

# Modes of International Collaborations at the National Science Foundation

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NSF-Morocco Workshop on Sensors and Wireless Networks for Smart Cities

CNRST-Centre National de Recherche Scientifique et Technique in Rabat, Morocco

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# Organizational Structure





## Objectives of International Collaborations at NSF

### Build Intellectual Partnerships and Collaborations Globally to

- Advance the FRONTIERS of Science and Engineering
- Prepare a GLOBALLY-ENGAGED U.S. S&E workforce
  - > Well-defined Intellectual Collaboration with Foreign Research Partner
  - New International Collaborations, as Opposed to Well-established Ones
  - Benefit to both U.S. and Foreign Science and Engineering Community from Expertise, Facilities, or Resources of the Collaborator
  - Active Engagement of U.S. Students and Junior Researchers at the Foreign Site.





# Key Features of Collaborations

### Methodology

- U. S. Partner finds International Partners
- U. S. Partner submit proposals directly to NSF
- Award made to U.S. Institution
- International Partners identify source of funding within their country

### • U. S. Researchers

- Lodging, Subsistence at Foreign Sites
- Research Materials and Supplies needed for the Project
- Airfare

### International Researchers

U.S Institution Hosts the International Scientist

### • US Proposals must include

- Bio-sketch of Foreign Partner
- Project Role Foreign Partner



Endorsement Letter from the Foreign Institution confirming the availability of Resources.

# NSF Funding Modes

#### Core Program

- Unsolicited Proposals
- Early Faculty Career Development Grants /Presidential Early Career Awards (CAREER/PECASE)
- Grant Opportunities for Academic Liaison with Industry (GOALI)

#### Initiatives

Two-Dimensional Atomic-layer Research and Engineering (2-DARE)

#### Small Business Programs

- Small Business Innovation Research (SBIR)
- Small Business Technology Transfer (STTR)

#### Centers

- Science and Technology Centers (STC)
- Materials Research Science and Engineering Centers (MRSEC)
- Engineering Research Centers (ERC)
- Industry University Cooperative Research Centers (I/UCRC)

#### Cross-cutting Programs

- Research Experiences for Undergraduates (REU)
- Research Experiences for Teachers (RET)
- Undergraduate & Graduate Students, Postdoctoral Fellows and K-12 Educators
- Major Research Instrumentation (MRI)



#### **Shared Facilities**

- Network for Computational Nanotechnology (NCN)
- Network for Nanotechnology Coordination Network (NNCN)

## Mode of Support for International Collaborations

- Integral component of proposals submitted to NSF
  Disciplinary Programs
- Supplements to existing NSF Awards
- Proposals to OISE Programs
  - International Research Experiences for Students (IRES)
  - Partnerships for International Research and Education (PIRE)
  - Science Across Virtual Institutes (SAVI)
  - Partnerships for Enhanced Engagement in Research (PEER)



## International Research Experiences for Students (IRES)

- Supports Graduate or Undergraduate Students development in an international research environment at the forefront of science and engineering
- Students should be enrolled in any of the areas of research funded by the National Science Foundation
- Student Project can be a part of an Ongoing Research Program or a Research Project can be specifically designed for the IRES Program
  - Duration of 3 Years
  - Min. number of 3 Students must participate
  - Supports up to \$15,000 per year for PI or Staff Salary
  - ~ \$500 per Student stipend per week in addition to Travel and Living Expenses at Foreign Research Site
  - Max. Allowable Budget \$250,000
  - Research Experience for Teachers (RET) has been added

Full Proposal Deadline: 3<sup>rd</sup> Tuesday in August, annually Program Solicitation: NSF 12-551



## Partnerships for International Research and Education (PIRE)

- Catalyze innovative and forward-looking research through international research and education collaborations
- Advance new knowledge and discoveries at the frontiers of science and engineering
- Promote the development of a diverse, globally-engaged U.S. science and engineering workforce
- Strengthen the capacity of institutions, multi-institutional consortia, and networks to engage in and benefit from international collaborations
  - Encourages, one or more disciplines, US and Foreign Institutions
  - Average award size is ~ \$4M over 5 years
  - Preliminary Proposals are mandatory Full Proposals are by invitation
  - > 1 Pre-proposal per Organization
  - **50 PIRE awards have engaged Collaborators in more than 17 Countries**

Full Proposal Deadline: May 15, 2015 Program Solicitation: NSF 14-587

## Science Across Virtual Institutes (SAVI)

- A mechanism to accelerate science & engineering research & education among teams of NSF-supported U.S. scientists, engineers and educators with their international partners who have complementary strengths and common interests
- Platform for teams of NSF-funded investigators to,
  - Enhance research collaborations both physically and virtually with International Counterparts
  - Stimulate Data-sharing and Networking
  - Promote technical exchanges of students, post docs, and junior faculty across borders
    - ✓ Individual as PI represents the Team, PI Institution manages as the Lead Institution
    - ✓ As a Supplement to an existing award or a New proposal to link multiple NSF funded PIs
    - ✓ \$50,000-\$400,000 per year up to 5 years
    - NSF supports US participants only, and expects self-sustaining after 5 years

#### http://www.nsf.gov/SAVI, NSF 13-073

## Partnerships for Enhanced Engagement in Research (PEER) cont'd

PEER supports researchers in developing countries for partnerships with US researchers

- Build scientific research capacity
- Strengthen research ecosystem with junior researchers and undergraduate and graduate students
- Enable collaborators to become better partners in global development
  - USAID provides funding for research that generates development impacts.
  - Managed by the US National Academies
  - U.S. investigator must have an active NSF award (or NIH, USDA:- ARS & NIFA & USFS, USGS, Smithsonian, NASA, NOAA). May request supplement if partner funded
  - Technical areas: biodiversity, agriculture, environment, climate change, clean energy, disaster mitigation, food security, water resources management, urbanization, infectious diseases and education
  - Only certain countries are eligible in (Asia, Europe and Eurasia, Sub-Saharan Africa, Latin America and Caribbean, Middle East) check website
    - Middle East ----: Egypt, Jordan, Lebanon, Morocco and Tunisia
    - Duration 1-3 years during summer weeks
    - Single institution awards \$40,000 to \$80,000 (USD) per year
    - Multiple institutions and/or multiple countries \$80,000 to \$100,000 (USD) per year

Pre Proposal Deadline: Jan 15, 2016 www.nationalacademies.org/peer



## PEER National Instruments Program Planet NI

### Focus Area: Renewable Energy and Microgrids

- To support projects that will increase power generation from renewable energy sources, improve energy efficiency and system reliability, and enhance energy storage and overall grid integration
  - Improve efficiency in generating electricity from renewable sources such as solar and wind
  - Design local solutions to test and validate solar and/or wind components;
  - Control and monitor renewable energy plants;
  - Design and deploy fault-tolerant and scalable microgrids that can operate on their own or can be integrated into existing grids; or
  - Strengthen the link between local energy needs and local research/engineering capacity building.
- Eligible Countries: Bangladesh, Brazil, Colombia, Egypt, Ethiopia, India, Indonesia, Lebanon, Mexico, Morocco, Pakistan, Philippines, South Africa, Thailand, Tunisia, and Vietnam

#### Pre-proposal Deadline: Jan 15, 2016 (Required)

Review NI Technologies at http://www.ni.com/solutions and http://www.ni.com/power/ consult with NI (email: planetni.peer@ni.com)

### NSF Web Sites

- National Science Foundation (NSF)
  - http://www.nsf.gov
- Directorate for Engineering
  - http://www.nsf.gov/eng
- Office of International Science and Engineering (OISE)
  - http://www.nsf.gov/div/index.jsp?div=OISE
  - Dr. Lara A. Campbell, Program Manager, <a href="https://loop.org/loop.org/loop.org/licenses/baranger-style="licensestyle="licenses/baranger-sty
- Funding Opportunities
  - http://www.nsf.gov/funding/





