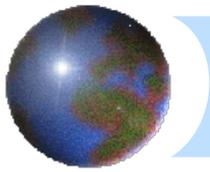


International Research & Education Collaboration: Opportunities & Resources at NSF



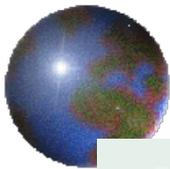
**NSF Grants Conference
3 November 2015**

Anne Emig
Office of International Science & Engineering
aemig@nsf.gov



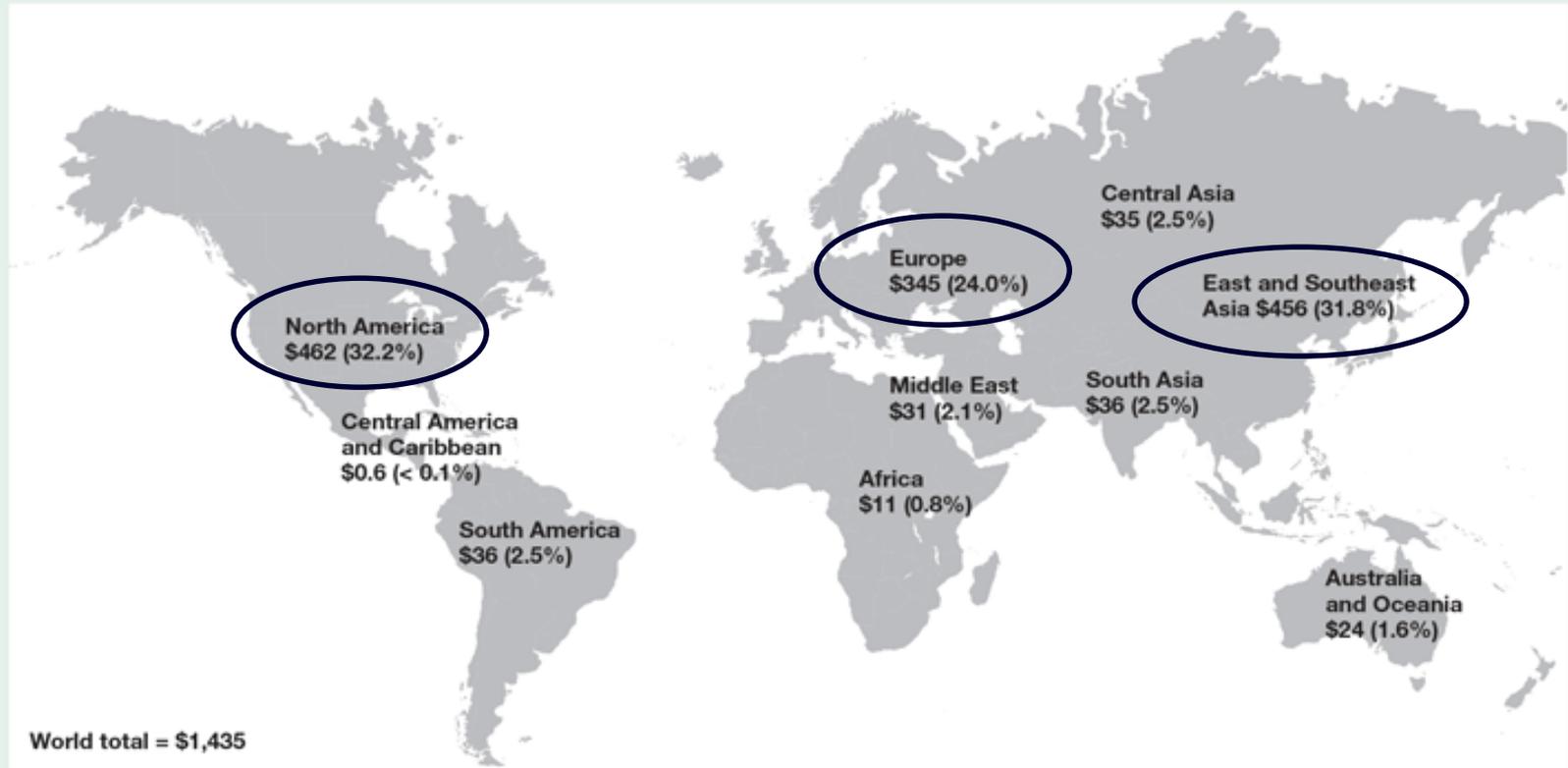
Take Home Messages

- ✦ NSF supports international collaboration *when it enhances proposed research and education*
 - ✦ NSF funds U.S. side of collaboration
- ✦ Research directorates provide most support for international
 - ✦ OISE seed funds, student programs, PIRE
- ✦ NSF has growing number of strategic partnerships to facilitate international collaboration
- ✦ Review criteria unchanged
 - ✦ Intellectual Merit
 - ✦ Broader Impact



Global R&D Expenditures by Region

Figure O-5
Global R&D expenditures, by region: 2011
Billions of U.S. PPP dollars



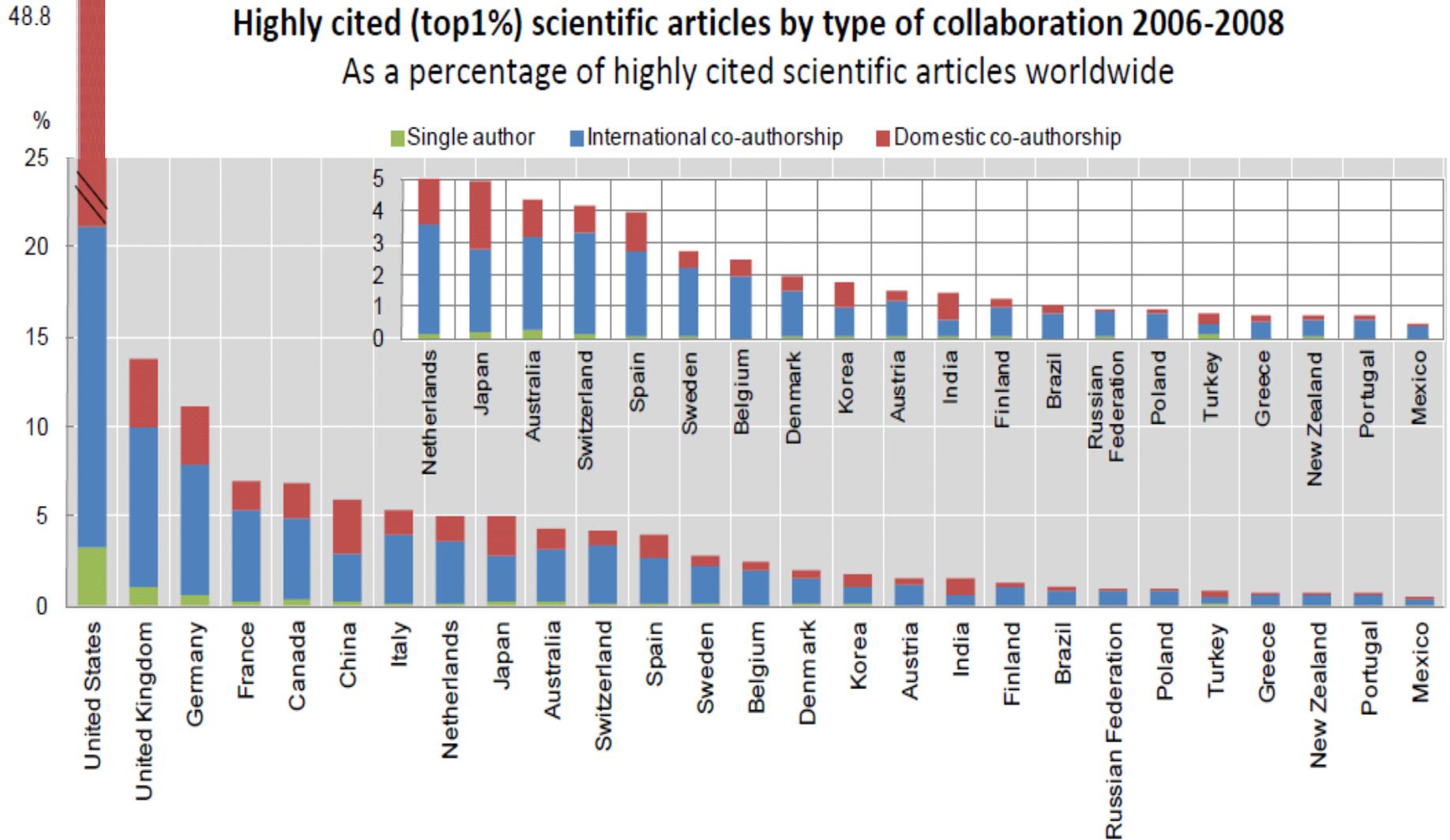
PPP = purchasing power parity.

NOTES: Foreign currencies are converted to U.S. dollars through PPPs. Some country figures are estimated. Countries are grouped according to the regions described by *The World Factbook*, available at www.cia.gov/library/publications/the-world-factbook/index.html.

SOURCES: National Science Foundation, National Center for Science and Engineering Statistics, estimates (August 2013). Based on data from the Organisation for Economic Co-operation and Development, *Main Science and Technology Indicators* (2013/1); and the United Nations Educational, Scientific and Cultural Organization Institute for Statistics, <http://stats.uis.unesco.org/unesco/ReportFolders/ReportFolders.aspx>, table 25, accessed 2 August 2013.

US Researchers Less Likely to Co-Publish Internationally

Highly cited (top1%) scientific articles by type of collaboration 2006-2008
As a percentage of highly cited scientific articles worldwide



Source: OECD calculations, based on Scopus Custom Data, Elsevier, December 2009

Statlink: <http://dx.doi.org/10.1787/836087047406>



Drivers for International Collaboration

Resources

- **Access** unique facilities and equipment
- **Share** costs and risks
- **Exchange** techniques and insights

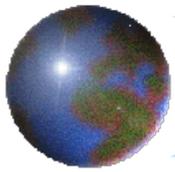
Capacity

- **Strengthen/Expand** knowledge base
- **Attract** talent
- **Enhance** S&T-led economic performance

Objectives

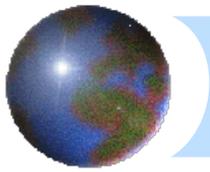
- **Enhance** research and education
- **Leverage** complementary resources
- **Address** national, transnational challenges
- **Advance** personal/professional goals





Core Values for International

- ❖ Intellectual Collaboration
 - ❖ Engage researchers in-country
 - ❖ Mutual benefit where possible
- ❖ Leveraging complementary resources
- ❖ Young scientist/practitioner involvement
- ❖ Be true to NSF's mission
 - ❖ Basic research and education
 - ❖ Not capacity building
- ❖ NSF funds U.S. side of collaboration
 - ❖ Limited exceptions



NSF Organization Chart



NATIONAL SCIENCE FOUNDATION

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Kelvin K. Droegemeier
Vice Chair

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NATIONAL SCIENCE BOARD OFFICE

Michael Van Woert
Executive Officer

703.292.7000

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703.292.7100

Richard Bucktus
Chief Operating Officer

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703.292.8000

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Director

Vacant
Deputy Director

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Peggy Hoyle, Deputy GC
703.292.8000

OFFICE OF INTEGRATIVE ACTIVITIES (OIA)
Andrew Brown, Acting Head
703.292.8000

OFFICE OF INTERNATIONAL SCIENCE & ENGINEERING (OISE)
Rebecca Keiser, Head
703.292.8710

OFFICE OF POLICY & PUBLIC AFFAIRS (OLPA)
Amanda Greenwell, Head
703.292.8770

OISE

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Jane Silverthorn, Deputy AD

703.292.8400

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Erin Glassman, Acting Deputy AD

703.292.8800

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703.292.8900

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Clifford Gabris, Deputy AD (Acting)

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Karen Tiplady, Acting Deputy Head

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OFFICE OF INFORMATION & RESOURCE MANAGEMENT (OIRM)

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Debra Bueck, Acting Deputy Head

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703.292.8670
- DIVISION OF ENVIRONMENTAL BIOLOGY (DEB)
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- DIVISION OF COMPUTING & COMMUNICATIONS FOUNDATIONS (CCF)
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703.292.8800
- DIVISION OF ADVANCED CYBERINFRASTRUCTURE (ACI)
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703.292.8900
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703.292.8900
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703.292.8900

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703.292.8300
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Boris D. Zlotnick, Division Director
703.292.8200
- DIVISION OF ENGINEERING EDUCATION & CAREERS (EEC)
Don L. Merritt, Acting Division Director
703.292.8300
- DIVISION OF INDUSTRIAL, INNOVATION & PARTNERSHIPS (IIP)
Betsy Johnson, Division Director
703.292.8300
- OFFICE OF EMERGING FRONTIERS IN RESEARCH & INNOVATION (EFRI)
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703.292.8500

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- DIVISION OF EARTH SCIENCES (EAR)
Carol Ford, Division Director
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- DIVISION OF OCEAN SCIENCES (OCS)
Richard Murray, Division Director
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- DIVISION OF POLAR PROGRAMS (PPR)
Julie Felber, Division Director
703.292.8600

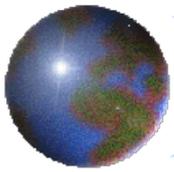
- DIVISION OF ASTRONOMICAL SCIENCES (AST)
James Howard, Division Director
703.292.8600
- DIVISION OF CHEMISTRY (CHE)
David Schwartz, Division Director
703.292.8600
- DIVISION OF MATERIALS RESEARCH (DMR)
Mary Gaidis-Sorenson, Division Director
703.292.8600
- DIVISION OF MATHEMATICAL SCIENCES (DMS)
Michael Heuley, Division Director
703.292.8600
- DIVISION OF PHYSICS (PHY)
Debra Caldwell, Division Director
703.292.8600
- OFFICE OF MULTIDISCIPLINARY ACTIVITIES (OMA)
Crista Cooper, Office Head
703.292.8600

- DIVISION OF BEHAVIORAL & COGNITIVE SCIENCES (BCS)
Julian Burg, Acting Division Director
703.292.8700
- DIVISION OF SOCIAL & ECONOMIC SCIENCES (SES)
Jeffrey Leach, Division Director
703.292.8700
- NATIONAL CENTER FOR SCIENCE AND ENGINEERING STATISTICS (NCSES)
John Gallett, Division Director
703.292.8700

- BUDGET DIVISION (BD)
Michael Dworkin, Division Director
703.292.8200
- DIVISION OF ACQUISITION AND COOPERATIVE SUPPORT (DACS)
Suzanne Berman, Division Director
703.292.8300
- DIVISION OF FINANCIAL MANAGEMENT (DFM)
Sue Bost, Division Director / Deputy CFO
703.292.8200
- DIVISION OF GRANTS & AGREEMENTS (DGA)
Janet French, Acting Division Director
703.292.8200
- DIVISION OF INSTITUTION & AWARD SUPPORT (DIAS)
Dain Bell, Division Director
703.292.8200
- LARGE FACILITIES OFFICE
Karen Tiplady, Acting Deputy Director
703.292.8400

- DIVISION OF ADMINISTRATIVE SERVICES (DAS)
Brenda Johnson, Acting Division Director
703.292.8100
- DIVISION OF INFORMATION SYSTEMS (DIS)
Judy Bunting, Division Director
703.292.8100
- DIVISION OF HUMAN RESOURCES MANAGEMENT (DHM)
Judy Bunting, Division Director
703.292.8100

National Science Foundation
4201 Wilson Boulevard
Arlington, Virginia 22230
TEL: 703.292.5111 | FIRS: 800.877.8339 | TDD: 800.281.8749



OISE Organization Chart

**ADMINISTRATIVE
MANAGEMENT**

**OFFICE HEAD
DEPUTY HEAD**

OVERSEAS OFFICES

**BEIJING – NANCY SUNG
BRUSSELS – SONIA ORTEGA
TOKYO – OFFICE HEAD**

**GLOBAL
INITIATIVES**

AMERICAS



**EUROPE AND
EURASIA**

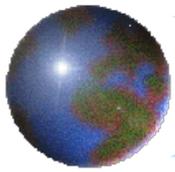


**AFRICA, NEAR EAST,
AND SOUTH ASIA**



**EAST ASIA AND
PACIFIC**

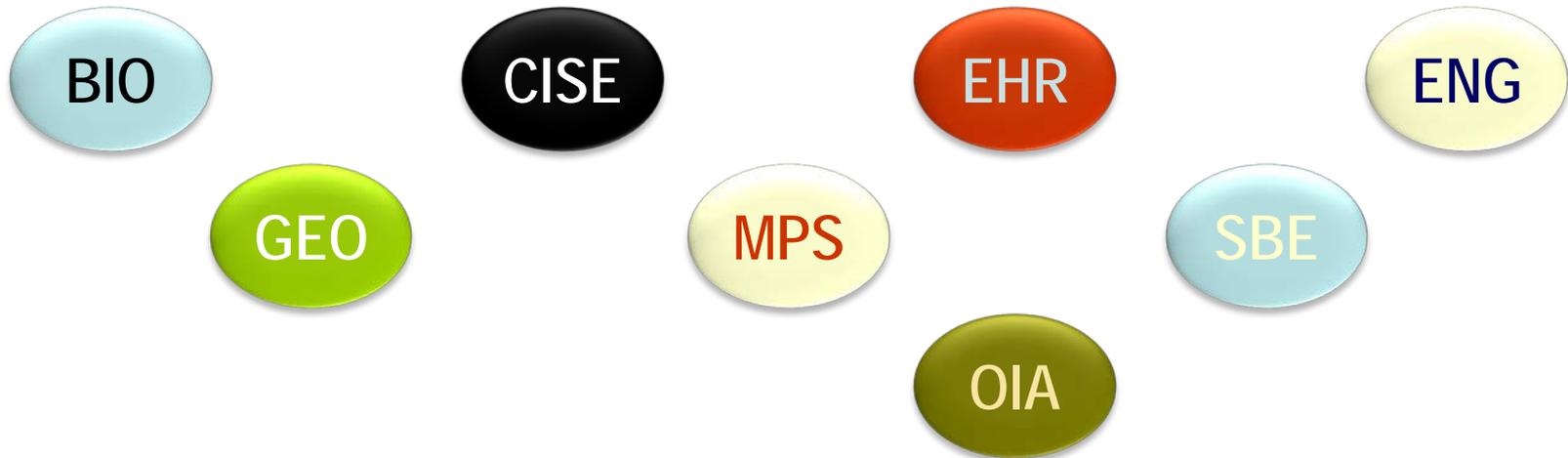


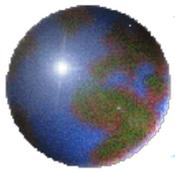


NSF Funding for International Activities

Most international research and education activities are **funded by NSF disciplinary programs:**

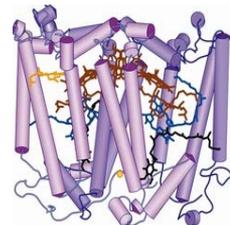
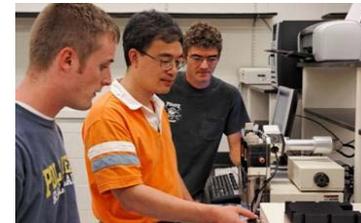
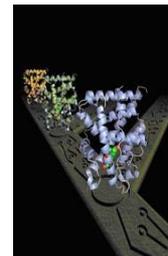
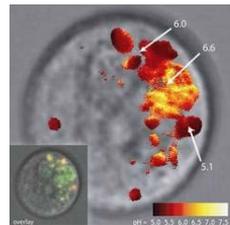
- ❖ As part of regular awards
- ❖ As supplements to regular awards

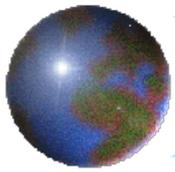




Some Special International Funding Opportunities

- ❖ **Dimensions of Biodiversity**
- ❖ **Collaborative Research in Computational Neuroscience**
- ❖ **Belmont Forum Collaborative Research Action**
- ❖ **Several Directorates/Division (SBE, GEO, BIO/DEB) offer lead agency agreements**
- ❖ **Partnerships for Enhanced Engagement through Research (PEER)**

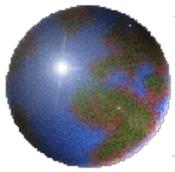




Developing a Globally Engaged Workforce

- ❖ Research Experiences for Undergraduates (REU)
- ❖ International Research Experiences for Students (IRES)
- ❖ East Asia Pacific Summer Institutes (EAPSI)
- ❖ Graduate Research Opportunities Worldwide (GROW)
- ❖ (International) Postdoctoral Research Fellowship Program

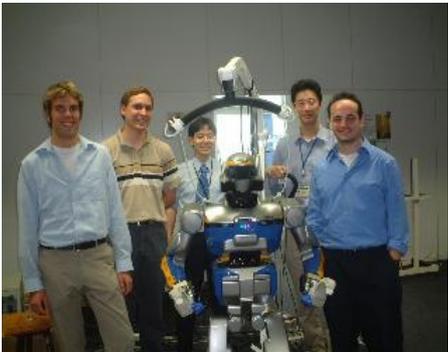


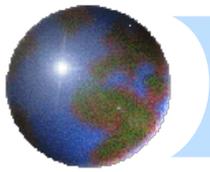


International Research Experience for Students

IRES

- ❖ Develop a more globally engaged S&E workforce
- ❖ Supports small group of students for focused research experience overseas
- ❖ Graduate and/or undergraduate students
- ❖ \$250,000 maximum budget for up to three years



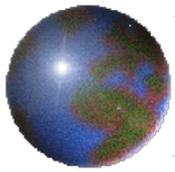


East Asia & Pacific Summer Institutes

EAPSI

- ❖ Summer research opportunity for U.S. STEM graduate students
- ❖ 8-10 week summer research program in EAP
 - Australia (25 positions), China (40), Japan (65), Korea (25), New Zealand (15), Singapore (15), Taiwan (25)
- ❖ Open to grad students who are U.S. citizens or permanent residents
- ❖ Partnership with counterpart funding agencies

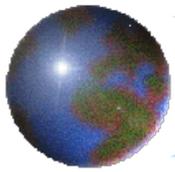




Graduate Research Opportunities Worldwide

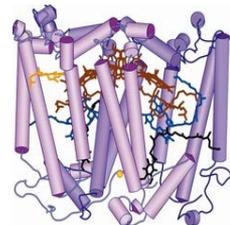
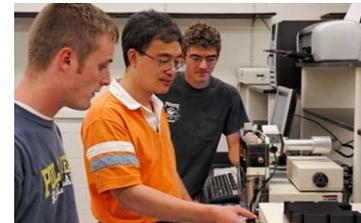
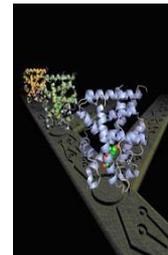
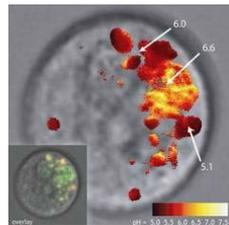
- GROW offers opportunities for 2-12 month international research collaborations to NSF *Graduate Research Fellows*
- 17 Current Partners
 - Australia, Austria, Brazil, Chile, Denmark, Finland, France, India, Ireland, Japan, Korea, Mexico, Netherlands, Norway, Singapore, Sweden and Switzerland
- Expanding partnerships for future
- Contact: grow@nsf.gov

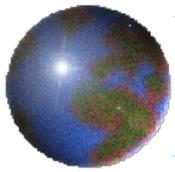




Some Tools for International Research

- ❖ **Partnerships for International Research and Education (PIRE)**
- ❖ **Partnerships for Enhanced Engagement in Research (PEER)**
- ❖ **Global Venture Fund (GVF)**
- ❖ **Science Across Virtual Institutes (SAVI)**

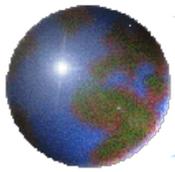




Partnerships for International Research and Education

- ❖ OISE-managed flagship research program
- ❖ Frontier research that leverages complementary expertise of all partners
- ❖ Extensive overseas research opportunities for US students/early career researchers
- ❖ 5 year awards; average award \$4 million
- ❖ ~50 active awards across all NSF disciplines
- ❖ Next solicitation: due out in spring-FY2016
 - Biennial competition





Partnerships for Enhanced Engagement in Research

PEER supports collaborators in developing countries

- ❖ USAID provides funding
- ❖ Funding goes to developing country researchers
- ❖ U.S. investigator must have active NSF award
 - ❖ NSF may provide supplement if partner receives PEER funding
- ❖ Only certain countries eligible (check website)
- ❖ USAID – development objectives



DEVELOPMENT, SECURITY, AND COOPERATION
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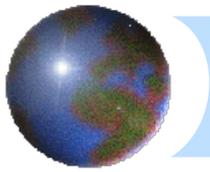


Partnerships for Enhanced
Engagement in Research
(PEER) Science

FREE REPORTS

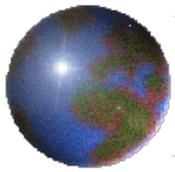
Download free PDFs of

PROPOSAL DEADLINE: JANUARY 13, 2014 (NOW CLOSED)



Global Venture Fund (GVF)

- **INTERNAL** NSF Mechanism
- **Co-funding** of proposals with true intellectual collaboration with foreign partners
 - New and renewal proposals
 - Supplement requests
 - RAPIDs, EAGERs
 - Workshop, conference proposals
- \$10,000-\$50,000, in principle
- Contact ISE country program officer

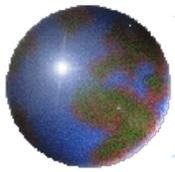


Science Across Virtual Institutes (SAVI)

Platform for teams of NSF-funded investigators to:

- **Network** with partners abroad
- **Leverage** resources to advance shared research interests
- **Engage students** in international collaboration.
- SAVI is a mechanism, **not a stand-alone program**
 - ISE and NSF Directorate support
 - Support from counterpart agencies overseas

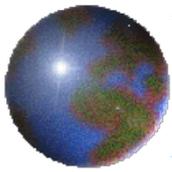




Keys to Success in ISE Funding

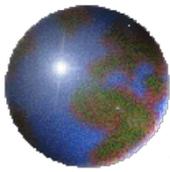
- ❖ Read the program announcement
- ❖ Strong Intellectual Merit, Broader Impacts
 - How does the collaboration enhance the work?
- ❖ Involve U.S. students, junior researchers
 - Prepare, mentor, and assess
 - Pay them: travel, living costs, stipends
- ❖ Include letter(s) of support from collaborator(s)
- ❖ Include biosketch of key collaborator(s)
 - ...unless solicitation prohibits it (CAREER)
 - Other senior project personnel (not co-PI)
- ❖ Work with others in your institution
- ❖ Know and observe special rules, e.g.
 - Fly America Act
 - Host country visa, permit requirements
- ❖ Ask early, ask often





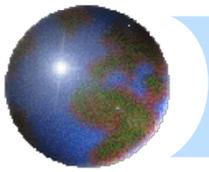
Finding OISE on Web

The screenshot shows a web browser window displaying the National Science Foundation (NSF) Office of International Science and Engineering (OISE) website. The browser's address bar shows the URL: <http://www.nsf.gov/div/index.jsp?div=OISE>. The website header features the NSF logo with the tagline "WHERE DISCOVERIES BEGIN" and a search bar. A navigation menu includes links for HOME, FUNDING, AWARDS, DISCOVERIES, NEWS, PUBLICATIONS, STATISTICS, ABOUT NSF, and FASTLANE. The main content area is titled "Office of International Science and Engineering (OISE)" and includes a "QUICK LINKS" section, a search bar, and a "Get OISE Updates by Email" checkbox. Below this, there is a section for "Programs and Funding Opportunities" with a key indicating "Crosscutting" and "NSF-wide". The "OISE Managed Opportunities" section lists several programs: East Asia and Pacific Summer Institutes for U.S. Graduate Students (CAPSI), International Research Experiences for Students (IRES), International Research Fellowship Program (IRFP), and Pan-American Advanced Studies Institutes Program (STEM:AGI). The "Opportunities that Highlight International Collaboration" section lists the Academic Research Infrastructure Program: Recovery and Reinvestment (ARI-R2) and ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers. A sidebar on the left provides a navigation menu for OISE Home, About OISE, Funding Opportunities, Awards, News, Events, Discoveries, Publications, Career Opportunities, See Additional OISE Resources, and View OISE Staff. The browser's status bar at the bottom shows the URL <http://www.nsf.gov/about/glossary.jsp#crosscutting> and a zoom level of 150%.



Finding OISE Staff by Country

The screenshot shows the NSF Office of International Science and Engineering (OISE) website. The browser address bar displays <http://www.nsf.gov/div/index.jsp?div=OISE>. The page features a top navigation bar with links for FUNDING, AWARDS, DISCOVERIES, NEWS, PUBLICATIONS, STATISTICS, ABOUT NSF, and FASTLANE. A left sidebar contains a vertical menu with categories such as OISE Home, About OISE, Funding Opportunities, Awards, News, Events, Discoveries, Publications, Career Opportunities, and a search bar for OISE staff. A yellow arrow points to the search bar. The main content area is titled "Office of International Science and Engineering (OISE)" and includes a "Get OISE Updates by Email" sign-up box, a "Programs and Funding Opportunities" section, and a list of "OISE Managed Opportunities" and "Opportunities that Highlight International Collaboration".



For Further Information

aemig@nsf.gov

Thank You!

