Updates and Opportunities at the National Science Foundation

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Outline

- NSF updates
  - policy, procedure
- NSF Funding Opportunities
  - SEES
  - CIF21
  - I-Corps
  - INSPIRE
  - SAVI
- Energy
  - NSF and other EPSCoR jurisdictions

Policy, Procedure Updates

- ARRA Acceleration
- Merit Review:
  - Merit Review Criteria
  - Merit Review Process

ARRA Acceleration: NSF Implementation of OMB M-11-34

- Responsible expenditure acceleration now!!
  - Award specific: Consider the program plan and Terms & Conditions of each specific award
  - Communicate with the cognizant NSF program officer and ARRA recipients - NSF ARRA web page for guidance http://www.nsf.gov/recovery/
- Grantee approved no-cost extensions (NCE)
  - ARRA grantees may ONLY issue themselves NCE through 9/30/2013, but NOT beyond 9/30/2013
- Waiver requests
  - NSF will only go forward with requests that have a compelling and defendable rationale in accordance with the OMB waiver criteria.

Merit Review Criteria

- NSB Task Force (spring 2010) to examine review criteria and underlying principles; consider revisions, as needed
- Used stakeholder input (interviews, survey, NSF website); NSB approved Report (January 2011)
- Report's Conclusions:

➢ The Intellectual Merit and Broader Impacts review criteria together capture the important elements that should guide the evaluation of NSF proposals.

➢ Revisions to the descriptions of the Broader Impacts criterion and how it is implemented are needed.

- Report's Recommendations:

➢ Three guiding review principles, Two review criteria, and Five review elements

Merit Review Criteria Guiding Principles

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects.

Merit Review Criteria

Reviewers are asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The intellectual Merit criterion encompasses the potential to advance knowledge; and

- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

Review elements

The following elements should be considered in the review for **both criteria**:

1. What is the potential for the proposed activity to:
   a. advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
   b. benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or institution to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home institution or through collaborations) to carry out the proposed activities?

Status and Next Steps

- Report Published on January 10, 2012:
  http://www.nsf.gov/nsb/publications/2011/meritreviewcriteria.pdf

- Next Steps:
  - NSF will develop implementation plan
  - Revised criteria description and principles will be included in the next revision of the Proposal and Award Policies and Procedures Guide

Merit Review Process Working Group

Provisional recommendations

- Increased use of virtual panels (from current 1% to 5% or more)
- Streamlined *ad hoc* review process to rapidly screen proposal submissions
- Greater use of preliminary proposals for core programs
- Asynchronous panels
- Automated compliance checking
- Enhanced outreach to institutions
- Resubmission of declined ideas by invitation only

Next Steps

- Engage divisions and programs interested in pilot activities
- Jointly develop implementation plans for pilots
- Continue to engage research community
- Complete detailed analysis of other potential merit review process enhancements
- Senior management review of recommendations
- Launch pilot activities
- Evaluate pilot activity impact

NSF Funding Opportunities

"Science without Borders" captures the ferment and promise that now characterize the research and education enterprise. The old borders — among disciplines, among institutions, among nations, and among people of all cultures — are dissolving……"

Subra Suresh

NSF Director

Science, Engineering and Education for Sustainability (SEES)

- 5-year investment area: new and existing activities

  http://www.nsf.gov/sees/

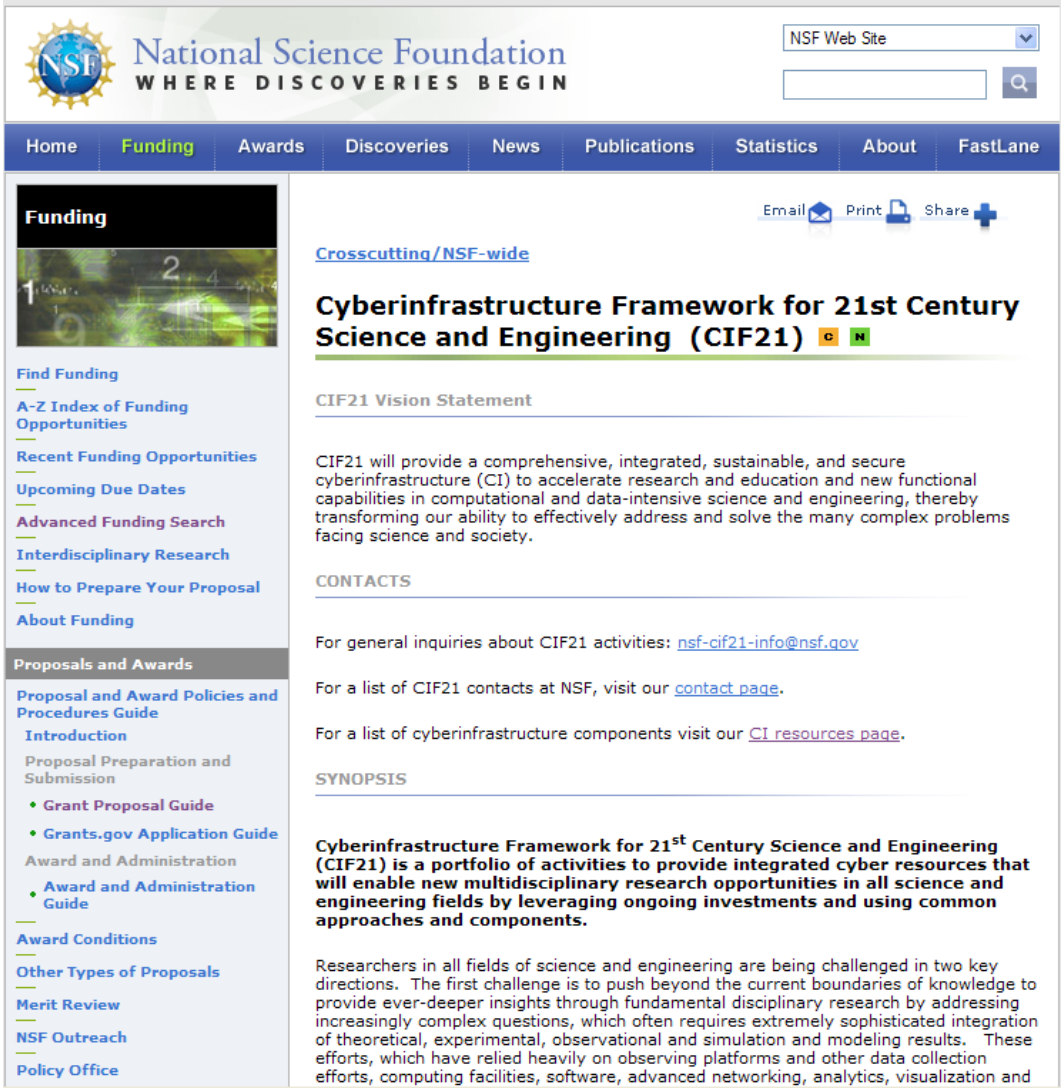
- General inquiries: nsf-sees-info@nsf.gov

- Full list of contacts: http://www.nsf.gov/geo/sees/sees_contacts.jsp

SEES - Activities and Opportunities

- Sustainability Research Networks (SRN) – *NSF 11-574*
- SEES Fellows – *NSF 11-575*
- Sustainable Energy Pathways - *NSF 11-590*
- PIRE – SEES projects – *NSF 11-564*
- Research Coordination Networks – *NSF 11-531*
- CNH – SEES projects – *NSF 10-612*
- Climate-related competitions
  - Climate Change Education Partnership (CCEP) Phase II – NSF 12-523
  - Decadal and regional Climate Prediction using Earth System Models (EaSM) – *NSF 12-522*
  - Ocean Acidificat*ion – NSF 12-500*
  - Water, Sustainability, and Climate – *NSF 11-551*
- Dimensions of Biodiversity – *NSF 12-528*

Cyberinfrastructure Framework for the 21st Century (CIF21)



- **Contact Information:** **nsf-cif21-info@nsf.gov**
- **Full list of contacts:** http://www.nsf.gov/od/oci/cif21/cif21_contacts.jsp
- **CI Resources:** http://www.nsf.gov/od/oci/cif21/cybinf_list.jsp

CIF21 – Publications and Programs

- **Publications**
  - Cyberinfrastructure Vision for 21st Century Discovery: *NSF 07-28*
  - Advanced Computing Infrastructure: Vision and Strategic Plan *NSF 12-051*
  - CI Framework in MPS - Dear Colleague Letter: *NSF 12-003*
  - CI in support of Biological Sciences – DCL: *NSF 12-019*
  - IGERT CIF21 – DCL: *NSF 12-059*
- **Programs**
  - Computational and Data-enabled S&E (CDS&E)
    CDS&E – Math and Statistics (OCI and DMS)
    CDS&E – Engineering: *NSF 12-549*
  - Software Infrastructure for Sustained Innovation (SI^2): *NSF 11-589*
  - *Big Data Science and Engineering (BIGDATA)*
    Core Techniques and Technologies: *NSF 12-499*

Science Across Virtual Institutes (SAVI)

- Dear Colleague Letter *NSF 11-087*
- Structured framework to stimulate international interaction and collaboration in emerging multidisciplinary areas
- Leverage complementary intellectual strengths and share unique research facilities
- Mentor and train junior researchers
- Examples:
  - ✓ *Wireless Innovation* – Finland + 9 U.S. institutions
  - ✓ *Mathematical and Statistical Sciences* – India + 2 U.S. institutes
  - ✓ *Physics of Living Systems, Student Research Network* – 6 Countries + 11 U.S. institutes

Innovation Corps (I-Corps)

- **Current solicitation: NSF 11-560**
- **Contact:**
  - **Errol Arkilic: (703) 292-8095; earkilic@nsf.gov**
  - **Rathindra DasGupta: (703) 292-8353 rdasgupt@nsf.gov**
  - **Richard Voyles: (703) 292-4541; rvoyles@nsf.gov**
- **Submission Windows:**
  - **Oct 1, 2011 – Dec 15, 2011**
  - **Jan 1, 2012 – Mar 15, 2012**
  - **Apr 1, 2012 – June 15, 2012**
  - **July 1, 2012 – Sep 15, 2012**
  - **Oct 1, 2012 – Dec 15, 2012**

Informational Webinars held on the first Tuesday of every month

Integrated NSF Support Promoting Interdisciplinary Research and Education (INSPIRE)

Goals:

- *Demonstrate that NSF is open to unusually novel cross-disciplinary ideas:* Welcome groundbreaking or unconventional ideas and approaches, and unusually novel, creative interdisciplinary proposals
- *Encourage Program Directors to promote such ideas:* Empower PDs with flexibility and new resources and mechanisms to enable cross-cutting collaboration and risk-taking in developing their awards portfolio

FY 2012 budget: **$20 million** **FY 2013 request:** **$63 million**

First pilot INSPIRE activity for 2012-13: Creative Research Awards for Transformative Interdisciplinary Ventures (CREATIV)

Second pilot under development for 2013: Larger projects

CREATIV

- Dear Colleague Letter NSF 12-011, www.nsf.gov/creativ
- In a nutshell:
  - Only internal merit review is required
  - Proposals ***must*** be interdisciplinary ***and*** potentially transformative
- To begin process, PI submits inquiry form

Energy

- SEES - Sustainable Energy Pathways, …….
- Centers – STC, ERC, MRSEC, …..
- Several DIRECTORATE-specific and Foundation-wide programs

Examples:

- ENG/Chemical Bioengineering, Environmental and Transport Systems (CBET)
  - Chemical, Biochemical, and Biotechnology Systems
  - Environmental Engineering and Sustainability
- ENG/Electrical Communications and Cyber Systems (ECCS)
  - Energy, Power, and Adaptive Systems
- Cedar Creek Long-Term Ecological Research project (DEB-0620652)

EPSCoR RII Track-1 Awards

Each RII Track-1 Project has multiple areas of interdisciplinary research that cut across overarching themes.

- Sustainability & Water Resources
- Climate Change – modeling, mitigation, and adaptation
- Energy (AR, IA, KS, MT, ND, NE, OK, PR, SD, TN, …..)
- Environmental Science, ecosystem services
- Genomics, Proteomics, & Bioinformatics
- Materials Research incl. computational modeling
- Nanoscience, nanotechnology, and applications
- Sensor (GIS) development, deployment, remote monitoring

NSF Proposal and Award Policies and Procedures Guide (PAPPG)

http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/

(updated Jan 2011)

Part I: Grant Proposal Guide

- Proposal Submission Information

Part II: Award & Administration Guide

- Award management information

Thank You