International Engagement

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June 9, 2017
Why International Research Collaborations?

**Advance the FRONTIERS of Science and Engineering**
- ACCESS expertise, facilities, data and research environments
- LEVERAGE limited resources
- EXCHANGE insights and techniques
- ADDRESS national, transnational and global challenges

**Prepare a GLOBALLY-ENGAGED U.S. S&E workforce**
- NURTURE capable young researchers with strong networks overseas
- DEVELOP a global perspective
- FACILITATE mobility and brain circulation

NSF funds the U.S. side of international collaborations.
Criteria for International Engagement

- Accelerate scientific advances
- Leverage NSF investments, resources
- Advance workforce development goals
FY18 Budget Request

Total: $6.65 billion

Decrease: $840.98 billion

-11.2% from FY16 Actuals
## FY 2018 Funding for Ongoing NSF-Wide Investments

*(Dollars in Millions)*

<table>
<thead>
<tr>
<th>Project Description</th>
<th>FY 2016 Actual</th>
<th>FY 2017 (TBD)</th>
<th>FY 2018 Request</th>
<th>Change Over FY 2016 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Amount</td>
</tr>
<tr>
<td>Cyber-Enabled Materials, Manufacturing</td>
<td>$271.52</td>
<td>-</td>
<td>$222.43</td>
<td>-$49.09</td>
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<tr>
<td>Inclusion across the Nation of Communities</td>
<td>13.97</td>
<td>-</td>
<td>14.88</td>
<td>0.91</td>
</tr>
<tr>
<td>of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES)</td>
<td></td>
<td></td>
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<tr>
<td>Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS)</td>
<td>80.10</td>
<td>-</td>
<td>24.40</td>
<td>-55.70</td>
</tr>
<tr>
<td>NSF Innovation Corps (I-Corps™)</td>
<td>29.74</td>
<td>-</td>
<td>26.15</td>
<td>-3.59</td>
</tr>
<tr>
<td>Risk and Resilience</td>
<td>42.94</td>
<td>-</td>
<td>31.15</td>
<td>-11.79</td>
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<tr>
<td>Secure and Trustworthy Cyberspace (SaTC)</td>
<td>129.78</td>
<td>-</td>
<td>113.75</td>
<td>-16.03</td>
</tr>
<tr>
<td>Understanding the Brain (UtB)</td>
<td>172.75</td>
<td>-</td>
<td>134.46</td>
<td>-38.29</td>
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Change Over FY 2016 Actual: Amount, Percent

Percent: $\frac{\text{Amount}}{\text{FY 2016 Actual}} \times 100$
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</thead>
<tbody>
<tr>
<td>OISE</td>
<td>$49.07</td>
<td>-</td>
<td>$44.02</td>
<td>-$5.05</td>
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<td></td>
<td></td>
<td></td>
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<td>-10.3%</td>
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Partnerships for International Research and Education (PIRE)

OISE flagship funding program
- Cutting edge research in partnership with researchers outside the U.S.
- Leverages synergies between U.S. and international researchers
- Extensive research and training opportunities for student

Funds the US-side of collaborative projects
- 5 year awards, $4 million average
- 40 active awards across all NSF science & engineering
- Very low success rates (3-5% of preliminary proposals funded)
External Evaluation of PIRE Program

- PIRE awards foster meaningful international collaborations that last beyond award conclusion
- PIRE project publications have higher impact than control group publications
- PIRE increases postdoc and grad student research productivity and the impact of postdoc publications.
- PIRE awardee universities value the program’s contributions to their institutional mission
- PIRE demonstrates to faculty the value of student international engagement
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
- 26 unique awards funded in FY16

FY16 IRES Competition Outcomes:

- 45%: Argentina, Costa Rica, Mexico
- 35%: Australia, China, Japan, S. Korea, Taiwan, Nepal, Singapore
- 12%: Kenya, Ethiopia
- 8%: UK, Italy, Spain, Scotland, Denmark, Germany, Poland, Czech Republic, Turkey, East Asia and Pacific, East Africa, Europe, South America

Countries represented in 26 unique awards:
- East Asia and Pacific: China, Japan, S. Korea, Taiwan, Nepal
- East Africa: Kenya, Ethiopia
- Europe: UK, Italy, Spain, Scotland, Denmark, Germany, Poland, Czech Republic, Turkey
- South America: Argentina, Costa Rica, Mexico

[Image of students and text: IRES logo]
Partnerships for Enhanced Engagement in Research (PEER)

- USAID provides funding to developing country partners of US researchers; managed by National Academies
- Supports research that generates development impacts
- Must include a U.S. partner with an ACTIVE award from a USG research partner, such as NSF, NIH, USGS, USDA, and NASA
- Numerous topical areas of focus; annual solicitation

A research grants program that provides support for scientists and engineers in developing countries
Community Engagement Roundtable Series

Gather community perspectives

Discuss challenges and opportunities

Discover more effective methods to foster international collaboration
Roundtable #1: Academic organizations

Community-identified international opportunities
- Involvement of private sector for research, workforce, and competitiveness
- Development of effective public messaging
- Increase in diversity in international engagement

Challenges to international collaboration
- Impacts are difficult to document
- Time needed to build trust is not always available
- Hard to build institutional capacity and sustainable networks

Collaboration opportunities through:
- Information and data sharing
- Link VPs for Research and Senior International Officers
- Link NSF to private sector
Roundtable #2: Scientific professional societies

Society-identified international opportunities
- Provide situational awareness in countries where USG not present
- Help develop shared capacity and foster emergent scholarship
- Convene global groups for knowledge synthesis

Challenges to international engagement
- Persevering attitudes
- Cost and complexity of issues
- Visa and logistics

Collaboration opportunities through:
- Improving communication
- Share research and award information for analytics capacity
- Share lists of professional societies and councils worldwide