Science and Security: Implications for Science and Innovation Leadership

Rebecca Keiser
National Science Foundation
Office of International Science and Engineering
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Science Thrives in an Atmosphere of Openness and Transparency

“I know firsthand that the open and internationally collaborative nature of the United States research enterprise has been critical to our success in research, and that this success has underpinned our Nation’s prosperity and security.”

- OSTP Director Kelvin Droegemeier’s letter to the U.S. research community, September 16, 2019.
NSF Supports International Collaborations

FY 2019 NSF Awards Involving International Activity
Top 25 Partners Countries with Award Numbers

- Germany: 331
- France: 307
- China: 196
- Japan: 130
- Australia: 118
- Switzerland: 115
- Canada: 310
- UK: 291
- Italy: 138
- Israel: 85
- Austria: 64
- Netherlands: 55
- Mexico: 68
- South Korea: 52
- Sweden: 40
- Chile: 39
- Brazil: 65
- India: 46
- Norway: 30
- Poland: 28
- South Africa: 22
- Peru: 28

[Chart showing the distribution of awards among countries]
International Coauthorship of Science and Engineering Publications Is on the Rise
Foreign Talent in the U.S.


U.S. citizens and permanent residents

Temporary visa holders

National Center for Science and Engineering Statistics
Foreign Talent in the U.S.

Top 10 countries or economies of foreign citizenship for U.S. doctorate recipients with temporary visas: 2008–17

- **China**: 45,000
- **India**: 12,000
- **South Korea**: 11,000
- **Taiwan**: 9,000
- **Turkey**: 8,000
- **Canada**: 6,000
- **Iran**: 5,000
- **Thailand**: 4,000
- **Japan**: 3,000
- **Mexico**: 2,000

**Legend**
- **Non-S&E fields**
- **S&E fields**

National Center for Science and Engineering Statistics
Risks to U.S. Science and Security in a Global Research Ecosystem

Research Integrity
- Risks to the responsible and ethical conduct of research, including the peer review process.

National Security
- Risks to the national security of the U.S., including military competitiveness.

Economic Security
- Risks to the economic competitiveness of the U.S., including the innovation base.
Risks to U.S. Science and Security in a Global Research Ecosystem

Research Integrity:
- Conflicts of interest / commitment
- Confidentiality of merit review process
- Protection of pre-publication data
Risks to U.S. Science and Security in a Global Research Ecosystem

NSF’s approach emphasizes disclosure and risk assessment.
NSF Actions to Ensure the Integrity of Federally-Funded Research

• Improved transparency/clarification for disclosure
• Standardization of U.S. citizenship requirements and foreign government talent recruitment program participation restrictions for the NSF workforce
• Risk assessment and analysis through JASON independent advisory group
• Communication and awareness with the scientific community
• Coordination with USG interagency partners
• Additional review for overseas campuses
Topic for Discussion:

Good Practices

• What good practices should be followed by academic researchers, and perhaps institutionalized by the U.S. government, to balance the open environment of fundamental research with the needs for national (and economic?) security?