vector/Institute of Molecular Biology	692,768.00	Partner
0940-2	Influenza Vaccines	NPO Vector/Institute of Molecular Biology	737,400.00	US
1641p	Working Biosafety	NPO Vector	810,130.00	Partner
1700p	Physical Protection and Accountability in Obolensk	GosNIIPM (Applied Microbiology)	898,335.00	Partner
1699p	Security System for "Vector"	NPO Vector	950,000.00	Partner
K-516p	Animal Pathogens	Scientific Research Agricultural Institute	1,037,288.00	Partner
	Chemistry		**4,878,245.50**	
1556d	Ultrasonic Pure Technologies	Institute of General and Inorganic Chemistry (IONKh)	25,500.00	EU
1613	Chemical Decomposition of Explosive and Combustive Materials	VNIIEF	125,842.00	US
B-306	Silicon Production from Recycled Materials	Plastma Ltd.	137,500.00	EU
1719p	Computer Selection for Drug Templates	Institute of Physiologically Active Substances	180,500.00	Partner
1577	Molybdenum Compounds	INEOS (Organo-Element Compounds)	200,000.00	US
1678	High Temperature Catalytic Burners	VNIIEF	205,997.50	EU
1281	Chemical Reactions in Strong Magnetic Field	VNIIEF	219,608.00	US
0832	Mutagen and Carcinogen Hazard	MIFI	288,385.00	US
1530	Materials for Implant Medicine	GosNIIOKhT	299,927.00	US
1838	Polymer Micro-sensors	Institute of Chemical Physics (2)	300,000.00	Korea Japan
A-356	Asymmetric Synthesis of Non-Proteinogenic Amino-Acids	Yerevan State University	300,000.00	US
1529	Polymer Runaway	Institute of Chemical Physics (1)	318,500.00	US
1592	Photochemical Membrane Process with Catalysts	Institute of Chemical Physics (2)	323,456.00	EU
1582	Radioactive Waste Disposal Using Microspheres	VNIIEF	363,000.00	US
0574	Physiologically Active Substances	GosNIIOKhT	460,030.00	US
K-496	Analgesic	Institute of Chemical Sciences	470,000.00	Japan
1292	Chemical Tagging of Explosives	Institute of Chemical Physics (2)	660,000.00	EU
	Environment		**11,291,213.50**	
1938p	Antibacterial Electromagnetic Pulse Treatment of Liquids	Institute of Electrophysics	20,000.00	Partner
Kr-403d	Automatic Protection Against Floods	National Academy of Sciences of Kyrgyzstan/Institute of Automatics	25,500.00	EU
K-451d	Environment Risks in Baikonur Area	Kazak National University/ Center of Physical and Chemical Methods of Analysis	30,000.00	EU
KR-367d	Prediction of Underground Hydrosphere Pollution	National Academy of Sciences of Kyrgyzstan/Institute of Automatics	30,000.00	US
A-454d	Disposal Site for Radioactive Waste in Armenia	National Survey for Seismic Protection of RA	30,000.00	US
1689p	Undeclared Nuclear Activities Detection	VNIITF	30,000.00	Partner
B-320d	Urban Development Problem	Institute of Radiation Physics and Chemistry Problems	30,000.00	EU
1775p	Numerical Modeling of Surface Films Dynamic	Institute of Applied Physics	36,190.00	Partner
B-519p	Ocean LIDAR Modeling	Institute of Physics (Be)	70,650.00	Partner
1815p	Cleanup of HLW Storage Tanks	VNIITF/SPEKTR	75,000.00	Partner
K-424	Aerohydrodynamics Simulations for Aral Region	Institute of Mathematics	83,960.00	US
B-393	Code for Industrial Release Assessment	Institute of Power Engineering Problems	133,096.50	EU Partner
1768	Transportable Containment for Explosion Products	VNIIEF	195,000.00	US
1537	ISO Compatible Product Data Base	Research Institute of Aviation Systems (GosNIIAS)	199,800.00	EU
1574	Mine Methanometers Diagnostics	NIIIT (Pulse Techniques)	200,000.00	US
1139	Design of Mobile Gas Purification Unit	VNIIEF	200,000.00	US
1497	Measuring and Information Complex for Atmospheric Pollution	NPO Typhoon	200,000.00	US
0999	Radonometry of Environment	NIIIT (Pulse Techniques)	209,100.00	US
1783p	Radionuclides Migration	Far Eastern Regional Hydrometeorological Research Institute	240,000.00	Partner
1608	Zirconium Salts for Radwaste Treatment	Khlopin Radium Institute	247,000.00	US
KR-357	Tien-Shan Tectonics	Institute of Seismology	260,000.00	US
1565	Underground Water Basin Model	VNIIEF	268,000.00	US

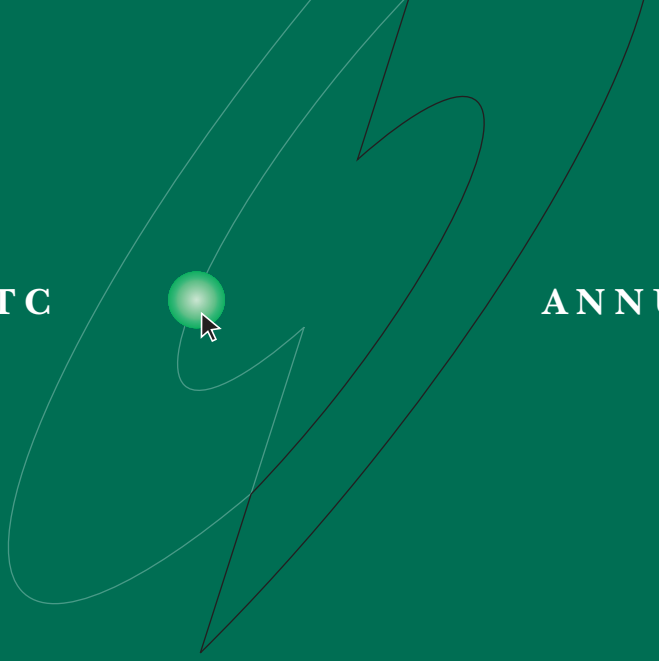
NO.	SHORT TITLE	LEAD INSTITUTE	FUNDING (US$)	FUNDING SOURCE
1651	Remote Methane Monitoring	VNIIEF	294,920.00	US
A-485	Liquid Waste Treatment with Zeolites	Yerevan State University	298,707.00	EU
0904	Overlapping of Pipe-Lines	VNIITF	299,700.00	US
1745	Rocks Fracture Investigations	VNIIEF	299,770.00	US Japan
1539	Satellite-aided Small Aperture Seismic Array	Research Institute of Aviation Systems (GosNIIAS)	300,000.00	US
1559	Aerocomplex for Radiation Monitoring	VNIIEF	300,000.00	EU
KR-187.2	Automated System for Radon Monitoring	Kyrgyz-Russian Slavonic University	300,000.00	US
1229	X-ray Fluorescence Spectrometer	VNIIEF	322,360.00	US
1409	Contamination of Graphite Sleeves	MIFI	330,000.00	US
K-337	Surface Decontamination Technologies	National Nuclear Center of the Republic of Kazakstan/ Institute of Nuclear Physics	350,000.00	US
G-369	Bioremediation of Proving Grounds	Institute of Plant Biochemistry	352,000.00	US EU
1722	Radioactive Contamination in Storage Vaults	Siberian Chemical Kombinat (SKhK)	415,000.00	EU
1619	Ozone in Siberia Region	Central Aerological Observatory	420,000.00	US Japan
1567	Soil Remediation	VNIINM Bochvar	461,160.00	US
1341	Infrasound Method for Nuclear Tests Detection	NIIIT (Pulse Techniques)	469,800.00	EU
1526	The Use of Phthalocyanine for Environmental Safety	Institute of Physiologically Active Substances	479,500.00	US
1606	Molten Salt Loop for Waste and Plutonium Disposal	VNIITF	500,000.00	EU
K-414-2	Data Base for Semipalatinsk Test Site	National Nuclear Center of the Republic of Kazakstan	635,000.00	EU
K-338	Ecological Survey of Industrial Sites	National Center of Biotechnology/ Biomedpreparat Monitoring Laboratory	650,000.00	US
1705p	Lithium Coating of Spent Fuel	NIIAR (Atomic Reactors)	1,000,000.00	Partner
	Fission Reactors		**8,825,082.00**	
1602	Publication of Monograph on Pulse Reactors	VNIITF	20,000.00	US
1648d	Post-Crash Fuel Reflood	NIIAR (Atomic Reactors)	42,500.00	EU
1762p	Low Power Fast Reactor	FEI (IPPE)	45,000.00	Partner
1737d	Gd-157 Production Using Liquid Centrifuges	VNIIEF	50,000.00	US
0797	Safe Operation of VVER Reactor	NIKIET (ENTEK)	50,000.00	EU
1616p	Initial Inventory of Fissile Materials in ITEP	ITEF (ITEP)	80,000.00	Partner
1611	Thermohydraulics in Liquid Metal Cooled Reactors	FEI (IPPE)	95,000.00	US Japan
1702p	Review of CIRCE Facility	FEI (IPPE)	100,000.00	Partner
G-381	Critical Heat Loads in Atomic Reactors	NII Optica	114,200.00	US
1058	Fuel Cycle Strategy for Russia	Kurchatov Research Center	115,000.00	EU Other
G-409	Modeling of the Power Nuclear Facility	Institute of Physics (Ge)	142,860.00	US
0554-2	Spontaneous Fission	Khlopin Radium Institute	150,000.00	US
0841	Radioactive Inventory for Decommissioning Reactors	Khlopin Radium Institute	156,000.00	US
1808p	Spent Fuel Criticality in Underground Storage	FEI (IPPE)	160,000.00	Partner
1306	Isotopes Recovery for Te-125 Generator	Khlopin Radium Institute	184,248.00	US
0946	Recovery of Palladium from NPR Fuel	Khlopin Radium Institute	199,000.00	US
G-402	Boron Crystalline Mono-Isotopes	Institute of Metallurgy	213,190.00	US Japan
K-513	BN-350 Reactor Decommissioning Concept	Nuclear Technology Safety Center	300,000.00	US
1571	Manipulator for Fissile Materials	VNIIEF	310,800.00	US
1086	Monte-Carlo Nuclear Reactor Code	VNIIEF	323,284.00	US
1767	Liquid Metal Coolant Disposal	FEI (IPPE)	340,000.00	EU
1731	Water-Jet Cutting for Submarine Dismantlement	VNIITF/SPEKTR	350,000.00	EU Japan
1246	Nondestructive Burn-up Measurements	Khlopin Radium Institute	360,000.00	US
1410	Plutonium Oxide Microspheres	Kurchatov Research Center	400,000.00	EU
1932	Nuclear Safety for Advanced Neutron Sources	JINR (Joint Institute of Nuclear Research)	400,000.00	Japan
0597	Structure of Irradiated Materials	MIFI	450,000.00	US
K-437	Fast Reactor Materials Properties	Nuclear Technology Safety Center	510,000.00	EU
0909-2	Two-Cascade Power Blanket	VNIIEF	650,000.00	EU
K-512	Cesium Trap for BN-350 Reactor	Nuclear Technology Safety Center	700,000.00	US
1486	Cascade Subcritical Reactor	Kurchatov Research Center/Mucatex	764,000.00	US Japan
1431	Intensive Neutrino Source	RAS/Institute of Nuclear Research	1,050,000.00	US Japan
	Fusion		**896,162.00**	
1260	Anomalous Transport in Plasma	MGTU (Moscow State Technical University)/ Research Institute of Power Engineering	116,192.00	US
1826	Wires Properties Z-Pinch Systems	Institute of High Current Electronics	249,590.00	US
1557	Tomographic Imaging Systems	FIAN Lebedev	530,380.00	Japan

NO.	SHORT TITLE	LEAD INSTITUTE	FUNDING (US$)	FUNDING SOURCE
	Information and Communications		**3,396,996.50**	
1941p	Fiber Optics for Downhole Applications	Moscow State University/ Center of Magnetic Tomography & Spectrometry (CMTS MSU)	28,336.00	Partner
A-140-2	High Speed Transistor Keys	NPO Transistor	50,000.00	EU
G-394	Active Semiconductor Elements	Tbilisi State University	68,500.00	US
1785	Atomic Database for Web Applications	VNIITF	90,000.00	US
A-431	High Efficient Silicon Solar Cells	KERMET	180,000.00	US Japan
1481	Neuro-Network for Turbulent Mixing	FIAN Lebedev	188,508.00	EU
1994p	Formal Methods for Information Protection	Institute for Informatics and Automation	227,000.00	Partner
1708	Ferroelectric Films in Radioelectronics	St Petersburg Electrotechnical University	240,000.00	Korea Japan
1820	Software for Modeling Flows with Large Deformations	VNIITF	246,500.00	EU
1536	Virtual Laboratory for Elasticity Problems	Research Institute of Aviation Systems (GosNIIAS)	250,000.00	Japan
B-371	Patient Monitor	Belarussian State University of Informatics and Radioelectronics	258,150.00	EU
1584	Interference-Suppressing Digital Devices	VNIIEF	300,000.00	US
1823	Software for CTBT Inspectors Training	VNIITF	300,002.50	US EU Japan
1993p	Mathematical Basis of Knowledge Systems	Institute for Informatics and Automation	465,000.00	Partner
1992p	Computer Technologies for Dynamic Planning	Institute for Informatics and Automation	505,000.00	Partner
	Instrumentation		**2,806,240.00**	
KR-260d	Multipurpose Holographic Interferometer	Kyrgyz-Russian Slavonic University	30,000.00	US
1464p	Multi-Beam TV Tube	NPO Toriy	46,000.00	Partner
1523	X-Ray Spectrometer for Space Solar Patrol	Vavilov State Optical Institute (GOI)	50,000.00	EU Korea
0850	Search for Lost Fishing Gear	NII Morfizpribor	98,865.00	US
1104	Arc Guard Device	NIIIT (Pulse Techniques)	99,400.00	US
0702	Lung Diagnostics	NIIIT (Pulse Techniques)	122,930.00	US
A-100.2	Source of Monochromatic Radiation	YerPhi	198,000.00	US
0647	Wool Parameters Measurement	VNIIEF	198,000.00	US
1573	Irregular Waveguides	Scientific Research Institute for Optophysical Measurements	198,045.00	US
1658	Infra-Red Recording Camera	VNIIEF	250,000.00	US
1580	Hydrogen Detectors	VNIIEF	350,000.00	US
1644	Nuclear Materials Identification	MIFI	355,000.00	US
1543	Semiconductor Parameters Control Complex	NPO Orion	390,000.00	EU
1509	Device for Radioactive and Explosive Materials Detection	Krylov Central Research Institute	420,000.00	US
	Manufacturing Technology		**1,758,144.00**	
A-395	Molybdenum Concentration Control System	State Engineering University of Armenia/Gyumri Educational Campus	65,690.00	EU
1798p	X-ray Protective Additive Compositions	VNIIEF	89,900.00	Partner
1666p	ALICE-CERN Experiment - Phase II	TsKBM	90,000.00	Partner
1610	Pressing and Punching in Detector's Technologies	ITEF (ITEP)	161,594.00	EU
G-401	Cryosorption Vacuum Pump	Sukhumi Institute of Physics and Technology	169,100.00	US
1593	Electrohydropulse Stamping	VNIIEF	170,000.00	US
1787	Shock Method for Tires Utilization	VNIIEF	196,860.00	US
K-149	Ores Breaking Aggregate	Kunaev Mining Institute	210,000.00	US
KR-341	Oxygen-Hydrogen Explosives for Mining	Kyrgyz-Russian Slavonic University	265,000.00	US
1190	Hydrometallurgy of Platinum Ore	VNIIKhT (Chemical Technology)	340,000.00	US
	Materials		**12,493,383.50**	
1937p	Electron Beam Treatment of Polymers	Institute of Electrophysics	20,000.00	Partner
1458-2p	Titanium Alloy VT-6 Properties	Institute of Metals Superplasticity Problems	60,000.00	Partner
1562	Porous Materials Shock Compressibility	VNIIEF	89,900.00	US
1413	Composite Alloys with Superplasticity	Mechanical Engineering Research Institute	100,000.00	US
G-462	New Hard Alloy Composites	Institute of Metallurgy (Tavadze)	180,000.00	US EU
K-579p	Beryllide Coatings	Science Technical Center of Controlled Thermonuclear Fusion Association (CTF)	210,480.00	Partner
1897	New Crystals for Nonlinear Optics	NPO Astrophysica	219,988.50	EU
1339-2	High-Strength and Creep-Resisting Composites	MISIS (Steel and Alloys)	240,000.00	Japan
A-412	Perlite Bloating Technology	Institute of General and Inorganic Chemistry (IGIC NAS RA)	259,300.00	EU
1630	Stable Radiation Resistant Semiconductor	Karpov Institute of Physical Chemistry (2)	260,000.00	US Japan
1388	Metal Tritides	VNIIA (Automatics)	260,820.00	US
1891	Membranes for Medicine and Environmental Chemistry	Lomonosov Academy of Fine Chemical Technologies	261,830.00	Japan
1381	Doped Crystalline Corundum	Institute of General and Inorganic Chemistry (IONKh)	284,000.00	US

NO.	SHORT TITLE	LEAD INSTITUTE	FUNDING (US$)	FUNDING SOURCE
1333	Properties of Composite Materials	MISIS (Steel and Alloys)	292,000.00	US
1607	Functionally Graded Coating	Institute of Applied Physics	298,365.00	Japan
1320	Technologies for Electrical Connectors	VNIITF	300,000.00	US
1354	Isotopically Pure Semiconducting Materials	Science & Engineering Center 6Centrotech& (CEBM)	300,000.00	EU
1799	Synthesis of Wear- and Shock Resistant Superhard Materials	Baykov Metallurgy and Materials Institute	390,000.00	Japan
1632	Solid Propellant Utilization	Siberian Branch of RAS/Boreskov Institute of Catalysis	452,000.00	US
G-218-2	Boron Materials Production	Institute of Stable Isotopes	814,700.00	US
1718p	Tungstate Crystals Electromagnetic Calorimetry	Bogoroditsk Plant of Techno-Chemical Products	7,200,000.00	Partner
	Non-Nuclear Energy		**2,086,186.00**	
1983p	Catalysts for Reforming of Hydrocarbons	Hypersonic System Research Institute	80,000.00	Partner
1752p	Mechanical Detonator for Oil-Gas Perforators	VNIIEF	100,000.00	Partner
1946p	Waste Energy Utilization with Thermoelectrics	Ioffe Physico-Technical Institute	103,636.00	Partner
G-539	Wind Energy Cadastre of Georgia	Karenergo Wind Energy Scientific Center	161,246.00	Japan
G-407	Phase Transition for Heat Engines	Institute of Physics (Ge)	163,904.00	EU Japan
1587	Pure Boiler Turbine Cycles	State Machine Building Design Bureau “Raduga”	194,400.00	Japan
1271	Thickeners for Molten Carbonate Fuel Cells	VNIIEF	284,000.00	US
0879	Explosive Compaction	VNIIEF	300,000.00	US
A-322	Devices with Porous and Oxide Semiconductors	Yerevan State University	309,000.00	US
1690	New Class of Refrigerator Technology	Machine-Building Research Institute	390,000.00	US
	Other		**40,000.00**	
1688p	Strategic Stability Under Nuclear Cuts	VNIITF	40,000.00	Partner
	Other Basic Sciences		**1,752,174.00**	
1942p	Magnetic Rheological Fluids	VNIIGeosystem	17,572.00	Partner
1943p	Detection of Subsurface Faults	United Institute of Physics of the Earth	24,782.00	Partner
1947p	Enhanced Oil Recovery by Acoustic Stimulation	United Institute of Physics of the Earth	28,370.00	Partner
1774p	Short Waves and Organic Films on the Sea Surface	Institute of Applied Physics	49,350.00	Partner
1696	Pacific Ocean Atlas	Institute of Geochemistry and Analytical Chemistry	88,000.00	Japan
1491	Site for Underground Repository of Radwaste	Khlopin Radium Institute	300,000.00	US
KR-334	Glaciers as Climate History Log	National Academy of Sciences of Kyrgyzstan/Institute of Geology	394,100.00	Japan
1538	Monitoring and Prediction of Seismotectonic Processes	Research Institute of Aviation Systems (GosNIIAS)	400,000.00	Japan
K-491	Mapping of Narcotic Plants Areas	Institute of Botany and Phytointroductoion	450,000.00	Japan
	Physics		**12,036,468.80**	
1780p	Surface Plasma Influence on Friction	IVTAN (High Temperatures)	14,500.00	Partner
1864p	Pulsed Oxygen-Iodine Laser	FIAN Lebedev	15,000.00	Partner
1809p	Electric Field Stimulation of Flow Mixing	IVTAN (High Temperatures)	18,235.00	Partner
1704p	Theory of Anisotropic Plasma Instabilities	VNIIEF	20,000.00	Partner
1777p	Double-Clad Fiber Lasers	St Petersburg State Technical University	25,000.00	Partner
1914p	Laser with Wavelength 589 nm	Institute of General Physics	25,000.00	Partner
1779p	Microwave Plasma Effect on Supersonic Airflow	IVTAN (High Temperatures)	26,000.00	Partner
1560	Monograph on Classical Gauge Theories	VNIIEF	30,000.00	US
A-340d	Elements of Integrated Optics	Institute for Physical Researches	30,000.00	US
1913p	Solid-state laser with dynamic self-adaptive cavity	Institute of Applied Physics	39,800.00	Partner
1865p	Overtone CO Laser	FIAN Lebedev	40,000.00	Partner
1840p	Jet Fuel Ignition by Microwave Discharge	MRTI (Radio Techniques)	44,800.00	Partner
1867p	Discharges in Supersonic Flow	Moscow State University/Department of Physics	45,000.00	Partner
1866p	Discharge Influence on Supersonic Boundary Layer	Moscow State University/Department of Physics	45,000.00	Partner
1810p	Plasma Generators Optimization	IVTAN (High Temperatures)	45,500.00	Partner
1653	Linacs for Transmutation Technology	MRTI (Radio Techniques)	50,000.00	Korea
1697p	Molecular Gas Laser Excitation	Institute of General Physics/Laser Materials and Technology Research Center	50,000.00	Partner
1299	Monograph on Laser Radiation Interaction with Matter	VNIIEF	50,000.00	US
A-537p	Design and construction of magnetic shield for ATLAS (CERN) detector assembly	YerPhi	50,000.00	Partner
1862p	Processes In Oxygen Iodine Laser Active Media	FIAN Lebedev (Samara Branch)	50,000.00	Partner
0619	Electrical Phenomena in Shock Waves	VNIIEF	51,190.00	US
1660	Multiply Charged Ion Characteristics	VNIIEF	65,130.00	US
1662	Solid Electron Phases	VNIIEF	65,130.00	US

NO.	SHORT TITLE	LEAD INSTITUTE	FUNDING (US$)	FUNDING SOURCE
0840	Rigid Relativistic Objects	VNIIEF	75,700.00	US
1420	Pressure Vessels under Impact of Space Debris	VNIIEF	80,000.00	US
1763p	Non-Proliferation Activities at VNIIEF	VNIIEF	90,000.00	Partner
1358	Data for Atomic Spectroscopy	Ioffe Physico-Technical Institute	100,000.00	US
1203	Database on Material Dynamic Strength	VNIIEF	136,800.00	US
1495	3D Simulation for Vortex Flow	FIAN Lebedev	144,000.00	US
B-404	Actinide Nuclear Data	Institute of Radiation Physics and Chemistry Problems	150,000.00	Japan
1395	Theory of Plasmachemical Reactor	Institute of General Physics	165,900.00	US
A-353	Particles Interaction with Laser Fields	Yerevan State University	170,000.00	US
KR-214	Circumpolar Ionospheric Currents	Kyrgyz-Russian Slavonic University	178,000.00	US
A-196-2	Acoustic Waves in Plasma	Institute of Applied Problems of Physics	178,000.00	US
A-405	Plasma Wake Field Accelerator	YerPhi	180,730.00	US
1521	Solar Light Pumped Laser	VNIIEF	190,000.00	US Japan
1621	"Atlas" Hadron Calorimeter Modules	Institute of High Energy Physics (IHEP)	198,000.00	EU
0386-2	Narrow EM-Wave Beam	MRTI (Radio Techniques)	200,000.00	US
1665	Alkali Metals Spectrum	Institute of Physical-Technical Problems	200,000.00	US
1208	Calculation Model of Materials Dynamic Destruction	VNIIEF	212,230.00	US
1828	Prompt Neutron Spectra of Minor Actinides	Khlopin Radium Institute	222,000.00	Japan
K-497	Nuclear Data for Astrophysics	National Nuclear Center of the Republic of Kazakstan/ Institute of Nuclear Physics	224,780.00	US
1181	Failures and Phase Transformations in Solids	VNIITF	225,000.00	US
G-389	Lattice Dynamics in High Temperature Superconductors	Institute of Physics (Ge)	230,000.00	EU
1425	Spherical Ionization Waves	Siberian Branch of RAS/Institute of Thermophysics	237,000.00	US
1158	Super Fast Electromagnetic Radiation Source	VNIIEF	250,000.00	US
1463	Mobile Shielding for Collider	Institute of High Energy Physics (IHEP)	265,000.00	EU Other
A-216	Detection of Solar Neutrons	YerPhi	280,000.00	US Japan
1123	Diagnostics of Streamer Discharges	All-Russian Electrotechnical Institute/ High-Voltage Research Center	290,000.00	US
1001	Laser Spectroscopy of Tissues	GNPO Polyus	290,000.00	EU
B-441	Relaxation Processes Related to Biomolecules	National Academy of Science of the Republic of Belarus/ Institute of Molecular and Atomic Physics	296,000.00	EU Japan
1399	Radiation Influence on Ignition of Hydrogen Mixtures	VNIIEF	298,000.00	US
1801	Laser Propulsion Systems	Vavilov State Optical Institute (GOI)/ Research Institute for Complex Testing of Optical Devices	300,000.00	Japan
1581	Discharge Singlet Oxygen Generator	VNIIEF	300,000.00	US Korea
A-321	Liquid Crystal - Semiconductor Interface	Yerevan State University	300,000.00	US
1159	Human Eye Models	VNIIEF	306,000.00	US
B-479	Gradient Laser Fields in Biology	Institute of Physics (Be)	308,300.00	EU
1338	Plasmachemical Water Decontamination	GosNIIOKhT	312,944.00	US
1480	Runaway Breakdown and Lightning Initiation	VNIIEF	330,000.00	US Other
0729	Modeling of Supernova Explosions	Scientific Research Radiophysical Institute	340,000.00	US
1522	Magnetic Multi-layered Structures	Institute of Radioengineering and Electronics (IRE)/ Fryazino Branch	351,800.00	US
1727p	Repetition Sources of Ultraviolet Radiation	TRINITI	400,000.00	Partner
1861	Nuclear Polarization in Molecular Hydrogen	Nuclear Physics Institute	449,999.80	EU Partner
1800p	End-cap ATLAS Tracker	MIFI	1,685,000.00	Partner
	Space, Aircraft and Surface Transportation		**1,904,996.00**	
1863p	Stability of Hypersonic Boundary Layer	Siberian Branch of RAS/Institute of Theoretical and Applied Mechanics (ITPMech)	25,000.00	Partner
1477	Vortex Flow in the Aircraft Wake	VNIIEF	100,000.00	US EU
1440	Space Objects in Extraterrestrial Planet Atmosphere	MFTI (Physics and Technology)	150,000.00	US
0887	Supersonic Inlets	Siberian Branch of RAS/ Institute of Theoretical and Applied Mechanics (ITPMech)	200,000.00	EU Other
1469.2	Inflatable Re-entry and Descent Technology- Part 2	Babakin Science and Research Space Center	349,996.00	EU
1549	Aerothermoballistics Problems in Interplanetary Mission	NIIM (Mechanics)	380,000.00	EU
1936p	IRDT Test Flight	Babakin Science and Research Space Center	700,000.00	Partner
NEW FUNDING TOTAL		313 PROJECTS	US$ 85,832,978.30	

Note: Amounts shown in US$ and are indicative; fluctuations in currency markets may effect final funding amounts.



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