

Science, Technology, and Security Initiative

The John D. and Catherine T. MacArthur Foundation has established the Science, Technology, and Security Initiative through which \$50 million in grants will be made to increase the pool of independent experts providing scientific and technical advice on issues related to international security policy. Forty-two organizations in the U.S., Russia, and China have been selected to participate so far. These include universities, professional societies, and policy institutes.

In launching this initiative, the MacArthur Foundation recognizes the worldwide shortage of independent scientists and technical specialists with the knowledge and skills to provide sound advice to policymakers on the most challenging international security issues. Since the end of the Cold War, the number of qualified specialists conducting analysis outside of government has decreased markedly. At the same time, new security threats have emerged as a result of developments in biology, chemistry, nuclear and aerospace engineering, and computer science.

The Science, Technology, and Security Initiative is designed to support a new generation of experts who will help mitigate the dangers of weapons technology and address the challenges they pose to international peace and security. Funding through the initiative is intended to:

- Strengthen university-based policy centers of science, technology, and security, with the purpose of expanding and sustaining the pool of scientists, engineers, and technical experts on national and international security policy
- Provide opportunities for this new generation of experts to engage in the policy process. This includes developing new mechanisms, such as a Washington-based clearing-house that can match the analytic needs of policymakers with the research interests and expertise of university-based and other independent technical specialists
- Deepen communication among universities, policy institutes, and policymakers to enhance creativity and dynamism in this policy field.

Future funding will continue to be directed to interdisciplinary research centers in countries that can play a critical role in reducing the spread of the world's most dangerous weapons technology.

U.S. Universities

The initiative has helped create ten new tenured faculty positions for scientists and engineers at U.S. universities and 100 positions for mid-career scientists and postdoctoral and advanced graduate students engaged in international security research.

CARNEGIE MELLON UNIVERSITY, ENGINEERING AND PUBLIC POLICY PROGRAM, *Pittsburgh, Pennsylvania*

Principal Contact: Granger Morgan

\$2 million over five years to support faculty and graduate student research on national and international security problems of a scientific and technical nature, which include protecting cyberspace and electrical grids; providing for bioterrorism surveillance and improved public health services; assessment of the costs and benefits of restrictions on biomedical research; and preparations to reduce the impact and speed recovery from nuclear terrorism.

CORNELL UNIVERSITY, PEACE STUDIES PROGRAM, *Ithaca, New York*

Principal Contact: George Lewis

\$1.86 million over five years to create a new faculty position to focus on technical security studies. In addition, funding will support postdoctoral visitors, doctoral students, and scientists from institutions abroad. The grant also supports continuing research on contemporary issues in science and security, such as the prospects of placing weapons in space, ongoing debate about missile defense, biological weapons and dangerous pathogens, and continuing and broad issues of dual-use technology.

GEORGIA INSTITUTE OF TECHNOLOGY, SAM NUNN SCHOOL OF INTERNATIONAL AFFAIRS, *Atlanta, Georgia*

Principal Contact: William Long

\$1.84 million over five years to two new faculty positions, mid-career and graduate research fellowships, and a range of program initiatives to reduce the dangers posed by nuclear and biological weapons, cyber-threats, and armed conflict, including safeguarding dangerous materials, controlling the spread of advanced delivery systems, and protecting information systems from attack.

HARVARD UNIVERSITY BELFER CENTER FOR SCIENCE AND INTERNATIONAL AFFAIRS, *Cambridge, Massachusetts*

Principal Contacts: Matt Bunn

\$2.15 million over five years to support pre- and postdoctoral fellowships for researchers working on nuclear arms and nuclear security as part of the Managing the Atom Project. The goal is to enable new and mid-career analysts to conduct interdisciplinary analysis with the support of a strong intellectual community, and to engage in nuclear policy debates. Fellows will conduct their own research projects on technical aspects of nuclear security and nonproliferation issues and will gain experience in developing policy proposals and analyzing public policy decisions.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, SECURITY STUDIES PROGRAM, *Cambridge, Massachusetts*

Principal Contact: Ted Postol

\$1.1 million over three years to help the Technical Working Group expand its research, training, and public education on a range of technology-related international security problems, including ballistic missile defenses, nuclear arms reductions, fissile materials, and the future use of space. Building on its expansion in 2001 to six scientists, the group will increase its international collaborative activities by hosting researchers from China, Russia, Israel, India, Pakistan, and possibly Iran.

PRINCETON UNIVERSITY, WOODROW WILSON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS, *Princeton, New Jersey*

Principal Contact: Frank von Hippel

\$2.25 million over five years to support research into major nuclear weapons issues, including the nuclear postures of Russia and the U.S., the threats of nuclear terrorism and proliferation, and cooperation between India and Pakistan. Princeton will also expand its research agenda over the next five years to address biodefense issues. It will continue to foster the development of independent technical expertise in leading countries, as well as supporting graduate and postdoctoral students.

STANFORD UNIVERSITY, CENTER FOR INTERNATIONAL SECURITY AND COOPERATION, *Palo Alto, California*

Principal Contact: Dean Wilkening

\$1.35 million over three years to expand and consolidate research activities related to nuclear weapons and material security issues. This work will include investigations of nuclear smuggling and a campaign to improve international standards for the protection of fissile material. The grant will also support an expansion of the program's research to include risk assessment and communications in response to biological weapons threats.

UNIVERSITY OF ILLINOIS, PROGRAM ON ARMS CONTROL, DISARMAMENT AND INTERNATIONAL SECURITY, *Urbana-Champaign, Illinois*

Principal Contact: Julian Palmore

\$1.35 million over three years to expand the range of issues addressed in the university's arms control program and to include consideration of chemical and biological agents, disease vectors, dual-use technology for bioterrorism surveillance and response, nuclear materials management, nondestructive nuclear testing technologies, protection of aerospace systems, cyber warfare, and cyber security. The university will convene an annual conference organized in cooperation with its Institute of Government and Public Affairs. The conferences will address issues with technical content in the international peace and security area, including such topics as global nuclear materials management, biological and chemical weapons, and the regional, national, and international implications of homeland defense.

UNIVERSITY OF MARYLAND AT COLLEGE PARK, *College Park, Maryland*

Principal Contact: John Steinbruner

\$2.1 million over five years for a program designed to rethink the practical needs for arms control and to develop new conceptions based on transparency and disclosure arrangements. As part of the program, the center will provide graduate assistantships for young scientists and will support working groups and broad networks of researchers.

International Research Centers

The initiative is designed to add as many as 50 analysts to the community of experts providing authoritative analysis outside of the United States.

ANALYTICAL CENTER FOR NONPROLIFERATION, *Sarov, Russia*
Principal Contact: Yuri Yudin

\$155,000 over two years to help increase the number of independent scientists in Russia conducting policy research and public education on technical issues related to nuclear threat reduction.

BEIHANG UNIVERSITY SCHOOL OF ASTRONAUTICS, *Beijing, China*
Principal Contact: Huang Hai

\$92,000 over two years for technical research into the orbital dynamics of space debris.

CENTER FOR POLICY STUDIES IN RUSSIA (PIR CENTER),
Moscow, Russia

Principal Contact: Vladimir A. Orlov

\$650,000 over three years to help expand a pilot program for engineering and physics students and future diplomats on nuclear nonproliferation and arms control.

CHINA ARMS CONTROL AND DISARMAMENT ASSOCIATION,
Beijing, China

Principal Contact: Li Genxin

\$250,000 over three years to support technical research and training on export control issues and biological arms control.

CHINA FOUNDATION FOR INTERNATIONAL AND STRATEGIC STUDIES, *Beijing, China*

Principal Contact: Zhang Tuosheng

\$100,000 over two years to study the proliferation of nuclear technology.

COMMITTEE OF SCIENTISTS FOR GLOBAL SECURITY,
Moscow, Russia

Principal Contact: Leonid Ryabkin

\$220,000 over two years to study biological weapons dangers.

DARMSTADT UNIVERSITY OF TECHNOLOGY, *Darmstadt, Germany*
Principal Contact: Regina Hagen

\$88,000 over one year for an international working group on the remote monitoring of fissile material production.

FUDAN UNIVERSITY PROGRAM ON ARMS CONTROL AND REGIONAL SECURITY, *Shanghai, China*

Principal Contact: Shen Dingli

\$80,000 over two years for technical research on arms control and disarmament issues.

INSTITUTE OF APPLIED PHYSICS AND COMPUTATIONAL MATHEMATICS, *Beijing, China*

Principal Contact: Li Hua

\$200,000 over three years to support the participation of Chinese scientists in international conferences and workshops outside China on issues related to nuclear arms reduction and international security.

KING'S COLLEGE LONDON, SCHOOL OF SOCIAL SCIENCE AND PUBLIC POLICY, *London, United Kingdom*

Principal Contacts: Lawrence Freedman/Peter Zimmerman

\$1.2 million over three years to help establish a new Science and Security Program within the Department of War Studies of the School of Social Science and Public Policy. The program will provide an academic platform for scientists and engineers to work on security issues, make contributions to public policy debate at national and international levels, and cultivate new talent by creating opportunities for research, training, teaching, policy analysis, and debate.

LANDAU NETWORK – CENTRO DI CULTURA SCIENTIFICA ALLESSANDRO VOLTA, *Como, Italy*

Principal Contact: Maurizio Martellini

\$150,000 over three years to develop nuclear threat reduction proposals for South Asia.

MOSCOW INSTITUTE OF PHYSICS AND TECHNOLOGY, CENTER FOR ARMS CONTROL, ENERGY, AND ENVIRONMENT, *Moscow, Russia*

Principal Contact: Anatoly Diakov

\$400,000 over three years to support a new educational program in Russia to provide training in technical aspects of arms control, disarmament, nonproliferation, and military policy. The Moscow Institute is the premier technical and scientific university in Russia.

PEKING UNIVERSITY SCHOOL OF INTERNATIONAL STUDIES INTERNATIONAL SECURITY PROGRAM, *Beijing, China*

Principal Contact: Zhu Feng

\$150,000 over two years to promote collaborative research between scientific and policy experts on major international security issues.

PUGWASH CONFERENCES ON SCIENCE AND WORLD AFFAIRS, *Rome, Italy*

Principal Contact: Paolo Cotta-Ramusino

\$350,000 over three years in support of activities of the International Pugwash Conferences and the U.S. Pugwash Group to control nuclear, biological, and chemical weapons, and bring a new generation of scientists into debate and analysis of international security issues.

TSINGHUA UNIVERSITY, INSTITUTE OF INTERNATIONAL STUDIES, *Beijing, China*

Principal Contact: Li Bin

\$250,000 over three years for a training program for graduate students, visiting scientists, and government officials on the technical and policy aspects of arms control. The goal is to enlarge the technical arms control community in China and to improve understanding of related issues by diplomats and government officials.

UNIVERSITY OF HAMBURG, RESEARCH CENTER FOR BIOTECHNOLOGY, SOCIETY, AND ENVIRONMENT, *Hamburg, Germany*

Principal Contact: Jan van Aken

\$100,000 over two years to develop new approaches to reducing the dangers from biological weapons.

U.S. Policy Institutes and Projects

Through the initiative, grants are awarded to policy institutes and projects to help create opportunities for scientific and technical experts to engage in the policy process and deepen communication with others in the national and international security policy field.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, CENTER FOR SCIENCE, TECHNOLOGY, AND SECURITY POLICY, *Washington, D.C.*

\$2,250,000 over three years in support of a new center to promote the dissemination of scientific and technical analysis on homeland and international security issues.

AMERICAN PHYSICAL SOCIETY, *New York, New York*

\$100,000 for a study of technical issues involved in a national missile defense system.

BULLETIN OF THE ATOMIC SCIENTISTS, *Chicago, Illinois*

\$750,000 over three years in support of the Bulletin of Atomic Scientists and its coverage of science and security issues.

CENTER FOR MEDIA AND SECURITY, *Millwood, New York*

\$143,000 over two years to expose journalists to science and security issues.

COUNCIL ON FOREIGN RELATIONS, *New York, New York*

\$525,000 over three years in support of scientific and technical analysis of security issues.

FEDERATION OF AMERICAN SCIENTISTS FUND, *Washington, D.C.*

\$1,500,000 over three years for activities to provide policymakers and the public with scientific information and analyses of arms control and disarmament issues.

GEORGETOWN UNIVERSITY, WOMEN IN INTERNATIONAL SECURITY, *Washington, D.C.*

\$250,000 over two years in support of a science, technology, and security initiative aimed at strengthening the communications between technical experts and the policymakers responsible for national and international security policy.

THE HARVARD UNIVERSITY-SUSSEX UNIVERSITY PROGRAM ON CBW ARMAMENT AND ARMS LIMITATION, HARVARD UNIVERSITY, CAMBRIDGE MASSACHUSETTS, AND UNIVERSITY OF SUSSEX, *Brighton, United Kingdom*

\$490,000 to Harvard University and \$490,000 to the University of Sussex over three years to increase the contribution of scholarly research and communication to public policymaking on biological and chemical weapons development and use.

INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY, *Research Triangle Park, North Carolina*

\$50,000 to prepare recommendations to strengthen the Chemical Weapons Convention.

NATIONAL ACADEMY OF SCIENCES, COMPUTER SCIENCE AND TELECOMMUNICATIONS BOARD, *Washington, D.C.*

\$400,000 over two years to study technical and policy problems associated with cybersecurity.

NATIONAL ACADEMY OF SCIENCES, COMMITTEE ON INTERNATIONAL SECURITY AND ARMS CONTROL, *Washington, D.C.*

\$975,000 over three years in support of policy dialogues with counterparts in Russia, China, and India, and for policy studies on nuclear and biological arms reduction.

NATIONAL RESEARCH COUNCIL, *Washington, D.C.*

\$900,000 over three years in support of a pilot initiative to establish the Jefferson Science Fellowship program.

NAUTILUS INSTITUTE FOR SECURITY AND SUSTAINABLE DEVELOPMENT, *Berkeley, California*

\$600,000 over three years to support collaborative technical research among scientists and security specialists in China, South Korea, Japan, Australia, and the United States.

STUDENT PUGWASH, *Washington, D.C.*

\$225,000 over two years for activities that introduce science and engineering students to nuclear disarmament and other science-related ethical issues.

U.S. PUGWASH, *Washington, D.C.*

\$225,000 over three years in support of publications on the control and elimination of weapons systems, and for maintaining communications among scientists worldwide on regional and international security.

UNION OF CONCERNED SCIENTISTS, *Cambridge, Massachusetts*

\$1,278,000 over three years in support of activities to provide policymakers and the public with scientific information and analysis related to securing the world's most dangerous weapons.

UNIVERSITY OF CALIFORNIA – BERKELEY, RICHARD AND RHONDA GOLDMAN SCHOOL OF PUBLIC POLICY, *Berkeley, California*

\$85,000 over one year to explore technical and policy problems associated with synthetic biology.