



Celebrating 10 Years  
2005 Annual Report



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CRDF is a public-private partnership that promotes international scientific and technical collaboration, primarily between the United States and the countries of Eurasia.



**CRDF** marked its **tenth anniversary** in 2005 with formal **observances** and **reflection** on what we have **accomplished** and those who have **helped us** along the way.

We convened discussion panels, symposia, receptions and press conferences to highlight the accomplishments and to formally recognize our partners and the participants whose cooperation and effort made them possible. Anniversary events were held in Baku, Bishkek, Chisinau, Kyiv, Moscow, Tbilisi and Yerevan, with generous support and participation by the U.S. embassies in each of those capitals. Finally our Gala at the Smithsonian Institution's American History Museum in Washington, DC allowed us to thank and recognize our U.S. partners and participants.

Our work in 2005 reflects the changing nature of the financial support that CRDF is receiving, as well as the new directions and new partnerships upon which we are embarking. We've focused our efforts on strengthening local resources, helping our Eurasian collaborators transition from "recipients of aid" to fully sustainable partners. CRDF's support from the Department of State is focused now less on Russia and more on the other parts of Eurasia. At the same time, the government of Russia has put up more of its own funds to support our small-group research collaborations, reflecting Russia's continuing transition, from recipient of assistance to funding partner. Our Industry Programs have focused on developing partnerships between research and industry, both within the countries where we work, and between them and U.S. industry. Our Nonproliferation team also expanded its work in the Middle East and North Africa during the year, responding to the needs of the Department of State's offices responsible for nonproliferation activities related to Iraq and Libya.

We continued our efforts by extending our work outside Eurasia to additional regions such as the Balkans, and to new modes of cooperation in countries like Estonia where we have already begun work.

This year our Basic Research and Higher Education (BRHE) program was recognized in Russia as an effective model for Russia's own efforts to modernize its university system. Our partners and funders for BRHE—The John D.

and Catherine T. MacArthur Foundation and the Carnegie Corporation of New York—renewed their commitment to BRHE with generous grants to CRDF for a third phase of the program. Their decision was in no small way influenced by the Russian Ministry of Education and Science’s commitment to assume an increasing burden such that it will be financing the majority of programmatic costs by the end of 2010. The Ministry also unilaterally funded 15 additional Research and Education Centers outside the existing program but patterned on the BRHE model.

Responding to the decision of the new government of Ukraine to reform the country’s system of support for science and technology, CRDF hosted the International Select Conference on Ukrainian Science. Outcomes included a series of recommendations for institutional and procedural reform that constitute a roadmap for future directions in Ukrainian science and higher education innovation. A representative of the Government of Azerbaijan attended the conference and Azerbaijan’s Ambassador to the U.S. subsequently expressed interest to CRDF in hosting a similar event in Baku in 2006.

Support of U.S. policy objectives has always been a fundamental element in our work. The objectives that contribute to our national security—including support for science, nonproliferation, application of science and engineering to needs of society, rebuilding damaged economies and building stronger ties for America abroad—are all advanced through international cooperation in science, engineering and education. In this annual report, we hope you see that, over ten years of significant change, CRDF has remained convinced of the importance of international scientific and technical collaboration to address continued and emerging challenges in the world. We enter our second decade with the certain knowledge that it will be substantially different from the first decade in many respects. What will not change is our dedication to international cooperation, to serving the objectives of our supporters and partners, and to pursuit of our mission with the same passion and enthusiasm.



Gloria Duffy  
*Chair*



Charles T. “Tom” Owens  
*President and CEO, 2005*

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Georgian recognition medal recipients pose with CRDF Board Member Albert Westwood during the 10th Anniversary celebration in Tbilisi, June 23, 2005

# Advisory Council

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**Dr. Robert M. White**

*Principal  
The Washington Advisory Group*

## Note to our Sponsors

The CRDF would like to thank the following U.S. Government agencies, private organizations and donors, whose financial support and guidance make the Foundation's work possible:

- U.S. Department of State
- U.S. National Science Foundation
- U.S. National Institutes of Health
- U.S. Defense Threat Reduction Agency
- The John D. and Catherine T. MacArthur Foundation
- Carnegie Corporation of New York
- Bechtel National, Inc.
- U.S. Agency for International Development

CRDF would also like to thank the following corporations and organizations which provided sponsorships to CRDF events in 2005:

- GLOBEXBANK
- Schlumberger
- Intel Corporation
- Office of Naval Research Global
- Aquila Technologies Group, Canberra Industries
- DuPont
- General Electric
- Stanford Equipment
- Diversa
- SoftServe
- Bechtel Corporation
- Ukram Industries
- Monsanto
- CP Technosorbent, Ltd.
- 3M

CRDF would also like to thank the many scientists and engineers in the United States and Eurasia who volunteer their time and expertise to ensure the scientific merit of projects supported under CRDF programs.



## CRDF Marks Ten Years of Achievements

In 2005, CRDF celebrated its tenth anniversary of supporting international scientific cooperation to address critical global issues. Over those ten years, the Foundation has created a unique structure of five interrelated programs and services to efficiently fulfill its mission and to plan for the next decade. From reviewing and administering research grants to developing training programs, CRDF facilitates international scientific exchange and helps rebuild and reconfigure essential infrastructural resources for research. CRDF has and will continue to foster collaborations which produce new knowledge that can be applied to regional and global challenges, and to U.S. policy objectives.

The Cooperative Grants Program (CGP), launched as CRDF's flagship initiative in 1995, rests at the core of its activities. Grants average \$60,000 and provide up to two years of support for joint U.S. and Eurasian teams in all areas of basic and applied research in the natural sciences. The entire process, from proposal preparation to grant implementation, provides scientists with in-depth practical training in collaboration, merit-based peer review and the details of managing complex international research projects. Recent projects focus on the global challenges of HIV/AIDS and antiterrorism, which attract additional support from partner governments and organizations.

The Centers and Institution Building Programs (CIB) help rebuild the educational and institutional infrastructure Eurasian scientists need to achieve in-country science and technology advances. The role of research institutions is new to many Eurasian higher-education facilities. Through the Basic Research and Higher Education Program (BRHE) and related programs, CRDF helps build capacity for future generations. CIB programs have assisted the launch of 16 Research and Education Centers (RECs) in Russia and 21 Regional Experimental Support Centers (RESCs) throughout Eurasia. These programs offer the equipment, training and collaborative opportunities necessary for advanced and refocused research. In addition, in-country partners have co-sponsored new

## CRDF Celebrates a Decade of Supporting International Collaboration



CRDF hosted several events throughout Eurasia and in the United States to acknowledge its tenth anniversary and recognize individuals whose contributions have been crucial to advancing science and technology collaboration between the United States and Eurasia. Sixty-two leaders in science, government, industry and academia were awarded CRDF Recognition Medals as part of this milestone. In addition, CRDF established a special award to honor the late U.S. Rep. George Brown, whose vision for international science collaboration helped facilitate CRDF's creation. The CRDF George Brown Award for International Science and Technology Collaboration, CRDF's highest award,

was given to Dr. John H. "Jack" Gibbons and Dr. Yuri A. Ossipyan for their pivotal leadership in international cooperation and understanding in the period leading up to CRDF's establishment. Dr. Gibbons, former Science and Technology Advisor and Director of the White House Office of Science and Technology Policy under President Clinton, was recognized for his critical role in achieving the U.S. policy consensus needed to launch the CRDF in 1995, and Dr. Ossipyan, former Vice-President of the Academy of Sciences of the Soviet Union and presidential Science Advisor, was honored for his leadership in the cooperation between the U.S. and Russia during the period in which CRDF was established.

*Dr. John H. "Jack" Gibbons addresses the audience after receiving the George Brown Award for International Science and Technology during CRDF 10th Anniversary Gala in Washington, DC October 19, 2005. CRDF also presented Dr. Yuri A. Ossipyan with its highest honor at a September 12, 2005 ceremony in Moscow. Dr. Ossipyan was the first Vice President of the Academy of Sciences of the Soviet Union.*

*“I’ve thought that science could be the basis for a better world, and that’s what I have been trying to do all these years.”*

Hon. George E. Brown,  
D-CA (1920-1999)

initiatives modeled on these programs, helping to build self-sustaining scientific communities.

Moving technology into the marketplace—while fostering the growth and sustainability of innovation economies in Eurasia—is the goal of CRDF’s Industry Programs (IP). These programs build upon the large knowledge base of Eurasian science, transforming this background into viable, profitable products for global business.

Scientists are trained and mentored in business skills and given ample networking opportunities to attract regional and international commercial investment. Local businesses and entrepreneurs are crucial and fully engaged participants, as are numerous diverse U.S. and international corporations.

CRDF’s Nonproliferation Programs (NP) have several intersecting goals: to encourage scientists with WMD backgrounds to build civilian research relationships and take advantage of funding opportunities at home; to prevent economically devastating “brain drain,” and to advance U.S. foreign policy objectives. These goals are reached through NP’s established programs in Eurasia and new programs in the Middle East and North Africa. From small, targeted grants to contract work for U.S. government programs, NP helps advance international scientific understanding and develop civilian research opportunities for scientists with weapons expertise.

The Grant Assistance Program (GAP) provides the administrative structure for CRDF grantmaking, and offers these services to other organizations. The program’s unique set of financial and project management services support collaborative scientific research, educational and charitable activities in Eurasia; these range from funds transfer and disbursement to logistical support. GAP’s enabling agreements with Eurasian government agencies and preferred vendor programs maximize efficient use of funds and allow researchers to concentrate fully on their core activities.

### **2005: CRDF Realizes—and Expands Upon—Its Founding Purpose**

In its first decade of operation, CRDF has made more than 3,000 awards and implemented 1,000 GAP projects totaling almost \$240 million and involving over 25,000 scientists. Beyond the numbers, CRDF’s programs and services have created long-lasting impact. Recipients of CRDF-facilitated training and research grants have applied their new knowledge in their home countries, leading to the creation of companies in a few instances.

As CRDF looks to the future, it will continue to build local capacity and self-sufficiency in the countries in which it works. CRDF programs have launched four independent grantmaking organizations in the South Caucasus and Moldova. These organizations are designed to become sustainable entities funded by multiple sources—and have already demonstrated success in attracting additional support. CRDF’s experience in Eurasia is now being applied to new areas of need, such as the engagement of scientists from Iraq, and to new research opportunities. This document both reflects upon accomplishments throughout 2005 and demonstrates CRDF’s readiness for new challenges and opportunities through international scientific cooperation.

## Cooperative Grant Programs

From their beginnings, Cooperative Grant Programs have exemplified the CRDF mission by expanding research possibilities through international partnerships. By 2005, the programs had awarded 1,047 projects and disbursed over \$45 million in funding. Eurasian governments contributed \$3.2 million to the program over the past ten years, illustrating a mutual commitment to international scientific collaboration.

### Program Innovations Highlight Groundbreaking Science

The preliminary results from a CRDF-commissioned 2005 survey of former grant participants in Russia indicate that the Cooperative Grants Program (CGP) is standing on solid footing. Indicators—publications, conferences, and Principal Investigator (PI) satisfaction—show that CGP research is valuable and that scientists are connecting with the global community. For example, 84% of Russian scientists reported remaining in contact with their American partners after the grant finishes, and nearly a third receive additional Western funding to continue their collaboration. CRDF's Evaluation Department will continue to survey past CGP participants across Eurasia to further understand the impact of CRDF's grants and track the Foundation's progress in transitioning former weapons scientists to civilian work.

In 2005, CGP recorded innovations in both programmatic design and scientific achievement. Under a new funding format, CGP and the Federal Agency for Science Innovations of the Russian Federation (Rosnauka) jointly supported a grant competition connecting research partners in Russia and the United States. This program awarded nine research grants averaging \$83,000 to scientists in the fields of nanotechnology and materials, life sciences, environmental sciences, conservation biology and safety and anti-terrorism research. Rosnauka contributed up to 1.7 million rubles (approximately \$57,000) per award.

CGP maintains a record of innovation and excellence as active collaborations continue to produce noteworthy technical achievements. For instance, a team of researchers from the Russian Center for Theoretical Problems of Physi-



*Participants work together during a Cooperative Grants Program grant writing workshop in Bishkek, Kyrgyzstan, November 9-11, 2005*

### News Media Broadcasts CRDF Value

The March 3, 2005, issue of *The Economist* featured "Star Wars Into Ploughshares," an article highlighting CRDF's history and achievements in promoting international collaborations. The article outlined CRDF's aims to help bring new research technologies to market and to provide former weapons scientists with opportunities to redirect their expertise toward civilian research.

In this spirit, CRDF support for an engineering collaboration between researchers at Lawrence Livermore National Laboratories and the Ukrainian Institute for Single Crystals was highlighted. The project featured several former weapons scientists and explored technology for detecting explosives in luggage and shipping containers.

cochemical Pharmacology and the Mayo Clinics in New York and Minnesota focused on cancer cell apoptosis, or “cellular suicide.” The project’s combination of mathematical modeling and biochemical methods examined the process by which damaged cells cease to function, providing background for a potential cancer therapy.

Another CGP partnership, between the V.N. Orekhovich Research Institute of Biomedical Chemistry, Russian Academy of Medical Sciences and Vanderbilt University, made advances in scientific research in 2005. The team used software simulations of biochemical processes and complex molecule behavior to research factitious proteins of the cytochrome P450 family.

### **HIV, Junior Scientist Programs Reach Next Step**

According to 2005 UNAIDS figures, HIV/AIDS infection rates have increased nearly twenty-fold in ten years in Eastern Europe and Eurasia. It is clear to scientists and policymakers that if the trend continues this disease could not only affect individual well-being in these areas but also impact overall political stability and economic productivity throughout the region. In 2005, the first six research grants under CRDF’s HIV/AIDS initiative, totaling more than \$500,000, were awarded to U.S. and Eurasian scientists to undertake research to help develop cost-effective prevention and treatment options.

Many scientists also focused their efforts on related conditions, such as tuberculosis, which is propelled by weakened human immune systems and is a leading cause of death among the HIV-infected population. Their research built upon groundwork established in 2004, when CRDF supported a series of proposal development workshops in which representatives from the United States, Eastern Europe and Eurasia shared experiences, set research priorities and developed ideas for collaborative projects.

Using the CGP Junior Scientist Fellowship model in this milestone tenth anniversary year, CRDF awarded fellowships to work in U.S. and Eurasian laboratories to 12 junior scientists from Armenia, Azerbaijan, Georgia, Kyrgyzstan,

### **Dr. Lane Updates Congress on CRDF’s Progress**

In June 2005, former National Science Foundation (NSF) Director and former CRDF Board Member Dr. Neal Lane hosts a R&D Caucus event on Capitol Hill, which highlighted CRDF’s successful utilization of international scientific partnerships to address global challenges.

The presentation, joined by Reps. Rush Holt (D-NJ) and Judy Biggert (R-IL), highlighted CRDF’s work and the mutually beneficial partnerships addressing terrorism, HIV/AIDS and economic development in Eurasia.

*Former CRDF Board Member Dr. Neal Lane hosts a R&D Caucus event on Capitol Hill, which highlighted CRDF’s successful utilization of international scientific partnerships to address global challenges.*





*Dr. Jim Sherry, professor and chair of the Department of Global Health, George Washington University speaks about opportunities to address HIV/AIDS and TB in Eurasia during the January 13 CRDF-AAAS panel, "Addressing Global Nonproliferation, Antiterrorism & Public Health Challenges through International Scientific Collaboration."*

Moldova, Russia, Ukraine, the United States and Uzbekistan. Competitively selected from past or current CRDF grants, these 12 fellowships highlighted the international scientific achievements of CRDF's first decade, while providing resources to the next generation of scientists to continue this legacy. The model is designed to help advance the research goals of CGP grants by providing the opportunity for U.S. and Eurasian junior scientist to pursue specific research topics. The fellowships provide funding for each grantee to his or her CGP host university or laboratory to pursue a proposed line of research.

## **Collaboration Garner Prestigious American Physical Society Award**

CRDF support for collaborative research helped one grantee earn the prestigious John Wheatley Award, given biannually by the American Physical Society.

Steven T. Manson, of Georgia State University, was part of a team working with scientists in Uzbekistan, India and Turkey to research the interaction of radiation with free and confined atoms and ions. The project's results were published in major journals, including Physical Review Letters, Physical Review and the

Journal of Physics. Manson's efforts promoting research and supporting students in these countries were praised by the awards group.

"Since CRDF funding was a vital part of the contributions, I feel that this award is for CRDF as much as for me," Manson said. This added recognition for beneficiaries of CRDF's support has helped highlight research accomplishments, develop strong potential for additional funding and enhance research productivity for collaborators in Uzbekistan.

## Centers and Institution Building

**T**hough regions and strategies were diverse, all Centers and Institution Building Program (CIB) initiatives in 2005 shared common threads: strong success indicated by the replication of CRDF-built models and increased support by host governments. Furthermore, increased support of CRDF's Russian universities program by the John D. and Catherine T. MacArthur Foundation and the Carnegie Corporation of New York continued to indicate the strength of the CIB model.

Building a knowledge-based economy requires the simultaneous strengthening of education and science. The CIB programs help provide the foundations and support to develop such economies by creating scientific equipment centers and university research centers over the past decade.

*"Few programs have succeeded in the implementation [of scientific programs in Russia] to the extent that the BRHE has."*

Dr. John Slocum, Co-Director, Initiative in the Russian Federation and Post-Soviet States, The John D. and Catherine T. MacArthur Foundation

Regional Experimental Support Centers (RESCs) updated and expanded the scientific infrastructure in eight countries of Eurasia (Armenia, Azerbaijan, Georgia, Kazakhstan, Moldova, Russia, Ukraine and Uzbekistan) by providing 21 shared equipment resource centers for students, scientists and businesspeople.

Sixteen Research and Education Centers (RECs) provided Russian universities with modern research equipment, and reintegrated research into the education of young scientists to enrich Russia's knowledge base for a modern economy.

As CRDF moves forward, RESCs and RECs also engender new initiatives that respond to changing times. In 2005, inspired by the success of the Basic Research in Higher Education (BRHE) Program in Russia, CRDF launched initiatives to establish Research and Education Centers in Armenia, Azerbaijan, Georgia and Moldova. In Armenia, CRDF, the Armenian National Foundation of Science and Advanced Technologies (NFSAT) and the Ministry of Education and Science of the Republic of Armenia (MESRA) started the Basic Research in Armenian Universities program (BRAU). The grant, which will help establish a modern, well-equipped center at the State Engineering University of Armenia, was funded with \$150,000 from CRDF, \$60,000 from the host university and \$90,000 from MESRA.

These newer initiatives are conducted in cooperation with CRDF's local Institution Building (IB) partners: the Azerbaijan National Science Foundation (ANSF), the Georgian Research and Development Foundation (GRDF), the Moldovan Research and Development Association (MRDA) and NFSAT. Host governments have increasingly provided support for these and other programs, helping these foundations move toward financial independence and demonstrating acceptance of their core peer review principles.

### **A Revolutionary Model Becomes Standard**

The BRHE program, CRDF's largest privately funded activity, has become firmly established at competitively selected higher education institutions in Russia. BRHE's purpose is to strengthen basic research in Russian universities. As Rus-

sia's university sector reformed, BRHE provided a blueprint by promoting high-quality research in conjunction with the education of young scientists, by encouraging innovation and by offering scientists the means and opportunity to contribute to the world scientific community. The program allowed all participants in the university community, from students to young scientists to senior faculty members, to take part in research.

A BRHE commitment of \$3 million, including \$1.7 million from Russian federal government and local sources, supported RECs in 2005. In addition, CRDF and the Russian Ministry of Education and Science funded program conferences, technology transfer activities, post-doctoral fellowships, English language training and other related activities for RECs. These supplemental activities equip these multidisciplinary centers with the capabilities that will help their host institutions become modern research universities.

The John D. and Catherine T. MacArthur Foundation, which had already provided more than \$19 million to support the BRHE program, in 2005 awarded CRDF an additional \$10 million, five-year grant. The Carnegie Corporation of New York added another \$1 million to its previous \$3 million commitment to the program. These milestone contributions further supported the continuation and replication of the BRHE model and leveraged additional significant contributions by Russian sources. Most programmatic costs will shift to Russian sources by 2010.

### **Institutions Grow and Build Regional Scientific Networks**

With the South Caucasus Cooperative Research Program (SCCRP), CRDF and its partner institutions ANSF, GRDF and NFSAT held the first research grant competition involving project teams with collaborators from each country. The strong pool of 15 applications, with 300 project participants—many of them former weapons scientists—represented 35 different research institutions, demonstrating a strong interest in regional scientific cooperation.

CRDF met in Tbilisi, Georgia with representatives from ANSF, GRDF and NFSAT to evaluate proposals and fund one project from the competition. The selected project, "Development of Genetic and Exploration Models to Aid in Exploration, Development and Environmental Mitigation of Gold-Bearing Deposits of the Lesser Caucasus," will involve collaborators from the U.S. Geological Survey (USGS), enabling project scientists from the Southern Caucasus to access laboratory equipment not available in their region. The knowledge gained by the researchers will provide new insights into the genesis of economically valuable ore deposits, allowing the USGS and its Southern Caucasus partners to improve mineral exploration techniques.



*John D. and Catherine T. MacArthur Foundation President Jonathan Fanton announces a \$10 million grant to CRDF's BRHE program at the 5th Annual Pan-REC conference in St. Petersburg, Russia June 3, 2005*

The peer review processes used in SCCRP also played a pivotal role in CRDF's support to independent grant making institutions in Armenia, Azerbaijan, Georgia and Moldova. With CRDF training and administrative support, these foundations organized their own peer review process for each competition to

complement the U.S. model. In addition to providing valuable institutional capacity, the anonymous reviews gave applicants an opportunity to learn how to improve their proposals for future submission and strengthened trust in the peer review process.

Institution building and educational integration emerged as key themes at the CRDF-organized International Select Conference on Ukrainian Science. Oleh Rybachuk, Chief of Staff to the President of Ukraine, opened the conference by emphasizing the importance of creating favorable conditions to strengthen Ukraine's scientific potential. The conference resulted in several recommendations for a science and technology development plan, including close integration of research and education, outreach to the international scientific

community and programs supporting former weapons scientists in national strategy. Ukraine's Presidential Working Group on Science, several members of which attended the conference, welcomed these and other conference recommendations. As the group applies these findings toward securing funding, CRDF will concurrently use insights gained into Ukrainian priorities to help garner support for new and enhanced programs.

In Moldova, a two-day conference CRDF organized with the MRDA focused on continuing RESCs on the path toward self-sustainability. The centers most successful at fulfilling the RESC vision gave case study presentations on topics from managing research to generating business activity.

### **Program Modeled on CGP Builds Support for the Peer Review Process**

CRDF worked with ANSF, GRDF, MRDA and NFSAT to support the Bilateral Grants Program (BCP) which supports collaborative research. Here, funds from the U.S. Department of State allowed the Foundation's CIB program to apply the CGP model to develop partnerships. Each local independent organization administers a program of grants averaging approximately \$35,000 each.

*"I applaud CRDF's vision and leadership in engaging Ukraine's talented scientific community. By engaging scientists with weapons experience and those in civilian sectors we are making an important investment in the future of a peaceful, prosperous and democratic Ukraine."*

**Sen. Richard Lugar, D-IN,  
Chairman of the U.S. Senate  
Foreign Relations Committee**

## **Honors for Cross-National Training Materials**

Science leaders are instrumental in building cross-national bridges in higher education. In 2005, Celia Elliott, Director of External Affairs and Special Projects for the Department of Physics at the University of Illinois at Urbana-Champaign, received the CRDF Recognition

Medal for her contributions. Elliott's training materials for CRDF staff and partner institutions of higher learning in Eurasia have become the standard for those seeking to establish research collaborations and prepare successful proposals.





*CRDF President and CEO Cathy Campbell leads a panel presentation at the Select Conference on Ukrainian Science October 31-November 1, 2005 in Kyiv, Ukraine*

By focusing research on areas of national priority, BGP demonstrates to host governments the advantage of peer review competitions for distributing finite science funds. Furthermore, BGP gave local scientists the opportunity to compete with their peers, rather than against scientists from better-equipped centers elsewhere.

CRDF also promoted the peer review process through a series of proposal writing and business development workshops for researchers in Almaty, Kazakhstan; Dushanbe, Tajikistan; and Bishkek, Kyrgyzstan. At each workshop, scientists learned strategies for contacting international scientific collaborators, identifying international funding sources and writing a competitive research proposal.

### **Seismic Research Provides a New Avenue for Defense Conversion**

Seismic research has proven a productive area for former weapons researchers as CRDF continues to provide grants and support. The International Geodynamics Research Center (IGRC), a project involving scientists from former Soviet weapons programs that has received marked support from CRDF since 1997, continued to yield benefits. The IGRC is a collaborative effort of the Institute of Seismology of the Academy of Sciences of Kyrgyzstan and the Bishkek branch of the Institute of High Temperatures of the Russian Academy of Science. An important part of IGRC is support of the Kyrgyz Seismic Network, which provides researchers and non-proliferation experts around the world with highly reliable data on naturally occurring and man-made seismic activities in Kyrgyzstan and the surrounding countries. For example, CRDF has united IGRC investigators with earth scientists from the United States, providing the U.S. researchers access to this exceptionally dynamic seismic region. In 2005, the IGRC hosted its Third International Geodynamics Symposium to cultivate additional sources of collaboration and support.

## Industry Programs

**T**hrough a unique mix of expertise and services, CRDF's Industry Programs (IP) in 2005 accelerated the collaborations between research and industry and fostered the development of new business opportunities and enabled new partnerships. Forums, conferences, travel opportunities and project grants engaged researchers, entrepreneurs and governments in free-market commercial activities and established CRDF as a recognized resource for U.S. and Eurasian companies seeking partnerships for business innovation and advanced R&D.

### Events Support Entrepreneurs and Indigenous Science

In a continued effort to support new business ventures in 2005, CRDF expanded the scope of its business training activities. CRDF's Science and Technology Entrepreneur Program (STEP) carried out a number of workshops in Eurasia to provide scientists and engineers with training and networking opportunities needed for development of science and technology oriented businesses. In Russia, CRDF partnered with the Russian Foundation for Assistance to Small Innovative Enterprises (FASIE) on workshops to stimulate the creation of new

Russian science and technology based enterprises, facilitate new partnerships with U.S. for-profit companies and promote the development of the underlying science and technology infrastructure.

In Azerbaijan, Georgia and Moldova, STEP worked with CIB and regional partners to host three kinds of events: science-business conferences, business workshops and venture conferences. Science-business conferences connected scientists and engi-

neers with the local business community, company executives, international assistance providers, financiers and government representatives to identify strategies to link science with business. The business workshop provided more than 400 scientists and engineers with a full day of business training and opportunity to begin finding commercial partners.

Venture conferences showcased joint projects by scientists and company partners, which were presented to a panel of judges and the local business community. Seventeen of the presenting teams received grants to solve existing problems. For example, in Azerbaijan, scientists from the Ecological Innovation Center partnered with an Azeri electric machine building plant to produce fruit-drying machines at a scale and cost viable for regional farmers. In Georgia, microbiologists from the Eliava Institute of Bacteriophage, Microbiology and Virology collaborated with a dairy producer to develop an import substitute for yogurt. In Moldova, a team of informatics scientists teamed with a trolley electronics company to produce the company's next generation of trolley controllers, devices that will be sold in regional markets. Such successful projects encourage more scientists and companies to come forward and work together.

*"CRDF really did the hard work over the last decade to raise more visibility about the incredible science that goes on in Russia and to begin to build those bridges. Without their leadership in that, we would be not nearly in the place we are today internationally."*

**Maura O'Neill, President, Explore Life**

In Russia, CRDF and FASIE co-sponsored five regional business workshops and roundtables, training more than 300 Russian start-ups and yielding 17 CRDF travel grant applications and one First Steps to Market (FSTM) award. Each workshop was implemented locally by one of FASIE's 30 Innovation Technology Centers and enabled the local event organizer to build its institutional capacity as a regional business development center.

**Partnerships Link Eurasian Innovations with U.S. Businesses**

This year, CRDF continued to facilitate connections between U.S. and Eurasian businesses and researchers by funding 78 travel grants to Eurasian scientists, engineers and entrepreneurs from eight Eurasian countries. To further catalyze commercial outcomes from travel grants, CRDF also supported a new series of targeted U.S. events and forums.



*Marina Hambarzumyan explains her research to Aveva Business Development Manager Bob Bloder at the American Association of Pharmaceutical Scientists (AAPS) annual meeting in Nashville, TN November 6, 2005*

A Eurasian delegation selected through a highly competitive CRDF grant process participated in the Nano Science and Technology Institute conference in Anaheim, CA. Five scientists presented their market-ready technologies, including carbon monoxide detectors and high-temperature semiconductors.

Eurasian advances in renewable energy technology were the focus of a March conference in Denver, CO. There, businesses and investors received background on R&D projects and had the opportunity to meet scientists one-on-one. The CRDF-led conference was made possible by a partnership with the Sustainable Profitability Group and a grant from the NATO Security through Science Program.

CRDF continued to support the Eurasian Association of Technology Transfer Managers (EATTM)—which was originally initiated by CRDF—by funding the travel of three EATTM experts to participate in a CRDF-sponsored panel, "Tactics and Tools for Conducting Business Abroad: Eurasia," at the 2005 Association of University Technology Managers conference in Phoenix, AZ. Alexander Sergeev and Victor Bakunin, Eurasian entrepreneurs who entered successful business alliances with U.S. companies Imalux Corporation and Chemtura Corporation, presented an overview of their business models and how

**First Steps to Market (FSTM)**

- Projects started: 16
- Projects involving weapons scientists: 7
- Total number of scientists: 121
- CRDF grant amount: \$319,983
- Projects completed: 23

**Next Steps To Market (NSTM)**

- Projects started: 8
- Projects involving weapons scientists: 5
- Total number of scientists: 93
- CRDF grant amount: \$361,995
- Projects completed: 17

they used CRDF funding to support early stage collaborations at the Licensing Executives Society (LES) Annual Meeting in October in Phoenix.

CRDF's Travel Grants Program reached out to new partners—the Foundation for Russian American Economic Cooperation (FRAEC) and ExploreLife—to co-sponsor the Life Sciences Technology Commercialization Training Workshop, in Seattle, WA. This cross-program effort by CRDF's Industry, BRHE and NP initiatives, along with the U.S. Department of State's BioIndustry Initiative (BII) program, brought together 13 Russian life science researchers and entrepreneurs. Travel grantees involved in pharmaceuticals and drug delivery got the chance to meet potential industry partners at a CRDF-sponsored panel at the American Association of Pharmaceutical Scientists annual meeting. During the Materials Research Society fall meeting in Boston, five additional travel grantees discussed their advanced materials innovations with companies at a CRDF-sponsored poster session.

*"CRDF is the only organization that I've worked with in the United States that has made the partner in the former Soviet Union feel like a partner. It's a wonderful experience working with all the people at CRDF."*

Howard Pedolsky, President, Orbita

CRDF and Intel co-sponsored an event in Moscow on public venture financing and university-based entrepreneurship. More than 30 business development managers from local universities and institutes, as well as attendees from National Science Foundation (NSF) and Ohio Department of Development (ODOD), participated in a two-day roundtable to discuss strategies for supporting the development of science- and technology-focused small and medium enterprises in Russia. Intel's annual BIT-2004 Competition also aligned with CRDF goals to encourage entrepreneurship and business development among Eurasia's scientific communities.

### Grants Fuel Market-Focused Innovation

First Steps To Market (FSTM) and Next Steps To Market (NSTM) programs continued to support promising commercial R&D partnerships. More than 40 U.S.-Eurasian teams applied for funding throughout 2005, resulting in 24 new awards.

## FSTM, NSTM Winners Close in on Economic Success

In areas from radiology to hydrodynamics, in 2005 FSTM and NSTM grantees moved closer to the marketplace with exciting innovations.

A successful business partnership between researchers from Rostov State University (Russia) and ATeL, LLC (U.S.) continued work on educational software modules for learning nanotechnology, radiation, x-ray physics, x-ray equipment and control methods and

radiology. The concept was originally developed under an FSTM grant and is now supported by the NSTM program.

Another FSTM partnership, the Ukrainian Center of Environmental and Water Projects and Coast & Harbor Engineering (U.S.), improved its prototype software for assessing coastal area hydrodynamics and erosion.

U.S. PIs reported 2005 to be a successful year for both FSTM and NSTM. For FSTM, it marked the successful completion of many of the first projects funded by this program, with many teams citing significant accomplishments. Evaluations planned for 2006 will further highlight these.

Early in 2005, an external evaluator reported that at least six NSTM partnerships had already generated commercial sales. Among the 45 NSTM projects evaluated, twelve showed more than \$100 million in market potential, and eight showed more than \$1 billion in market potential.

From biochemistry to plasma screens, rubber asphalt for roads to a treatment for canine ear infections, IP activities in 2005 demonstrated a wide range of scientific breakthroughs possible under FSTM and NSTM grants.

### Partners Launch New Industry Services

In 2005, CRDF's Industry Programs not only focused on granting awards and sponsoring workshops and events but also added new services. For example, Kazakhstan's National Innovation Fund (NIF) contracted with CRDF to provide technical and business reviews for NIF proposals. This signified the first opportunity of its kind and highlighted a potential area for expansion.



*Five CRDF-selected scientists from Armenia, Kazakhstan, and Ukraine attend the Materials Research Society annual meeting November 27, 2005 in Boston, MA*

### 3M-Russia Collaboration Generate Products, Jobs

Three new jobs at Russia's Lebedev State Institute of Synthetic Rubber—as well as useful new products—emerged from an 18-month NSTM project with the Dyneon division of 3M

Corporation (U.S.). Researchers in this partnership developed new types of fluoropolymers for use in aerospace, communications and electronics.

### Renewable Energy Technology Conference Yields Advances for Armenia

The CRDF-sponsored International Conference on Renewable Energy Technologies in Denver, CO resulted in an agreement between California-based Amonix Inc. and Transistor Plus Co.

of Yerevan, Armenia, to design and install the Caucasus region's first 4.0kWp solar tracking demonstration system for water pumping.

# Nonproliferation Programs

**C** CRDF's Nonproliferation Programs (NP) have helped redirect the expertise of more than 2,500 scientists from Eurasia, the Middle East and North Africa who formerly worked on weapons projects to civilian work.

To maximize these opportunities for such scientists, CRDF in 2005 continued to explore ventures with U.S. and foreign government, non-government and corporate partners in a wide range of disciplines. This was made possible largely by renewed funding to CRDF for more than \$22 million in a multi-year contract and grant support from U.S. government nonproliferation programs within the Defense Threat Reduction Agency (DTRA), the U.S. Department of State (DOS) and Bechtel National Inc. (BNI).

## Programs Redirect Talent Toward Global Security

NP significantly assisted U.S. nonproliferation policy goals through involvement in DTRA's Cooperative Biological Research (CBR) program and DOS nonproliferation initiatives. This included implementing aspects of DTRA's CBR program and the State Department's Nonproliferation of Weapons of Mass

Destruction Expertise (NWMDE) and Nonproliferation and Disarmament Fund (NDF) programs as well as implementing a NP-CGP antiterrorism research grant.

Under DTRA's CBR program, NP organized training by specialists from the U.S. Army Medical Research Institute of Infections Diseases (USAMRIID) for their peers from the Uzbekistan Min-

istry of Health. This training on how to use handheld global positioning devices allows scientists to precisely track the spread of plague, anthrax and tularemia, which exist naturally in Uzbekistan, and plan appropriate measures to protect public health in the event of an outbreak. Through its subcontract with BNI, CRDF also arranged for USAMRIID scientists to collaborate with peers at the Center for Quarantine and Zoonotic Diseases in Kazakhstan to study two variants of hemorrhagic fever.

As part of its work with NWMDE's Science Centers program, NP facilitated comprehensive technical reviews of more than 300 project proposals submitted to the International Science and Technology Center (ISTC) in Moscow and the Science and Technology Center in Ukraine (STCU). Qualified technical peer reviewers selected by CRDF evaluated proposals and provided technical comments, enhancing the sustainability of these important, multilateral, non-proliferation organizations.

NP's support to the State Department's NWMDE program included arranging for 40 Russian, Kazakh and Ukrainian scientists to attend the American Institute of Chemical Engineers' Annual Meeting. There, NP provided chemical experts with the opportunity to present at three sessions on the commercialization of science in Eurasia and to discuss regional business opportunities.

*"The CRDF is an essential partner to the State Department's Nonproliferation of WMD Expertise programs, providing not only expert support and implementation, but also unique mechanisms for meeting our congressional mandate."*

**Dr. Jason E. Rao, Director of BII, U.S. Department of State**



*CRDF assessed its capacity to grow within and strengthen its mission by working in areas beyond Eurasia where the need exists such as Iraq and Libya. CRDF staff visited the Renewable Energy and Water Desalination Research Center in Tajura, Libya in April 2005 as part of a U.S. delegation focused on the engagement of Libyan nuclear scientists, following that country's decision to give up its WMD programs*

Scientists attended presentations on technology commercialization, environmental remediation and drug development. Their participation strengthened CRDF's partnerships with the ISTC and STCU. NP's work with the two science centers also included supporting the commercialization of products developed through collaborative research projects and providing senior scientific expertise for proposal review and engagement planning.

NP's work for the Bioindustry Initiative (BII) component of the NWMDE program also yielded notable results in 2005. An avian influenza surveillance system that BII has developed and managed, coordinated closely with scientists from the State Research Center for Virology and Biotechnology (VECTOR), resulted in Russian scientists isolating a low pathogenic strain of H5N1 avian influenza that could potentially be used as a vaccine. BII-sponsored scientists also found a new strain of highly pathogenic H5N1 in samples obtained from dying chickens and ducks in the Novosibirsk region of Siberia. The new findings, which have critical implications to the regional economy and to public health preparedness, were reported on National Public Radio's "All Things Considered" in August.

Through CRDF's Grant Assistance Program (GAP), BII helped TEMPO—a unique Russian bioconsortium that unites 15 Russian biological research and production institutions—to administer a biotechnology entrepreneurship competition. The competition was modeled on Western business planning practices and used to train consortium scientists to attract investment by viewing their technologies and research in the framework of developing good business models.

CRDF Board Member and Director, Carnegie Moscow Center Rose Gottemoeller addressed the “loose nukes and brain drain” approach to nonproliferation policy at an April 6, 2005 session of the Georgetown University Lecture Fund.



NP also developed and conducted training and technical workshops for the Department of State’s Iraqi Scientist Redirection Program. These workshops provided former Iraqi weapons scientists and engineers with up-to-date information and tools to support their contribution to the civilian reconstruction of Iraq. The series began in April 2005 and

included a technical workshop on environmental contamination and public health issues as well as training on bioethics, CV writing, the peer review process and proposal preparation for research funding.

CRDF grants made possible several breakthroughs in antiterrorism research. In a joint NP-CCG grant, teams from Battelle Memorial Institute and the Eliava Institute of Bacteriophage, Microbiology and Virology (Georgia) collaborated to find a method for the rapid identification of anthrax in the event of an attack. The Eliava team included former weapons researchers now applying their knowledge to bioterror protection throughout the Caucasus region. A group from the Institute of Physiologically Active Substances (Russia) developed a device to measure neurotoxins in the blood. Scientists from the University of Michigan are now helping to refine the device to enable the rapid detection of a chemical attack.

*“If you really want to avoid proliferation, you want a country that is stable, is prosperous, is engaged with the rest of the world and that involves at its core the scientists and engineers that were there and were involved in dirty weapons programs—integrating them, providing them a future and providing them contacts with the West.”*

Dr. David Kay, Senior Research Fellow, Potomac Institute for Policy Studies and Member, CRDF Board of Directors

### **Pilot Program Encourages Russian Innovation**

In July, CRDF announced an \$800,000 award to Russia’s Pushchino State University (PSU) for a Research and Innovation Center (RIC) pilot program. This program engages 32 former weapons scientists from Pushchino, Serpukhov, Kirov and other areas of Russia in environmental bioremediation and civilian biotechnology research and education, giving students and young scientists at the university access to these experienced researchers.

## **Heinz Family Philanthropies Recognizes Dr. Sidney Drell for Policy Achievements**

Joining a roster that includes notables as diverse as playwright August Wilson and Apple inventor Steve Wozniak, CRDF Advisory Council member Sidney Drell became a Heinz Award Winner. The annual awards, with an unrestricted cash prize of \$250,000, are

presented by the Heinz Family Philanthropies. Drell’s recognition in the Public Policy category was for his “decades-long contributions toward reducing the threat of nuclear catastrophe while ensuring the nation’s security and military pre-eminence.”



The RIC program is modeled on CRDF's BRHE program, which integrates research and education at the university level. It builds on BHRE's successes by involving former weapons scientists in civilian research, education and innovation. CRDF has provided three years' worth of funding for salaries, equipment and related expenses. Project funding originates from the State Department under the Freedom Support Act, as well as cost shares from PSU and the Russian Academy of Sciences.

### Support Enhances Cooperation Between Ukraine, Iraq and the United States

CRDF supported former weapons scientists from Chernobyl's International Radioecology Laboratory in the analysis of soil samples gathered at Iraq's Al Tuwaitha nuclear facility, which is contaminated with uranium dioxide (yellow cake) and a variety of other radionuclides. The Ukrainian scientists joined an international team led by scientists from Texas Tech University along with the Iraqi Ministries of Science and Technology and Environment and specialists from Jordan to study whether techniques developed to clean the more densely polluted Chernobyl can be applied in Iraq. The Ukrainians will also train Iraqi technicians on the skills needed to meet IAEA international standards for decommissioning nuclear reactors and decontaminating the Al Tuwaitha site.

### Collaboration Strengthens Partnerships with Kyrgyzstan

CRDF forged a productive collaboration with the Civilian Research Center (CRC) in Bishkek, Kyrgyz Republic. The CRC helped integrate former Kyrgyz weapons researchers into the international community by finding collaborators and funding sources for research projects and by training scientists on how to obtain funding and apply for CRDF grant competitions. Planning has begun for an English-Kyrgyz Web site to help direct more scientists toward these services.

In October, the CRC worked with CRDF to host an English language intensive training program for Central Asian former weapons scientists to improve fluency in the international language of scientific collaboration. In November, the organizations collaborated on a proposal writing seminar.



Former CRDF President and CEO Tom Owens, Dr. Jim Sherry, Dr. Theodor Krauthammer and Dr. David Kay speak at the CRDF-AAAS panel: Addressing Global Nonproliferation, Anti-terrorism & Public Health Challenges through International Scientific Collaboration, January 13, 2005

*"If U.S. scientists are working with scientists in Russia, for example, it builds up a level of mutual confidence that then allows us to work together on really sensitive, complicated and difficult problems like the proliferation of nuclear weapons."*

Rose Gottemoeller, Director, Carnegie Moscow Center and Member, CRDF Board of Directors

## Grant Assistance Program (GAP)

Since 1998, CRDF's Grant Assistance Program (GAP) has complemented the Foundation's international research and development programs for a diverse list of clients in government, industry and academia. GAP services—including financial management, equipment procurement, import assistance and in-country support—provide a strong network to ensure project integrity for both sponsor and recipient. To date GAP's services have supported more than 900 projects for over 160 Western organizations engaging Eurasian researchers—valued at over \$135 million.



A young researcher proudly displays his equipment at the Drug and Technological Research Center in Yerevan, Armenia, June 27, 2005

### GAP Extends CRDF Expertise

Through GAP, CRDF makes it possible for scientists throughout Eurasia to work jointly with U.S. and international counterparts, advancing international scientific collaboration. GAP enables CRDF to offer organizations with similar missions access to its extensive financial and administrative network and the knowledge gained through management of its own grant programs.

Working with the U.S. Department of Energy's Initiatives for Proliferation Prevention (IPP) program, GAP has securely transferred more than \$45 million in funds and equipment to Eurasian institutes to engage former weapons scientists.

One GAP-supported example is an IPP collaborative project between Brookhaven National Laboratory, the All-Russian Research Institute of Automatics and New York-based Ion Focus Technology Inc. This partnership began developing a small, portable, low cost, deuterium-tritium (DT) neutron generator for treatment of cancer by fast-neutron brachytherapy.

By applying radiation by needle directly to the tumor, the team's prototype minimizes the damage typically caused to healthy surrounding tissues by traditional beam treatment methods.

*"Data collected at Vize Island during the past winter are providing new clues in the way that the solar wind and the magnetosphere interact. CRDF has facilitated these discoveries."*

Cesar E. Valladares, Boston College

### New Tools Increases Visibility

The 2005 GAP Survey highlighted the success of past services and strengthened GAP's commitment to continuous improvement. Feedback was overwhelmingly positive and provided important constructive criticism, as well as potential new directions for program services. GAP is already implementing numerous changes in response to the feedback.

In conjunction with CRDF's tenth anniversary celebrations, GAP kicked off an expansion of its marketing initiatives in 2005. Staff developed and enhanced fact sheets, brochures and program updates to more effectively

communicate with current and prospective clients. Updates to the Web site improved access to forms, frequently asked questions and project information for GAP sponsors and recipients. News of GAP successes was also highlighted in the Spotlight on Success section of the CRDF Web site.

GAP also re-launched its newsletter, GAP-notes. Issued quarterly, the electronic missive contains the latest news and program updates to keep clients aware of any changes or initiatives that affect the logistics or management of their projects.

In 2005 GAP raised its visibility with a new marketing pieces such as this brochure, a redesigned newsletter and updated fact sheets.



GAP also facilitated specialized collaborative research between Boston College and the Arctic and Antarctic Research Institute of St. Petersburg. The project focused on the unique interaction between solar winds and earth's magnetosphere and required an operating base on Vize Island, a remote strip of land situated in the Kara Sea. GAP helped the researchers transport, install and successfully operate an All-Sky Imager on the isolated island. This specialized equipment was operated by an engineer from the research institute on the island and was used to record all observations of the aurora and its subtle changes over time. As the aurora stretched over thousands of kilometers, these data were then viewed in tandem with data from another imager location within the Svalbard region of Russia, creating a detailed picture of aurora variability.

### **GAP Expands Outreach in the Caucasus and Moldova**

In 2005, GAP built upon its existing collaborations with IB partners in Armenia, Azerbaijan, Georgia and Moldova to increase activity in each of these vital geographic areas, increase awareness of its services and outreach in the scientific and academic communities, and create new collaborations and lasting partnerships among client sponsors and recipients.

### **GAP Enhances Program Services**

GAP expanded its capacity for efficiently distributing sponsor resources to Eurasian recipients. Measures included establishing a network of Eurasian travel agencies to provide travel support services to project participants; developing "preferred vendor" lists in host countries that provide discounts, Value Added Tax (VAT) exemptions and preferred order processing; and launching a new debit-card account system via CRDF's network of banking relationships in Eurasia, which provides greater flexibility for recipients receiving funds. Additional enhancements are planned for 2006.



GE Project Development Manager Mikhail Tolstov speaks at a CRDF press conference in Kyiv, September 8, 2005. GE as well as Globex, Schlumberger, Standard Equipment, Canberra Aquila, Bechtel, DuPont, Diversa, 3M, and Ukram were sponsors of the CRDF 10th Anniversary celebration

*"I should note that during our work in the frame of the program, I could concentrate my attention mainly at the scientific questions rather than bureaucratic problems. Therefore, the planned investigations were performed at a high level and in due time."*

Valery Safronov, Troitsk Institute of Innovation and Fusion Research

# CRDF: A Ten Year Foundation For The Future

## Looking Back on a Record of Progress

**T**his annual report provides a snapshot of how, since 1995, CRDF and its partners have equipped thousands of scientists with the tools, training and opportunities they need to move beyond weapons research into a knowledge-based economy. Over the past decade, the development of these multidisciplinary programs has yielded a unique, integrated process to guide scientists and engineers to success in partnership with U.S. collaborators and colleagues.

CRDF's Cooperative Grant Programs expand opportunities for scientists and engineers and support landmark research, as well as provide invaluable experience in peer reviewed grantmaking. Industry Programs unite science and commerce across borders, bringing new innovations to market. Nonproliferation Programs redirect bright minds to civilian projects that benefit U.S. security objectives and international peace and prosperity. Through the Centers and Institution-Building Program, CRDF helps rebuild Eurasian scientific institutions, bringing resources to areas of need, facilitating community, knowledge and sustainability. Finally, GAP services maximize the efforts of other educational institutions, non-profit organizations and governments by offering CRDF's multifaceted expertise to help carry out their programmatic objectives for international scientific cooperation.

Across all programs and services, CRDF has established a reputation as a sound, responsive, innovative and results-oriented organization that continually achieves its founding mission with high standards of transparency and quality control.

## Moving Forward in a World of Change

CRDF has established the groundwork for long-term, high-quality collaborations. The past ten years have equipped programs to respond to new opportunities, resulting in CRDF's recent expansion geographically to the Middle East and North Africa, and support of new types of research. CRDF aims to help maturing grant recipients to become independent and to increase involvement in areas where new initiatives are most needed.

With continued coordinated support from its many funders and partners, CRDF looks forward to the next ten years to achieve continued stability and peaceful productivity in the scientific community and worldwide.

## Cooperative Grants Program

(Listed in alphabetical order by country and Eurasian principal investigator)

### Armenia

**Danagulyan, Gevorg Grach**  
Institute of Organic Chemistry  
**Gewirtz, David A.**  
Virginia Commonwealth University  
*Genotoxic and Antineoplastic Effects of Bridged Nitrogen Atom-containing Pyrimidines and their Acyclic Adducts*

**Harutyunyan, Valeri**  
Yerevan State University  
**Monteiro, Paulo Jose Melaragno**  
University of California, Berkeley  
*Improvement of Properties of Shrinkage-Compensating Cement Paste of Type K*

**Sahakyan, Davit**  
Yerevan Physics Institute  
**Deem, Michael W.**  
Rice University  
*Exact Solution of Eigen Model of Molecular Evolution and Information-Theoretical and Canal Aspects of Evolution*

### Azerbaijan

**Aliyev, Chingiz Said**  
Institute of Geology  
**Baskaran, Mark Mahalingam**  
Wayne State University  
*Estimation Of Submarine Discharge Of Groundwater And Nutrients In The Coastal Waters Of The Caspian Sea, Adjoining Azerbaijan, Using Isotopes*

### Georgia

**Avaliani, Jemal Isifovich**  
Scientific Research Institute Optica  
**Shah, Ramesh K.**  
Rochester Institute of Technology  
*A Novel Thermosiphon with Porous Heating Surfaces and the Use of Surface-Active Substances in Water Solutions*

**Butsashvili, Maia Jumber**  
Rehabilitation Center of Georgia  
**McNutt, Louise Anne**  
State University of New York, Albany  
*Prevalence and Awareness of Blood Borne Viruses and Infection Control Precautions Among Health Care Workers*

**Chilaya, Guram**  
Institute of Cybernetics  
**Shibaev, Petr Valerievich**  
Fordham University  
*Optically Switchable and Tunable Chiral Lasers Based on Cholesteric Liquid Crystals*

**Ioseliani, Teimuraz Klimenti**  
Javakhsivili Tbilisi State University  
**Velisek, Libor**  
Yeshiva University  
*Monoaminergic Regulation of Hippocampal and Cortical Seizures*

**Khechinashvili, George N.**  
Georgian National Center of Tuberculosis and Lung Disease  
**Tang, Yi-Wei**  
Vanderbilt University  
*Monitoring Chemotherapy Regimen Efficacy by Mycobacterium Tuberculosis mRNA Detection in Sputum Specimens*

**Koridze, Avthandil Aleksandrovic**  
Javakhsivili Tbilisi State University  
**Rosenberg, Edward**  
University of Montana  
*New Generation Pincer Complexes: Synthesis and Application in Catalysis of Metallocene-Based Pincer Complexes of Platinum Metals*

### Kyrgyzstan

**Omurliev, Mederbek**  
Kyrgyz Institute of Seismology  
**Oskin, Michael Eugene**  
University of North Carolina, Chapel Hill  
*Seismic Hazard Assessment of the Chu River – Issyk-Kul Corridor, Kyrgyz Republic*

### Moldova

**Toderas, Ion Chiril**  
Institute of Zoology  
**Baldwin, James G.**  
University of California, Riverside  
*Nematodes and Microarthropods as Indicators of Environmental Health*

### Russia

**Alfimov, Michael Vladimirovich**  
Photochemistry Center  
**Saltiel, Jack**  
Florida State University  
*Synthesis and Study of Molecular Assemblies of Crown-Containing Heterostyrylbenzenes Designed for Optical, Electrochemical and Electroluminescence Detection of Metal and Ammonium Cations in Biomedical and Environmental Analysis*

**Alfonsov, Vladimir Alexeevich**  
Arbuzov Institute of Organic and Physical Chemistry  
**McKenna, Charles E.**  
University of Southern California  
*Development of New Anti-anthrax Agents*

**Berlin, Alexander Alexandrovich**  
Semenov Institute of Chemical Physics  
**Rutledge, Gregory C.**  
Massachusetts Institute of Technology  
*Structure, Mobility and Thermo-mechanical Properties of Polymer-clay Nanocomposites*

**Bondal, Alexei Igorevich**  
Steklov Mathematics Institute  
**Lunts, Valery**  
Indiana University, Bloomington  
*Field Theory Dualities and Derived Categories*

**Chekmarev, Sergei Fedorovich**  
Institute of Thermophysics  
**Karplus, Martin**  
Harvard University  
*Protein Folding: A Kinetic Approach to the Mechanism*

**Dalin, Mikhail Victorovich**  
People's Friendship University  
**Moseley, Steve L.**  
University of Washington  
*Selection of Lactobacillus Strains with Anti-Uropathogen Properties*

**Davydov, Valeri Aleksandrovich**  
Institute of High Pressure Physics  
**Khabashesku, Valery N.**  
Rice University  
*Novel Carbon and Heterocarbon Materials Designed From Nano-Carbon and Carbon Nitride Structures: Synthesis, Characterization and Property Studies*

**Grigor'ev, Igor Alexeevich**  
Novosibirsk Institute of Organic Chemistry  
**Zweier, Jay L.**  
Ohio State University  
*The Development of New Functional Nitroxide Probes for Noninvasive EPR Spectroscopy and Imaging*



CRDF 10th Anniversary Recognition Medal recipients pose after the gala dinner in Washington DC, October 19, 2005

**Ioffe, Boris Lazarevich**  
Institute of Theoretical & Experimental Physics  
**Brodsky, Stanley Jerome**  
Stanford University  
*Theoretical Studies of the Properties of Hadrons and Nuclei and their Interactions Based on QCD and Related Model Theories*

**Kotelnikov, Alexander Ivanovich**  
Institute of Problems of Chemical Physics  
**Stuchebrukhov, Alexei Alexandrovich**  
University of California, Davis  
*Combined Experimental and Theoretical Studies of Electron Transfer in Proteins: ET Reactions Controlled by Protein Conformational Dynamics and Possible Applications in Molecular Electronics*

**Lazarevich, Natalia Leonidovna**  
Blokhin Cancer Research Center  
**Duncan, Stephen Alexander**  
Medical College of Wisconsin  
*Identification of the Molecular Mechanisms Governing Hepatocellular Carcinoma Progression*

**Leonyuk, Nikolay Ivanovich**  
Moscow State University, Department of Geology  
**Kuech, Thomas F.**  
University of Wisconsin, Madison  
*Development of Improved ZnO-based Substrates for Epitaxial Growth of GaN Thin Films*

**Pozdeyev, Nikita Vladimirovich**  
Sechenov Institute of Evolutionary Physiology and Biochemistry  
**Iuvone, Paul Michael**  
Emory University School of Medicine  
*Melatonin Oxidation Metabolic Pathway and its Physiological Significance*

**Shtansky, Dmitry Vladimirovich**  
Moscow State Steel and Alloys Institute  
**Moore, John Jeremy**  
Colorado School of Mines  
*Biocompatible Multicomponent Coatings for Load-Bearing Medical Applications*

**Sobol, Emil Naumovich**  
Institute of Laser & Information Technologies  
**Milner, Thomas Edward**  
University of Texas, Austin  
*Laser Physics and Engineering of Cartilaginous Tissue*

**Sobolev, Alexander Sergeyevich**  
Institute of Gene Biology  
**Zalutsky, Michael Rod**  
Duke University Medical Center  
*Modular Polypeptide Transporters for Targeted Delivery of Alpha-emitters into the Nuclei of Cancer Cells*

**Svetsov, Vladimir Vladimirovich**  
Institute of Dynamics of Geospheres  
**Wasson, John T.**  
University of California, Los Angeles  
*The Tunguska Event and Larger Aerial Bursts: Numerical Simulations Versus Geological Evidence*

**Tsvetkov, Yury Evgenievich**  
Zelinsky Institute of Organic Chemistry  
**Pier, Gerald B.**  
Brigham and Women's Hospital  
*Preparation of N-acetylglucosamine Oligosaccharides and their Use in Epitope Mapping and Vaccine Development Against Staphylococcal Infections*

**Vershik, Anatoli Moiseevich**  
Steklov Mathematics Institute  
**Reshetikhin, Nicolai Yurievich**  
University of California, Berkeley  
*Asymptotic Representation Theory, Quantum Groups, and Applications to Statistical Mechanics and Geometry*

**Vishik, Marko Iosifovich**  
Institute of Information Transmission Problems  
**Titi, Edriss S.**  
University of California, Irvine  
*Attractors of Evolution Equations: Dynamical Effects of Damping, Rotation, Dispersion and Rapid Oscillations*

**Volostnikov, Vladimir Gennadievich**  
Lebedev Physical Institute, Samara Branch  
**Cohn, Robert W.**  
University of Louisville  
*Dynamic Generation of Wave Fields with Predetermined Intensities*

**Zvonkov, Boris Nikolaevich**  
Nizhny Novgorod State University  
**Kocharovskiy, Vitaly V.**  
Texas A & M University  
*Mid/Far-Infrared Lasers Based on  
Difference Frequency Generation in  
GaAs/InGaAs/InGaP Nanostructures*

## Ukraine

**Chernik, Yaroslava Ivanivna**  
Lviv Ivan Franko State University  
**Ruohola-Baker, Hannele**  
University of Washington  
*Drosophila as a Model System of  
Muscular Dystrophy: A Molecular-  
Genetic Analysis of the Dystroglycan-  
Dystrophin Complex*

**Ivchenko, Vasily Nickolaevich**  
Kyiv Taras Shevchenko University  
**Lui, Anthony T.**  
Johns Hopkins University  
*Plasma Turbulence in Magnetospheric  
Current Systems*

**Kolesnichenko, Yaroslav  
Ivanovich**  
Institute of Nuclear Research  
**White, Roscoe Beryl**  
Princeton University  
*Collective Processes in Plasmas of  
Spherical Tori with High-energy Ions*

**Konovalov, Sergey Karpovich**  
Marine Hydrophysical Institute  
**Luther, George W.**  
University of Delaware  
*Controls on the Distribution and  
Fluxes of Redox Species at the Oxic/  
Anoxic Bottom of the Black Sea*

**Kostetskii, Igor Evgenovich**  
Institute of Molecular Biology  
and Genetics  
**Radice, Glenn L.**  
University of Pennsylvania  
*N-cadherin Conditional Knockout as  
a Model to Study Heart Arrhythmia*

**Panov, Boris Semenovich**  
Donetsk National  
Technical University  
**Kolker, Allan**  
U.S. Geological Survey  
*Feasibility of Assessing Health Risks  
from Long-term Mercury Exposure in  
Gorlovka, Ukraine*

**Prylutskyy, Yuriy Ivanovych**  
Kyiv Taras Shevchenko University  
**Eklund, Peter C.**  
Pennsylvania State University  
*New Materials on Carbon Nanotube  
Basis for Nanotechnology*

**Shkuratov, Yuriy Grigorjevich**  
Kharkiv State University  
**Pieters, Carlé M.**  
Brown University  
*Interpreting Spectrophotometry of  
Regolith-like Surfaces: Implication  
to Clementine and Smart-1  
Multispectral Images*

## Anti-Terrorism Cooperative Grants Program

### Georgia

**Rigvava, Sergo Alexandrovich**  
Eliava Institute of Bacteriophage,  
Microbiology and Virology  
**Robinson, David M.**  
Battelle Memorial Institute,  
Columbus  
*Selection of Bacteriophages Related  
to B. Anthracis: Elaboration of the  
Phage Amplification Assay for Rapid  
Detection of Bacteria in  
Contaminated Materials*

### HIV/AIDS and Related Infectious Diseases

*(Listed in alphabetical order by  
country and Eurasian principal  
investigator)*

### Armenia

**Martirosyan, Ashot Hovhannes**  
Institute of Fine Organic Chemistry  
**Schinazi, Raymond F.**  
Emory University School of  
Medicine, VA Medical Center  
*New 2-Heterylprolines as Anti-HIV-1,  
Antibacterial, and Antitumor Agents  
Synthesis and Structure - Activity  
Relationship Investigations*

## Georgia

**Tsertsvadze, Tengiz**  
Infectious Diseases, AIDS & Clinical  
Immunology Research Center  
**DeHovitz, Jack A.**  
The Research Foundation of State  
University of New York  
*Prevalence of HIV Subtypes and  
Drug Resistant Strains among  
Specific Antiretroviral-naïve and  
Antiretroviral-experienced  
Populations in Georgia*

## Kazakhstan

**Kayukova, Lyudmila A.**  
Institute of Chemical Sciences  
**Shoen, Carol**  
Central New York  
Research Corporation  
*Development of New Tuberculostat-  
ics against Resistant and Sensitive  
Tuberculosis and Antibiotics against  
Nonspecific Flora in the Row of  
beta-Aminopropioamidoximes*

## Russia

**Granik, Vladimir Grigorievich**  
State Research Center  
for Antibiotics  
**Parkanyi, Cyril**  
Florida Atlantic University  
*Novel Thiocyanate (Rhodano) Deriva-  
tives Active against HIV-associated  
Candida and Aspergillus Infections*

**Lyadova, Irina V.**  
Central Institute for Tuberculosis  
**Winslow, Gary**  
Health Research, Inc.  
*Immunogenetics of the Host  
Response to TB*

## Ukraine

**Shostakovich-Koretskaya,  
Ludmila**  
Dnepropetrovsk State  
Medical Academy  
**Ahuia, Sunil**  
University of Texas Health Science  
Center San Antonio  
*Host Genetic Determinants of HIV-1  
Susceptibility*

## 10th Anniversary Junior Scientist Fellowships

(Listed in alphabetical order by country and recipient)

### Armenia

#### Hunanyan, Naira

Life Sciences International Education Center

Host: University of California, San Francisco

### Azerbaijan

#### Orucov, Vugar

Institute of Physics

Host: University of Nebraska, Lincoln

### Georgia

#### Legashvili, Irakli

Georgian Technical University

Host: Clark Atlanta University

### Kyrgyzstan

#### Ormukov, Cholponbek

Kyrgyz Institute of Seismology

Host: University of North Carolina, Chapel Hill



Awardees pose with Ambassador Evans before exiting the 10th Anniversary Celebration in Yerevan, Armenia, November 3, 2005.

### Moldova

#### Zestrea, Veaceslav

Institute of Applied Physics

Host: University of California, Davis

### Russia

#### Krasnoshchekov, Dmitry

Institute of Dynamics of the Geospheres

Host: Saint Louis University

#### Lysova, Anna

International Tomography Center

Host: Montana State University

### Ukraine

#### Vasyuta, Roman

Institute of Physics

Host: Kent State University

### United States

#### Kitaygorsky, Jennifer

University of Rochester

Host: Moscow State Pedagogical University

#### Samardzic, Veljko

New Jersey Institute of Technology

Host: Donetsk National University

#### White, Ryan

University of North Carolina, Chapel Hill

Host: International Tomography Center

### Uzbekistan

#### Tereshchuk, Polina

Institute of Nuclear Physics

Host: State University of New York, Buffalo

## Centers and Institution Building Programs

(Listed in alphabetical order by partnering country)

### Armenia

#### National Foundation of Science and Advanced Technologies (NFSAT)

Administrative Award

Commercialization of Product/Results Support Program Award

NFSAT Travel Fellowship Program

#### Sirunyan, Alina

Yerevan State University

#### Varzhapetyan, Tigran

Institute for Physical Research

NFSAT Travel Grant Program

#### Abgaryan, Lusine

Yerevan State University

**Ajabyan, Nelli**, Institute for Information and Automation Problems

#### Barseghyan, Vanya

Yerevan State University

#### Chubaryan, Anahit

Yerevan State University

#### Gevorgyan, Gevorg

Institute of Biochemistry

#### Ghambaryan, Sona

Institute of Biotechnology

#### Hovhannisyan, Martun

State Engineering University of Armenia

#### Khachaturyan, Gurgun

Institute of Applied Problems of Physics

#### Melkonyan, Anahit

Yerevan Physics Institute

#### Navasardyan, Marut

Yerevan State University

#### Nazaryan, Margarita

Center of Medical Genetics

#### Nersesyan, Lusine

Institute of Fine Organic Chemistry

#### Nersisyan, Sergey

Yerevan State University

#### Sirunyan, Alina

Yerevan State University

#### Tsakanov, Vasili

CANDLE

#### Verlinski, Sergey

Institute of Mechanics

NFSAT Short-Term Travel Grant Program

#### Avetissyan, Yuri

Yerevan State University

#### Gabrielyan, Anna

Institute of Fine Organic Chemistry

#### Matevosyan, Vardan

Yerevan State University

#### Mayilyan, Karine

Institute of Molecular Biology

#### Meliksetyan, Areg

Yerevan State University

#### Minasyan, Tigran

Yerevan State University

#### Nikoghosyan, Gor

Institute Physical Research

#### Shatveryan, Arkadi

Yerevan State University

### Azerbaijan

#### Azerbaijan National Science Foundation (ANSF)

Administrative Award

Azerbaijan University Research and Education Program (AZURE)



## Georgia

### Georgian Research and Development Foundation (GRDF)

*GRDF International Scientific Meetings and Conferences Program*

**Badriashvili, Nelly**, *Social Pediatrics Protection Foundation*  
**Javakhishvili, Zurab**, *United Survey for Seismic Protection*  
**Kekelidze, Nodar**, *Tbilisi State University, Department of Physics*  
**Makhviladze, Neli**, *Institute of Scientific and Technical Information*  
**Oniashvili, George**, *Institute of Metallurgy and Materials Sciences*  
**Pataridze, Dmitri**, *Caucasian Institute of Mineral Resources*

*GRDF Travel Grant Program*

**Buadze, Merab**, *Tbilisi State Medical University*  
**Chelidze, Tamar**, *Tbilisi State University, Department of Scientific Matter*  
**Kaladze, Tamaz**, *Institute of Applied Mathematics, Tbilisi State University*  
**Kilosanidze, Barbara**, *Institute of Cybernetics*  
**Kutelia, Elguja**, *Georgian Technical University*  
**Metskhvarishvili, Ioseb**, *Tbilisi State University, Department of Physics*  
**Nadiradze, Natela**, *Thrombosis Research Center*  
**Partsvania, Nino**, *Razmadze Institute of Mathematics*  
**Tsiklauri, Mikheil**, *Institute of Applied Mathematics, Tbilisi State University*

*GRDF Travel Fellowship Program*

**Artsivadze, Kakha**, *Tbilisi State University, Department of Biology*  
**Chikhradze, Mikhail**, *Institute of Metallurgy and Materials Sciences*  
**Datashvili, Tea**, *Tbilisi State University, Department of Chemistry*  
**Godoladze, Tea**, *Institute of Geophysics, Seismic Survey*  
**Jobava, Rauli**, *Tbilisi State Medical University*

**Tabatadze, Nino**, *Tbilisi State University, Department of Genetics*  
**Titvinidze, Giorgi**, *Tbilisi State University*  
**Tsurtsunia, Olga**, *Georgian Technical University*

## Moldova

### Moldovan Research and Development Association (MRDA)

*Administrative Award*

*MRDA Travel Fellowship Program*

**Boldescu, Veaceslav**, *Moldova State University*  
**Bondarenco, Vladimir**, *Institute of Genetics*  
**Budesteanu, Sergiu**, *Institute of Geophysics and Geology*  
**Bulimestru, Ion**, *Moldova State University*  
**Dragancea, Diana**, *Institute of Chemistry*  
**Glijin, Aliona**, *Moldova State University*  
**Movila, Alexandru**, *Institute of Zoology*  
**Prida, Andrei**, *Technical University of Moldova*  
**Prodius, Denis**, *Institute of Chemistry*  
**Samoil, Vitalie**, *Institute of Microbiology*  
**Sirbu, Lilian**, *Technical University of Moldova*  
**Vatavu, Sergiu**, *Moldova State University*

*MRDA International Scientific Conference Support Program*

**Balan, Valerian**, *State Agrarian University*  
**Postolati, Vitalie**, *Institute of Power Engineering*  
**Sontea, Victor**, *Technical University of Moldova*

## Basic Research and Higher Education (BRHE) Program

*(Listed in alphabetical order by university)*

## Continuation Grants

**Far Eastern State University**  
*BRHE Main Award: Research and Educational Center of Basic Marine Biota Research: Biology, Chemistry and Biotechnology*  
 Director: Vysotskii, Vladimir I.

**Kazan State University**  
*BRHE Main Award: Materials and Technologies of XXI Century*  
 Director: Konovalov, Alexander I.

**Krasnoyarsk State University**  
*BRHE Main Award: "Yenesei" - Fundamentals of Ecologization of Education and Technology*  
 Director: Sapozhnikov, Valentin A.

**Moscow State Engineering Physics Institute**  
*BRHE Main Award: Research and Educational Center for Basic Investigation of Matter Under Extreme Conditions*  
 Director: Bogdanovich, Boris Yurievich

**Novosibirsk State University**  
*BRHE Main Award: Scientific Training Center: Molecular Design and Ecologically Safe Technologies*  
 Director: Boldyrev, Vladimir V.

**Perm State University**  
*BRHE Main Award: Non-Equilibrium Transitions in Continuous Media*  
 Director: Matveenko, Valery Pavlovich

**Rostov State University**  
*BRHE Main Award: Research and Educational Eco-analytical Center for System Studies and Geo-ecological Safety of the South of Russia*  
 Director: Minkin, Vladimir I.

**Saratov State University**  
*BRHE Main Award: Scientific and Educational Center of Nonlinear Dynamics and Biophysics*  
 Director: Anishchenko, Vadim S.

**St. Petersburg State University**  
*BRHE Main Award: REC on Biology for Human and Environmental Health in Northwest Russia*  
Director: Inge-Vechtomo, Sergey Georgievitch



Long-time CRDF friend Vera Dmitrieva, Executive Director, Center for Ecological Research and BioResources Development along with other CRDF clients, grantees and supporters participated in the filming of a 10th Anniversary commemorative video throughout 2005

**University of Nizhny Novgorod**  
*BRHE Main Award: REC for Physics of Solid State Nanostructures*  
Director: Maximov, George Arturovich

**Ural State University**  
*BRHE Main Award: Ural Research Educational Center Advanced Materials*  
Director: Pamyatnykh, Evgenii A.

**Voronezh State University**  
*BRHE Main Award: Wave Processes in Inhomogeneous and Non-Linear Media*  
Director: Sidorkin, Alexander Stepanovich

### Mini-Grants

**Far Eastern State University**  
*BRHE 2004 Minigrant, Round 3: Relationship between Physicochemical Properties of Marine Macrophyte's Glycoglycerolipids and ISCOM's Immunogenicity*

*BRHE 2005 Minigrant, Round 1: Providing the Conditions for Storing the Collection of Microorganisms and Saving the Unique Qualities*

*BRHE 2005 Minigrant, Round 2: Ninth Far Eastern Annual School-Conference on Topical Problems of Chemistry and Biology*  
REC Director: Vysotskii, Vladimir L.

**Krasnoyarsk State University**  
*BRHE 2005 Minigrant, Round 2: Biocompatible Stents Based on PHA - Natural Biodegradable Polymer: Construction and Investigation*

*BRHE 2005 Minigrant, Round 1: Development of the Web based Scientific Research Works Database at the Krasnoyarsk state University*  
REC Director: Sapozhnikov, Valentin A.

**Nizhny Novgorod State University**

*BRHE 2005 Minigrant, Round 2: Participation of a REC student in the 14th International Conference on Surface Modification of Materials by Ion Beams in Kusadasi, Turkey, September 4-9, 2005*

*BRHE 2004 Minigrant, Round 3: Investigation of Structural and Topological Characteristics of Collagen under Different Physical and Chemical Conditions*  
REC Director: Maximov, George Arturovich

**Novosibirsk State University**  
*BRHE 2005 Minigrant, Round 3: Financial Support for Young Scientists Attending the ICDD Workshop in Novosibirsk*  
REC Director: Boldyrev, Vladimir Vyacheslavovich

**Rostov State University**  
*BRHE 2004 Minigrant, Round 3: Workshop for Young Scientists of RECs in the framework of the 3rd International Conference on New Techniques and Applications of Modern Physical Chemical Methods in Environmental Studies*

*BRHE 2005 Minigrant, Round 2: Development of Experimental System for Betulin Oxidation in Subcritical Water*

*BRHE 2005 Minigrant, Round 1: Organization of the Summer School-Training in Physical-Chemical Methods of Analysis for Environmental Studies for Students and Young Scientists for RECs of Russia*  
REC Director: Minkin, Vladimir Isaakovich

**Saratov State University**  
*BRHE 2004 Minigrant, Round 3: Equipping of Educational Auditorium with Modern Technical Facilities*  
*BRHE 2005 Minigrant, Round 2: Organizational and technical support of the International School for Junior Scientists and Students on Optics, Laser Physics and Biophysics (Saratov Fall Meeting 2005)*  
REC Director: Anishchenko, Vadim Semenovich

**St. Petersburg State University**  
*BRHE 2005 Minigrant, Round 1: Participation of the REC students in the 22nd International Conference on Yeast Genetics and Molecular Biology (Bratislava, Slovakia, August 7 - 12, 2005)*

*BRHE 2004 Minigrant, Round 3: Training Visit for Practice in Technology Valuation and Marketing*  
REC Director: Verbitzkaya, Ludmila Alekseevna

**Tomsk State University**  
*BRHE 2005 Minigrant, Round 2: Summer Physics and Mathematics School*

*BRHE 2005 Minigrant, Round 1: All-Russian Conference of Young Scientists Physics and Chemistry of High-energy Systems*  
REC Director: Korotaev, Alexander Dmitrievich

**Ural State University**  
*BRHE 2005 Minigrant, Round 1: Mass-Spectroscopy Training Complex*  
REC Director: Pamyatnykh, Evgenii Alexeevich

## Regional Experimental Support Centers (RESC) Program

(Listed in alphabetical order by country)

### Mini-Grants

#### Georgia

##### Mining Mechanics Institute

*Upgrade of the Available Equipment, Software, and Methods of Research*

Project Director: Akaki Peikrishvili

Equipment: Digital Trinocular

Microscope, Software for

Quantitative Phase Analysis

#### Moldova

##### Scientific Research

##### Institute Eliri S.A.

*Equipment Update to Center*

Project Director: Iulian Colpacovici

Equipment: Workholder and Die

Pickup Tool, Digital Multimeter,

Computer Equipment Upgrades

#### Uzbekistan

##### Scientific Association

##### "Akademprigor"

*Development of Center of Laser*

*Technology of Uzbekistan*

Project Director: Timurbek

Usmanov

Equipment: Pulnix Accupixel

Camera, CCD Chamber

### Bilateral Grant Programs

(Listed in alphabetical order by country and Eurasian Principal Investigator)

#### Georgia

##### Joint awards with the Georgian Research and Development

##### Foundation (GRDF)

##### Akhalkatsi, Maia

Ketskhoveli Institute of Botany

##### Smith, William K.

Wake Forest University

*Ecological Facilitation in the Alpine*

*Treeline Ecotone of Georgia: Implications for Future Global Change*

##### Beridze, Tengiz

Durmishidze Institute of

Biochemistry and Biotechnology

##### Schaal, Barbara Anna

Washington University, St. Louis

*Genetic Diversity of Cultivated and*

*Wild Varieties of Vitis vinifera in the Caucasian Area*

##### Chkhubianishvili, Cisia Alexander

Institute of Plant Protection

##### Hoy, Casey

Ohio State University

*Microbial Controls for Pest Insects of*

*Vegetable Crops in Georgia*

##### Devidze, Gela

Javakhishvili Tbilisi State University

##### Bigi, Ikaros Islam

University of Notre Dame

*Rare Beauty, Charm and Tau Decays*

*as Windows onto Extra Dimensions*

##### Jalabadze, Nikoloz

Georgian Technical University

##### Sarin, Vinod

Boston University

*Elaboration of a New Technology for*

*the Production of Nanocrystalline*

*Scintillation Materials*

##### Javakhishvili, Zurab Shota

United National Survey for

Seismic Protection

##### Vergino, Eileen

Lawrence Livermore National

Laboratory

*Modernization and Development of*

*Seismic Network of Georgia*

##### Jorjadze, George Pavel

Razmadze Mathematical Institute

##### Zachos, Cosmas K

Argonne National Laboratory

*Quantization of the Coset  $SL(2, R)$*

*WZNW Theories*

##### Kamkamidze, George Konstantin

Tbilisi State Medical University

##### Jordan, Jeanne Ann

University of Pittsburgh

*Role of Viral Pathogens in Systemic*

*Infections in Infants from the New-*

*born Intensive Care Units in Georgia*

##### Kekelia, Maren Amberki

Janelidze Institute of Geology

##### Doeblich, Jeff L.

U.S. Geological Survey

*Metallogeny and Resource Evaluation*

*of Volcano-plutonic Complexes in the*

*Pontide-Lesser Caucasus Island Arc*

##### Khoshtaria, Teimuraz

Georgian Technical University

##### Kwong, Cecil D.

Southern Research Institute

*Indole-containing [b]annelated*

*Benzofurans - Potential Antitubercu-*

*lar Medicines of a New Generation:*

*Synthesis and Screening*

##### Kumsiashvili, Mzia Ilia

Abastumani Astrophysical

Observatory

##### Smith, Nathan

University of Colorado, Boulder

*Investigation of Physical Processes*

*and High-Layer Structure in the*

*Massive Binary System RY Sct*

##### Kvinikhidze, Alexander Nikoloz

Razmadze Mathematical Institute

##### Miller, Gerald A.

University of Washington

*Gauge Invariant Currents in the Light*

*Front Dynamics*

##### Vakhania, Nicholas Nicholas

Muskhelishvili Institute of

Computational Mathematics

##### Salehi, Habib

Michigan State University

*Rearrangements of Vectors: Theory*

*and Applications to Probability,*

*Statistics and Computer Networks*

#### Moldova

##### Joint Awards with the Moldovan

##### Research and Development

##### Association (MRDA)

##### Balanuta, Anatol Pavel

Technical University of Moldova

##### Heymann, Hildegard

University of California, Davis

*Sensory Impact of Oak Growing and*

*Cooperage Practices on Wine and*

*Spirits Aged in Oak Barrels*

**Dicusar, Alexandr Ivanovich**  
Institute of Applied Physics  
**Turner, John Augustus**  
National Renewable Energy  
Laboratory  
*Study of Oxide/Nonporous III-V  
Semiconductor Junction for Their Use  
in Photovoltaic and Photoelectro-  
chemical Production of Hydrogen*

**Gerbeleu, Nicolai Vasilievici**  
Institute of Chemistry  
**Stavropoulos, Pericles**  
University of Missouri, Rolla  
*Synthesis and Investigation of  
Homo-, Hetero- and Mixed Valence  
Iron Complexes with Carboxylate  
and Hydrazine Derivatives Ligands  
as New Catalysts for Oxygenation of  
Hydrocarbons*

**Geru, Ion Ion**  
Moldova State University  
**Dalal, Naresh**  
Florida State University  
*New Zero-Dimensional Quantum  
Systems Based on Heteronuclear  
(Mn-M)<sub>12</sub> and (Fe<sub>2</sub>MO)<sub>n</sub> Clusters  
with Both Single-Molecule Magnet  
and Cross-Over Properties as  
Quantum Computing Materials*

**Gladchi, Viorica Ion**  
Moldova State University  
**Cutter, Gregory A.**  
Old Dominion University  
*The Study of Redox Conditions in the  
Dniester River*

**Klokishner, Sofia Israel**  
Institute of Applied Physics  
**Towe, Elias**  
Carnegie Mellon University  
*Design and Characterization of New  
Media for Infrared Lasers, Saturable  
Absorbers and Photorefractive Materi-  
als Based on II-VI Semiconductors  
Doped with Transition Metal Ions*

**Korotcenkov, Ghenadii**  
Technical University of Moldova  
**Stetter, Joseph R.**  
Illinois Institute of Technology  
*Nano-Scaled In<sub>2</sub>O<sub>3</sub>-Based Thin Film  
Ozone Sensors for Health and  
Environmental Control*

**Kravtsov, Victor Christoforovich**  
Institute of Applied Physics  
**Moulton, Brian Douglas**  
Brown University  
*Crystal Engineering of Multiple-  
Component Pharmaceutical Solids*

**Lozovanu, Dumitru Dumitru**  
Institute of Mathematics and  
Computer Science  
**Zelikovsky, Alexander Z**  
Georgia State University  
*Algorithms for Dynamic System  
Design and Optimization in  
Communication Networks*

**Pocotilov, Evghenii Petrovich**  
Moldova State University  
**Balandin, Alexander A.**  
University of California, Riverside  
*Phonon Transport Optimization for  
Improved Heat Removal from  
Nanoscale Electronic Circuits*

**Popov, Nicolai Alexandr**  
Institute of Plant Protection  
**Liu, Tong Xian**  
Texas A & M University  
*Improvement of Techniques for  
Releasing Beneficial Arthropods to  
Increase Their Application Efficiency  
in Agroecosystems*

**Sisianu, Teodor Simion**  
Technical University of Moldova  
**Singh, Rajendra**  
Clemson University  
*The Modern and Low-cost Noncon-  
ventional Technology with Photother-  
mal Processing for Si-bulk and thin  
film solar cells*

**Tsurcan, Vladimir Vasile**  
Institute of Applied Physics  
**Groza, Joanna R.**  
University of California, Davis  
*Ternary Magnetic Materials for  
Electron-Correlated Technology*

**Turta, Constantin Ion**  
Institute of Chemistry  
**Simmons, Charles J.**  
University of Hawaii, Hilo  
*Preparation of Antianaemia  
Pharmaceutical Products by Utiliza-  
tion of Coordination Compounds of  
d-Elements and Spirulina*

**Zubcova, Natalia Nicolaevna**  
Institute of Zoology  
**Schlenk, Daniel**  
University of California, Riverside  
*Accumulation and Effects of Trace  
Elements on Fish Growth and  
Development*

## South Caucasus Collaborative Research Program

(Listed in alphabetical order  
by recipient)

**Baba-zade, Vasif**  
Baku State University  
Azerbaijan

**Kekelia, Sergo**  
Janelidze Geological Institute  
Georgia

**Melkonyan, Rafik**  
Institute of Geological Sciences  
Armenia

**Doeblich, Jeff**  
U.S. Geological Survey  
Reston, Virginia

*The project entitled "Development  
of Genetic and Exploration Models  
to Aid in Exploration, Development  
and Environmental Mitigation of  
Gold-Bearing Deposits of the Lower  
Caucasus" is jointly led by the four  
aforementioned researchers*

## Nonproliferation Initiatives

**Pushchino State University**  
Pushchino, Russia  
*Research and Innovation Center (RIC)  
Pilot Program*  
RIC Director: Leontievskii, Alexey

## Industry Programs

**First Steps to  
Market Program**  
(Listed in alphabetical order by  
country and Eurasian partner)

## Armenia

### Arakelyan, Artashes

Ecoserv Remote Observation  
Center Company Ltd.

### Barksdale, Arlen O'Neil

Hytec Digital Design, Inc.  
*C-Band, Polarimetric Doppler-Scat-  
terometer's Prototype Development  
for Water Surface (Sea, Lake, River)  
Remote Control and Sustainable  
Monitoring and its Trial in Laboratory  
and Field Conditions*

### Grigoryan, Gagik Vartan

Yerevan Physics Institute

### Nalbandian, Ruben

Panametrics, Inc.  
*Fabrication of Micro-Scale Mechanical  
Parts by Use of High Power Copper-  
Vapor-Laser*

### Sargsyan, Tamara Fadey

Center for Medical Genetics

### Avaniss-Aghajani, Erik

Laragen, Inc.  
*Development of a Commercial Kit for  
identification of 6 Major Mutations in  
the MEFV (Mediterranean Fever) Gene*

## Georgia

### Georgadze, Inga Irakli

Diagnosis 90, Ltd.

### Bennett, Gregg Fulton

Tumwater Veterinary Hospital  
*Development and Testing of the  
Effectiveness of a Phage Preparation  
for the Treatment of Canine Otitis  
Caused by Pseudomonas Aeruginosa*

## Russia

### Abramov, Vladimir Olegovich

Institute of Ultrasonic Systems Ltd.

### Begell, William

PULSE, LLC  
*Development of Ultrasonic Methods  
for the Production of Nanopowders  
with Special Structure and Physico-  
chemical Properties, and Formulation  
of Recommendations for Practical  
Applications*

### Babin, Sergey Alexeyevich

Inversion Fiber Company Ltd.

### Jacobson, John Joseph

Kuster Company  
*Temperature and Pressure Fiber  
Optic Sensors for Applications in  
Oil/Gas Industry*

### Boldyrev, Vladimir

### Vyacheslavovich

Novosibirsk State University

### Shalaev, Evgenyi Y.

Pfizer, Inc.  
*Impact of Pharmaceutical Processing  
on Quality of Pharmaceutical Dosage  
Forms: Formation of Solid-State  
Molecular Mixtures Between Drug and  
Pharmaceutical Excipients*

### Filippova, Irina Yur'evna

Moscow State University

### Okot-Kotber, Billie Moses

Analytix Laboratories  
*Highly Selective Chromogenic Sub-  
strates for Cysteine Proteinases Assay*

### Gradov, Oleg Mikhaelovich

Kurnakov Institute of General &  
Inorganic Chemistry

### Walton, Jr., Robert

Cica Consulting  
*Design and Manufacture of Downhole  
Equipment for Ultrasonic Recovery of  
Oil and Gas Well*

### Petrov, Igor Leonidovich

New Technologies

### Smith, Kevin Konrad

Rivis, Inc.  
*Optimizing Industrial-Scale  
Production Technology of Stable  
Nanodiamond Slurries*

### Prokopets, Valery Sergeevich

Siberian State Automobile and  
Highway Academy

### Van Kirk, Jack

Valley Slurry Seal Company, Inc.  
*Asphalt Rubber For Road Applications  
form Ambient Ground Tire Rubber*

### Rakhimova, Tatyana Viktorovna

Skobeltsyn Institute of Nuclear  
Physics

### Carroll, David

CU Aerospace, LLC  
*Pressure Scaling of RF Discharges in  
Oxygen-containing Mixtures for the  
Development of an Effective Singlet  
Oxygen Generator*

### Shur, Vladimir Yakovlevich

Ural State University

### Mooradian, Aram

Novalux, Inc.  
*Development of PPLN Based  
Nonlinear Optical Components for  
Conversion Near-infrared Radiation  
of Diode Laser to UV-Blue-Green  
Optical Spectrum*

### Spichkin, Youri Ivanovich

Advanced Magnetic Technologies  
and Consulting Ltd.

### Zimm, Carl Bruno

Astronautics Corporation  
of America  
*Advanced Working Bodies for Room  
Temperature Magnetic Refrigerators*

### Starikovskii, Andrei Yurievich

Moscow Institute of Physics and  
Technology

### Kelley, J. Daniel

Boeing Company  
*Non-equilibrium E-beam and Pulsed  
Gas Discharge Plasma Generation for  
MHD Power Production and Thrust  
Vector Control*

### Sukhanova, Tatiana Evgenievna

Institute of Macromolecular  
Compounds

### Taubert, Michael David

Sordal, Inc.  
*Synthesis and Comprehensive Study  
to Lower the Density and Cost of New  
Types of Polyimide Foams for High  
Temperature Insulating Technologies*

### Yatsalo, Boris I.

Obninsk Institute of Nuclear Power  
Engineering

### Linkov, Igor

Cambridge Environmental, Inc.  
*Methodology and Software for  
Risk-Based Landuse Planning and  
Decision Support*

## Ukraine

**Ragulya, Andrey Vlavimirovich**  
Frantsevich Institute for Problems  
of Materials Science

**Johnson, John L.**

Orthomat

*Development of Jet Cut Milling  
Technology for Powder Injection  
Molding Applications*

**Trunov, Oleksandr Mykolayovych**

National University of Kyiv Mohyla  
Academy

**Smith, William Hayden**

Medeco, Inc.

*Development of Software for  
Process Control*

**Zakharchenko, Victor Vasilevich**

Electron Microscopy Science and  
Research Institute of Joint-Stock  
Company "SELMI"

**Zaytsev, Sergey V.**

SVT Associates

*Vacuum Deposition System for  
Formation of High Quality Coatings*

**Zhelezny, Vitaly Petrovich**

Odessa State Academy of  
Refrigeration

**Chernyak, Yury**

Huntsman Petrochemical  
Corporation

*Development of the Design Physical  
Properties Data for the Improvement  
of Propylene Oxide Technology*

## Uzbekistan

**Rasulev, Utkur Khasanovich**

Arifov Institute of Electronics

**Eiceman, Gary Alan**

Sionex Corporation, Inc.

*Selective Determination of  
Physiologically Active Nitrogen-  
Containing Substances Using  
Surface Ionization Methods*

## Next Steps to Market Program

*(Listed in alphabetical order by  
country and Eurasian partner)*

## Armenia

**Arakelyan, Artashes**

Ecoserv Remote Observation  
Center Company Ltd.

**May, Carol L.**

Cortana Corporation

*Development of Ku-Band, Spatial-  
Temporal Combined, Polarimetric  
Scatterometer-Radiometer System  
for Airborne Application*

## Russia

**Bukhshtab, Yury Alexandrovich**

Keldysh Institute of Applied  
Mathematics

**Johnson, J. Mitchell**

ArkMedia

*Advanced Toolset For Online  
Multimedia*

**Ezhovsky, Yuri Konstantinovich**

St. Petersburg State Technical  
University

**Erickson, Dwight D.**

3M Corporation

*Modified Sol-Gel Abrasives*

**Kaplin, Valery Victorovich**

Tomsk Polytechnic University

**Piestrup, Melvin Arthur**

Adelphi Technology, Inc.

*Compact Laboratory Source for Gener-  
ating Tunable Narrow-Band X-rays*

**Petrov, Andrei Yurevich**

St. Petersburg State University  
of Information Technologies,  
Mechanics & Optics

**Bruning, Horst Friedhelm**

Exxim Computing Corporation

*Three-dimensional X-Ray Tomogra-  
phy with C-Arm Systems*

**Stakheev, Aleksandr Yur'evich**

Zelinsky Institute of  
Organic Chemistry

**Cavalcanti, Fernando A.P.**

Rohm and Haas Company

*Development of an Optimized Process  
for Propane Partial Oxidation to  
Acrylic Acid*

**Tuchin, Valery Victorovich**

Saratov State University

**Altshuler, Gregory Borisovich**

Palomar Medical Technologies, Inc.

*Designing of the Optical System and  
Technology for Skin Acne Photother-  
apy and Monitoring of Optical and  
Physiological Properties of Pre/Post  
Treated Skin*

**Vlasik, Tatiana Nikolaevna**

Mona, Ltd.

**Chenchik, Alex**

System Biosciences, LLC

*A New siRNA Expression System for  
Functional Genomics*

## Ukraine

**Maderych, Volodymyr**

Stanislavovych

Ukrainian Center of Environmental  
and Water Projects

**Shepsis, Vladimir**

Coast & Harbor Engineering, LLC

*Software System for Coastal Engineering*

**Orlov, Dmytro Valentinovich**

Donetsk Physical &  
Technical Institute

**Subramanian, Pazhayannur R.**

General Electric Corporation

*Developing of Bases of Inconel 718 SPD  
Technique by Both Twist Extrusion  
and Combination of the Twist  
Extrusion with Direct Extrusion*

## Travel Grants Program

*(Listed in alphabetical order by  
country and traveler)*

"NPI" denotes travel awardees  
supported by CRDF Nonprolifera-  
tion Initiatives (NPI) program

## Armenia

**Afevan, Bedros (NPI)**

Polymath Research Inc.

*First International Congress of  
Armenian Physicists*

**Aghabekyan, Artur**

ViaSphere Technopark Company

*Materials Research Society*

*Fall 2005 Meeting*

**Amiryan, Ara Karapet**

Armenian Agricultural Academy  
U.S.-Eurasia Energy Technology  
Commercialization Workshop

**Aroutiounian, Vladimir Mikhael**

Yerevan State University  
International Nanotechnology  
Conference 2005

**Ayvazyan, Gagik Erjanik**

Transistor-Plus Company  
U.S.-Eurasia Energy Technology  
Commercialization Workshop

**Bondarkov, Mykhailo (NPI)**

Chernobyl Center for Nuclear  
Safety, Radioactive Waste, and  
Radioecology  
Environmental Research Center  
Workshop, Jordan

**Hakobyan, Nune**

Sincrytal-Ar CJSC  
Materials Research Society  
Fall 2005 Meeting

**Hambardzumyan, Marine**

Drug and Technological  
Research Center  
American Association of Pharmaceu-  
tical Scientists Annual Meeting 2005  
Panel: Eurasian Perspectives and  
Targeted Drug Delivery & Pharmaceu-  
tical Technology

**Maksymenko, Andriy (NPI)**

Frantsevich Institute for Problems  
of Materials Science  
Environmental Research Center  
Workshop, Jordan

**Minasyan, Gayane**

Engineering Center, Ltd.  
Materials Research Society  
Fall 2005 Meeting

**Sahakyan, Gagik**

Armenia Management Consultants  
Association of University Technology  
Managers (AUTM) Annual  
Meeting 2005

**Van Gundy, Seymour Dean (NPI)**

University of California Riverside  
EcoChem 2005 Conference

**Georgia****Chkonia, Tengiz**

Agladze Institute of Inorganic  
Chemistry and Electrochemistry  
Meeting with Carus Chemical  
Company

**Dadeshidze, Inga**

Kutateladze Institute of  
Pharmacochemistry  
American Association of Pharmaceu-  
tical Scientists Annual Meeting 2005  
Panel: Eurasian Perspectives and  
Targeted Drug Delivery & Pharmaceu-  
tical Technology

**Jalabadze, Nikoloz**

Georgian Technical University  
International Nanotechnology  
Conference 2005

**Jalabadze, Nikoloz**

Georgian Technical University  
Meeting with CTI Molecular  
Imaging Inc.

**Kazakhstan****Kuanyshbekova, Zharkynay**

Institute of Physics and  
Technology  
Materials Research Society Fall  
2005 Meeting

**Moldova****Bruc, Leonid Izmail**

Moldova State University  
U.S.-Eurasia Energy Technology  
Commercialization Workshop

**Dmitriev, Serghei Vasile**

Moldova State University  
International Nanotechnology  
Conference 2005

**Potlog, Tamara Pavel**

Moldova State University  
Meeting with Canrom Photovoltaics Inc.

**Pyshkin, Sergei L'vovich**

Institute of Applied Physics  
International Nanotechnology  
Conference 2005

**Robu, Stefan**

Moldova State University  
Optics & Photonics 2005, SPIE's 50th  
Annual Meeting and Symposium  
Meetings with Physical Optics  
Corporation and the Department of  
Chemistry, University of  
Central Florida

**Russia****Abramov, Oleg Vladimirovich**

VIATECH Ltd.  
Alternative Energy Conference

**Anikeev, Vladimir Il'ich**

Boreskov Institute of Catalysis  
Meetings with Supercritical Fluids  
and Foster Wheeler Development  
Corporation

**Bakunin, Victor Nikolayevich**

Topchiev Institute of  
Petrochemical Synthesis  
Licensing Executives Society Annual  
Meeting "Tools for Licensing in the  
21st Century"

**Balashova, Svetlana Yurievna**

LUMEX-Marketing JSC  
Pittsburgh Conference on Analytical  
Chemistry and Applied Spectroscopy  
Meeting with Spectradyn Technologies

**Belyakov, Alexey Ivanovich**

JSC Electrochemical Power Sources  
U.S.-Eurasia Energy Technology  
Commercialization Workshop

**Cheremisin, Georgy**

Moscow State University,  
Department of Biology  
Life Science Technology Commercial-  
ization Training Workshop

**Chernovskaya, Tatiana**

Veniaminovna  
Lyubuchany Institute of Immuno-  
logical Engineering  
Life Science Technology Commercial-  
ization Training Workshop

**Dimakov, Sergei Alexandrovich**

Research Institute for Laser Physics  
SPIE Symposium on Optics & Photonics  
Meeting with MetroLaser, Inc.

**Dolmatova, Liudmila Stepanovna**  
Pacific Oceanographical Institute  
*Life Science Technology Commercialization Training Workshop*

**Dubovitskiy, Sergey**  
Far Eastern State University  
*Life Science Technology Commercialization Training Workshop*



Former Ambassador Harnish addresses the audience during CRDF's 10th Anniversary celebration in Baku, Azerbaijan, June 2, 2005

**Gnedenkov, Mikhail Andreyevich**  
Palmira Ltd.  
*Meetings with Northern Mills Hardwood Flooring and Ft. Lauderdale Recycling Coordinator*

**Grigoriev, Sergei Alexandrovich**  
Russian Research Center - Kurchatov Institute  
*U.S.-Eurasia Energy Technology Commercialization Workshop*

**Gromov, Gennady**  
RMT Ltd.  
*Meetings with HCC Aegis, Amptek Inc., Glasseal Product, Sealtron, Hermetic Seal Company, and Ortel*

**Gromov, Timofei**  
RMT Ltd.  
*Meetings with HCC Aegis, Amptek Inc., Glasseal Product, Sealtron, Hermetic Seal Company, and Ortel*

**Ignatov, Sergei Georgievich**  
State Research Center for Applied Microbiology  
*Life Science Technology Commercialization Training Workshop*

**Khasanov, Oleg Leonidovich**  
Tomsk Polytechnic University  
*Meetings with the Center for Materials Research at Norfolk State University, Argonide Corporation, and Emerging Material Technologies, Inc.*

**Kholodov, Yaroslav A.**  
Moscow Institute of Physics and Technology  
*MIT Conference on Computational Fluid and Solid Mechanics Meeting with Delta Search Labs*

**Kobzev, Gennady Anatolievich**  
Tomsk State University of Control Systems and Radioelectronics  
*Meeting with Parallel Technologies*

**Komarov, Alexander Yurievich**  
Far Eastern State University  
*Association of University Technology Managers (AUTM) Annual Meeting 2005*

**Krivosheina, Elena**  
Moscow State University of Railway Engineering  
*SPIE Symposium on Optics & Photonics*

**Kudryavtsev, Anatoly Anatolievich**  
St. Petersburg State University  
*Collisionless Electron Transport in Plasmas Workshop Meetings with UES, Inc. and Princeton University*

**Lazarev, Sergey Yuryevich**  
Palmira Ltd.  
*Meetings with Northern Mills Hardwood Flooring and Ft. Lauderdale Recycling Coordinator*

**Maydanik, Yury Foliyevich**  
Thercon-LHP, Ltd.  
*Meeting with Microway, Inc.*

**Merkulov, Vladimir**  
Institute of Theoretical & Applied Mechanics  
*U.S.-Eurasia Energy Technology Commercialization Workshop*

**Mozzhukhin, Georgy Vladimirovich**  
Kaliningrad State University  
*Meeting with Infrastructure Security*

**Murzina, Tatyana Vladimirovna**  
Moscow State University  
*SPIE International Symposia "Smart Structures and Nondestructive Evaluation"*

**Nedavnyi, Igor Olegovich**  
Tomsk State University of Architecture and Building  
*International Nanotechnology Conference 2005*

**Pavlyev, Vladimir Sergeevich**  
Image Processing Systems Institute  
*Meeting with Hitachi Via Mechanics (USA) Inc.*

**Pesterev, Alexander Vital'evich**  
Institute of Systems Analysis  
*ASME 20th Biennial Conference on Mechanical Vibration and Noise Meeting with Lord Corporation*

**Petrov, Igor Leonidovich**  
New Technologies  
*Meeting with the International Technology Center*

**Pikhtele, Alexandre Robertovich**  
Institute of Energy Problems of Chemical Physics  
*ASMS Conference on Mass-Spectrometry Meeting with Ionwerks, Inc.*

**Pokanevitch, Evgueni Vladimirovich**  
Far Eastern State University  
*AUTM Annual Meeting 2005 Life Science Technology Commercialization Training Workshop*

**Ponomarev, Alexander**  
JSC Taiga-product  
*Meeting with Mid-Atlantic Russia Business Council*



**Popel, Oleg Sergeevich**

Institute of High Temperatures  
U.S.-Eurasia Energy Technology  
Commercialization Workshop

**Romanova, Svetlana****Aleksandrovna**

Ural State Technical University  
Life Science Technology Commercial-  
ization Training Workshop

**Ryabinin, Viatcheslav Evgenevich**

Chelyabinsk Medical Academy  
Life Science Technology Commercial-  
ization Training Workshop

**Ryabkov, Sergey Alexandrovich**

Tomsk State University  
SPIE Symposium on Optics  
& Photonics

**Sergeev, Alexander Mikhailovich**

Institute of Applied Physics  
Annual Meeting of Licensing  
Executives Society  
Meetings with Sandia National Labs,  
CINT, Imalux Corp., and 5iTech LLS

**Shulgin, Dmitry Borisovich**

Ural State Technical University  
AUTM Annual Meeting 2005

**Simakova, Irina Leonidovna**

Boreskov Institute of Catalysis  
SPIE Symposium on Optics &  
Photonics

**Smirnov, Konstantin****Vladimirovich**

Moscow State Pedagogical  
University  
9th World Multi-Conference on  
Systemics, Cybernetics and Informatics  
Meeting with Insight Product  
Company

**Sokolova, Olga****Pharmapark, LLC**

American Association of Pharmaceu-  
tical Scientists Annual Meeting 2005  
Panel: Eurasian Perspectives and  
Targeted Drug Delivery &  
Pharmaceutical Technology

**Sveshnikov, Peter Georgievich**

Russian Research Center of Mo-  
lecular Diagnostics and Therapy  
Life Science Technology Commercial-  
ization Training Workshop

**Takaev, Baatar**

Moscow Power Engineering  
Institute  
U.S.-Eurasia Energy Technology  
Commercialization Workshop

**Tyazhev, Anton Vladimirovich**

Tomsk State University  
SPIE Symposium on Optics  
& Photonics

**Uvarov, Alexander Favstovich**

Tomsk State University of Control  
Systems and Radioelectronics  
Meeting with Parallel Technologies

**Vakhrushev, Sergey Borisovich**

Ioffe Physico-Technical Institute  
Meetings with Ashland Specialty  
Chemical and General Innovations  
and Goods, Inc.

**Zibarov, Aleksey Vladimirovich**

GDT Software Group  
Meetings with Trident  
Consulting Group

**Ukraine****Bogatyrova, Galyna Pavlovna**

Bakul Institute of  
Superhard Materials  
Silicon Valley Open Doors (SVOD)  
Technology Investment Conference

**Favorskiy, Yuriy**

Avante  
U.S.-Russian Energy Technology  
Commercialization Workshop

**Geletukha, Georgiy Georgievich**

Scientific Engineering  
Center Biomass  
U.S.-Eurasian Energy Technology  
Commercialization Workshop

**Ivakhno, Sergii Sergiyovuch**

Institute of Molecular Biology  
and Genetics  
Meetings with Seattle Proteome Center  
and Insilicos

**Karpukhin, Oleksandr****Volodimirovich**

Kharkiv National University of  
Radioelectronics  
9th World Multi-Conference on Sys-  
temics, Cybernetics and Informatics  
Meeting with Aldec Inc.

**Kobzar, Sergiy Grigorovich**

Institute of Engineering  
Thermophysics  
U.S.-Eurasia Energy Technology  
Commercialization Workshop

**Kudryavtsev, Igor Nikolayevich**

Kharkiv State Automobile and  
Highway Technical University  
Silicon Valley Open Doors (SVOD)  
Technology Investment Conference

**Kulyutkina, Tamara Fatyhovna**

Association of Alternative Methods  
of Obtaining and Saving Energy  
U.S.-Eurasia Energy Technology  
Commercialization Workshop

**Lysiuk, Viktor Oleksandrovykh**

Kyiv Taras Shevchenko University  
SPIE Symposium on Optics & Photonics  
Meeting with Infrared Associates, Inc.

**Malyutenko, Volodymyr**

Institute of Semiconductor Physics  
SPIE Symposium on Optics & Photonics  
Meetings with Santa Barbara Infrared  
Inc. and Acumen Scientific

**Mezhuev, Vitaliy Ivanovich**

Berdiansk State Pedagogical  
University  
Meetings with VectorLog and  
Fisk University

**Mitin, Vadym Fedorovych**

Institute of Semiconductor Physics  
24th International Conference on Low  
Temperature Physics, LT24  
Meetings with the University of Florida  
and Scientific Instruments, Inc.

**Pokropivny, Vladimir V.**

Frantsevich Institute for Problems  
of Materials Science  
International Nanotechnology  
Conference 2005

**Polishchuk, Yuliya Valerievna**

Ukrainian State Chemical  
Technology University  
Meeting with Eneri, Inc.

**Shramkova, Oksana Vadimovna**  
 Institute of Radiophysics and  
 Electronics  
*30th International Conference on  
 Infrared and Millimeter Waves*  
*13th International Conference on  
 Terahertz Electronics*  
*Meeting with Exxon Mobil Upstream  
 Research Company*

**Shypil, Elena**  
 Institute of Magnetism  
 Materials Research Society  
*Fall 2005 Meeting*



CRDF Board Vice-Chair John Moore speaks at CRDF's 10th Anniversary celebration in Kyiv, Ukraine, September 8, 2005

**Vasylyev, Viktor**  
 Institute for Electromagnetic  
 Research, Ltd.  
*U.S. -Eurasian Energy Technology  
 Commercialization Workshop*

**Vilchynskiy, Stanislav Iosifovich**  
 National University of Kyiv Mohyla  
 Academy  
*Statistical Mechanics Conference  
 Meetings with ForeSeeIT, Inc. and the  
 City University of New York*

## Uzbekistan

**Ruzimuradov, Olim Narbekovich**  
*U.S. -Eurasia Energy Technology  
 Commercialization Workshop*

**Suleimanov, Sultan Khamidovich**  
 Institute of Material Science  
*U.S. -Eurasia Energy Technology  
 Commercialization Workshop*

## Science & Technology Entrepreneurship Program (STEP)

*(Listed in alphabetical order by  
 country and partner organization.)*

## Azerbaijan

**Azerbaijan National Science  
 Foundation (ANSF)**  
*Foreign Principal Organization:  
 Institute of Radiation Problems, AzAS*  
 Program Coordinator: Fuad  
 Mushtagov

## Georgia

**Georgian Research &  
 Development Foundation (GRDF)**  
*Foreign Principal Organization:  
 Georgian Research & Development  
 Foundation (GRDF)*  
 Program Coordinator: George  
 Khokhobashvili

## Moldova

**Moldovan Research & Develop-  
 ment Association (MRDA)**  
*Foreign Principal Organization:  
 Moldovan Research & Development  
 Association (MRDA)*  
 Project Director: Lidia Romanciuc

## CRDF Board Opportunity Grants

*(Listed in alphabetical order by  
 country and recipient)*

## Georgia

**Chkonia, Tengiz**  
 Institute of Electrochemistry,  
 National Academy of Sciences  
 of Georgia  
 Tbilisi, Georgia  
*Development of New Method for  
 Obtaining Potassium Permanganate  
 and Its Pilot Industrial Tests*

**Nadareisvili, Guram**  
 Caucasian Institute of  
 Mineral Resources  
 Tbilisi, Georgia  
*Indigenous Bottle-glass Material  
 Development. Geological Research of  
 Local Inexpensive and Non-traditional  
 Raw Materials' Mines in Georgia  
 and Development of Bottle-glass  
 Production Technology*

## Russia

**Hirsh, Edward Alekseevich**  
 Steklov Mathematics Institute  
 St. Petersburg, Russia  
*The First International Computer  
 Science Symposium in Russia*

## United States

**Muco, Betim**  
 Anteon Corporation  
 Rockville, Maryland  
*Balkan Geohazard Assessment  
 and Map*

**Stone, Richard**  
 American Association for the  
 Advancement of Science  
 Washington, DC  
*Symposium on Scientific Cooperation  
 with North Korea (date TBA)*

**Wiegel, Juergen**  
 University of Georgia Research  
 Foundation  
 Athens, Georgia  
*International Workshop  
 "Kamchatka 2005"*

## CEO Discretionary Award

**Romanciuc, Lidia**  
 Moldovan Research and  
 Development Association  
 Chisinau, Republic of Moldova  
*3rd International Ecological  
 Chemistry Conference*

## Statements of Financial Position

	Dec. 31 2005	Dec. 31 2004
<b>Assets</b>		
<b>Current Assets</b>		
Cash and Cash Equivalents	\$ 30,697,236	\$ 30,459,607
Restricted Cash	<u>12,786,750</u>	<u>16,276,053</u>
Total Cash	<u>43,483,986</u>	<u>46,735,660</u>
Pledges Receivable, Net	545,000	2,250,000
Other Receivables	2,149,262	1,709,138
Prepaid Expenses	106,649	29,915
Advances	<u>58,009</u>	<u>46,645</u>
<b>Total Current Assets</b>	<u>46,342,906</u>	<u>50,771,358</u>
<b>Non-current Assets</b>		
Investments	7,314,114	5,174,714
Pledges Receivable, Net	6,066,925	236,623
Fixed Assets, Net	280,150	65,481
Deposits	<u>738,317</u>	<u>899,759</u>
<b>Total Non-Current Assets</b>	<u>14,399,506</u>	<u>6,376,577</u>
<b>Total Assets</b>	<u>\$ 60,742,412</u>	<u>\$ 57,147,935</u>
<b>Liabilities and Net Assets</b>		
<b>Current Liabilities</b>		
Accounts Payable	\$ 204,465	\$ 174,375
Accrued Expenses	441,523	414,653
Contracts Payable	405,563	465,846
Grant Assistance Program (GAP) Payable	11,725,950	15,057,402
Deferred Revenue	<u>1,096,916</u>	<u>1,275,435</u>
<b>Total Current Liabilities</b>	<u>13,874,417</u>	<u>17,387,711</u>
<b>Non-Current</b>		
Deferred Revenue	—	59,755
Deferred Rent	<u>309,066</u>	<u>272,809</u>
<b>Total Non-Current Liabilities</b>	<u>309,066</u>	<u>332,564</u>
<b>Total Liabilities</b>	<u>14,183,483</u>	<u>17,720,275</u>
Unrestricted Net Assets	7,373,617	5,448,664
Temporarily Restricted Net Assets	<u>39,185,312</u>	<u>33,978,996</u>
<b>Total Net Assets</b>	<u>46,558,929</u>	<u>39,427,660</u>
<b>Total Liabilities and Net Assets</b>	<u>\$ 60,742,412</u>	<u>\$ 57,147,935</u>

The U.S. Civilian Research & Development Foundation's accounts are derived from the audited financial statements. Copies of the audit are available upon request.

## Statements of Financial Position

<i>For years ended December 31, 2005 and 2004</i>	<i>Unrestricted</i>	<i>Temporarily Restricted</i>	<i>2005 Total</i>
<b>Revenues:</b>			
Grants and Contacts	\$ 4,471,189	\$ 23,807,720	\$ 28,278,909
Interest and Investment Income	1,844,096	115,004	1,959,100
Grant Assistance Program	1,927,743	—	1,927,743
Net Assets Released from Restrictions	18,716,408	(18,716,408)	—
Total Revenues	<u>26,959,436</u>	<u>5,206,316</u>	<u>32,165,752</u>
<b>Expenses:</b>			
Program Expenses:			
Centers & Institution Building	6,250,920	—	6,250,920
Cooperative Research Grants	6,049,026	—	6,049,026
Industry	2,933,473	—	2,933,473
Nonproliferation	4,552,240	—	4,552,240
Total Program Expenses	19,785,659	—	19,785,659
Grant Assistance Program	1,011,506	—	1,011,506
Total Program Expenses	20,797,165	—	20,797,165
General and Administration	<u>4,237,318</u>	<u>—</u>	<u>4,237,318</u>
Total Expenses	<u>25,034,483</u>	<u>—</u>	<u>25,034,483</u>
Change in Net Assets	1,924,953	5,206,316	7,131,269
Net Assets at Beginning of Year	<u>5,448,664</u>	<u>33,978,996</u>	<u>39,427,660</u>
Net Assets at End of Year	<u>\$ 7,373,617</u>	<u>\$ 39,185,312</u>	<u>\$ 46,558,929</u>

<i>Unrestricted</i>	<i>Temporarily Restricted</i>	<i>2004 Total</i>
\$ 4,951,096	\$ 14,216,745	\$ 19,167,841
1,046,888	53,753	1,100,641
1,628,185	—	1,628,185
<u>19,623,433</u>	<u>(19,623,433)</u>	<u>—</u>
<u>27,249,602</u>	<u>(5,352,935)</u>	<u>21,896,667</u>
7,347,654	—	7,347,654
7,228,269	—	7,228,269
2,560,071	—	2,560,071
4,422,306	—	4,422,306
21,558,300	—	21,558,300
832,173	—	832,173
22,390,473	—	22,390,473
<u>3,360,291</u>	<u>—</u>	<u>3,360,291</u>
<u>25,750,764</u>	<u>—</u>	<u>25,750,764</u>
1,498,838	(5,352,935)	(3,845,097)
<u>3,949,826</u>	<u>39,331,931</u>	<u>43,281,757</u>
<u>\$ 5,448,664</u>	<u>\$ 33,978,996</u>	<u>\$ 39,427,660</u>

## CRDF Staff

### Executive Management

**Ms. Cathleen Campbell**  
*President & Chief Executive Officer*

**Dr. Eric Novotny**  
*Vice President for Programs*

**Mr. Stephen Wolk**  
*Chief Financial Officer*

### Program and Administrative Directors

**Dr. David Giebink**  
*Industry Programs*

**Ms. Suzanne LaFlair**  
*Administration*

**Mr. David H. Lindeman**  
*Development and External Relations*

**Ms. Cindi Warren Mentz**  
*Middle East and North Africa Programs  
Senior Advisor, Nonproliferation*

**Mr. John J. Modzelewski**  
*Centers & Institution Building Programs*

**Ms. Siri Oswald**  
*Cooperative Grants Program*

**Ms. Nadia Rabinovich**  
*Controller, Accounting*

**Mr. Chris Robinson**  
*Nonproliferation Programs*

**Mr. Shawn T. Wheeler**  
*Award Administration and Grant  
Assistance Program*

### International Offices

#### Russia

**Dr. Ilya B. Kutsenok**  
*Director, CRDF Moscow Office*

**Dr. Marianna V. Voevodskaya**  
*Director, CRDF Cooperative Programs Office*

**Dr. Noemi Ya. Smorodinskaya**  
*CRDF Moscow Representative*

**Dr. Rostislav Andreyev**  
*St. Petersburg Representative*

**Dr. Tamara Terekhova**  
*Vladivostok Representative*

#### Ukraine

**Ms. Natalia I. Artiukhovskaya**  
*Director, CRDF Ukraine Office*



MRDA President Gheorghe Duca and former CRDF President & CEO Tom Owens pose with U.S. Ambassador Heather Hodges and recognition medal recipients during the CRDF 10th Anniversary reception in Chisinau, Moldova, June 27, 2005

## CRDF Offices

For additional information on CRDF's activities, programs and current grant competitions, please refer to the Web site at [www.crdf.org](http://www.crdf.org).

### Headquarters

1530 Wilson Boulevard,  
Third Floor  
Arlington, Virginia 22209  
Telephone: (703) 526-9720  
Fax: (703) 526-9721  
Email: [info@crdf.org](mailto:info@crdf.org)  
[www.crdf.org](http://www.crdf.org)

### Moscow

Ulitsa Miklukho-Maklaya 16/10  
Room 204  
Moscow 117997, Russia  
Telephone: 7-095-777-6560  
Fax: 7-095-777-6559  
[www.crdf.ru](http://www.crdf.ru)

### Kyiv

4 Bogomoltsa Street,  
Room 133  
01024 Kyiv, Ukraine  
Telephone: 380-44-253-7223  
Fax: 380-44-253-4577  
[www.crdf.org.ua](http://www.crdf.org.ua)

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U.S. CIVILIAN RESEARCH & DEVELOPMENT FOUNDATION

1530 Wilson Boulevard, Third Floor  
Arlington, Virginia 22209 U.S.A.  
Telephone 703.526.9720

[www.crdf.org](http://www.crdf.org)