Welcome to NSF Day!

UAA UNIVERSITY of ALASKA ANCHORAGE

NSF

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Welcome to NSF Day!

UAA UNIVERSITY of ALASKA ANCHORAGE

NSF

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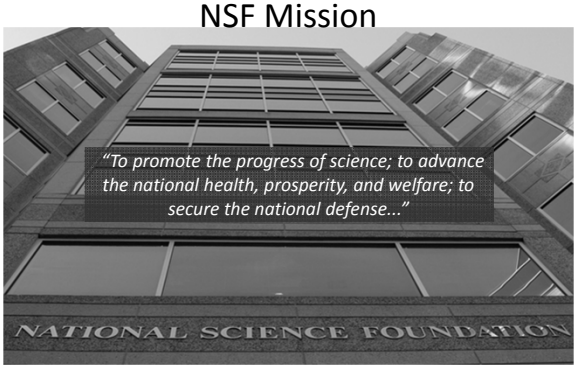
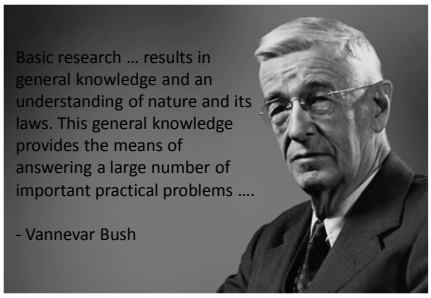
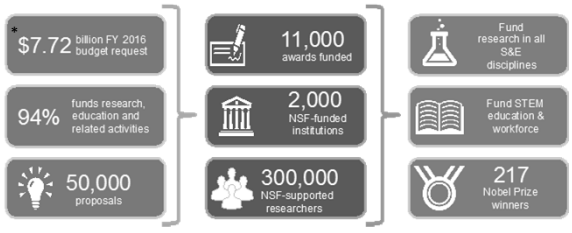
NSF Mission





NSF by the Numbers

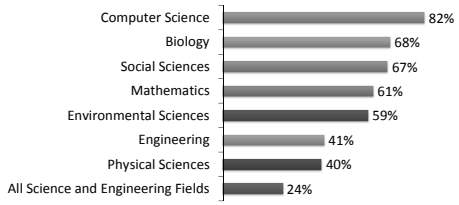


Total NSF Request

$7.964 billion
- +$501 million
- +6.7 percent over FY 2016 Enacted

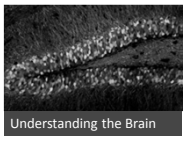
Two Funding Sources
- $7.564 billion, discretionary funding (+1.3 percent)
- $400 million, new one-time mandatory/direct spending authority

NSF Support of Academic Basic Research in Selected Fields
(as a percentage of total federal support)



Note: Biology includes Biological Science and Environmental Biology; excludes National Institute of Health

Source: NSF/National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development

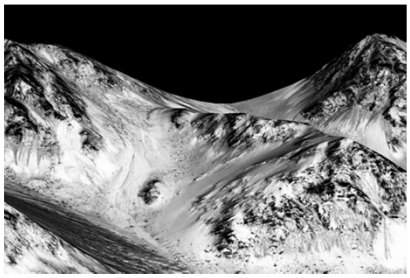

Understanding the Brain


Food/Energy/Water


Risk and Resilience


Inclusion and Diversity


Clean Energy



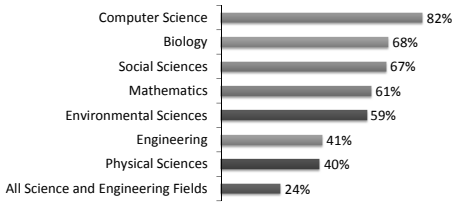
Characteristics of NSF: Ubiquity, Urgency, and Engagement

Ubiquity
Advances in science and engineering are permeating the way we work, communicate, learn, and discover.

Urgency
NSF research and education are rapidly evolving and accelerating the pace of discovery and innovation, with profound societal and economic impact.

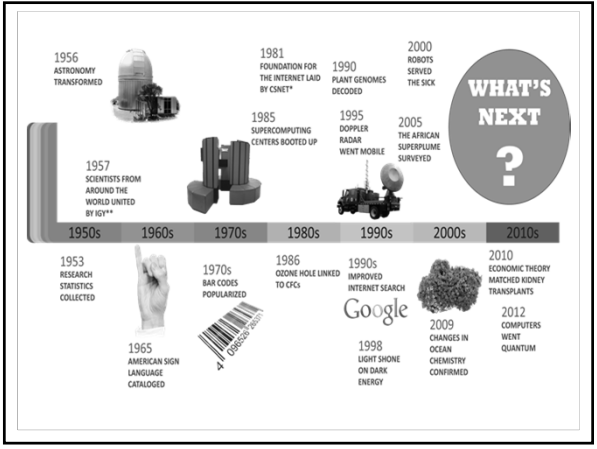
Engagement
The key strength and asset of NSF is the scientific community and the general public and their engagement.

NSF Support of Academic Basic Research in Selected Fields (as a percentage of total federal support)



Note: Biology includes Biological Science and Environmental Biology; excludes National Institute of Health

Source: NSF/National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development



NSF's Organization

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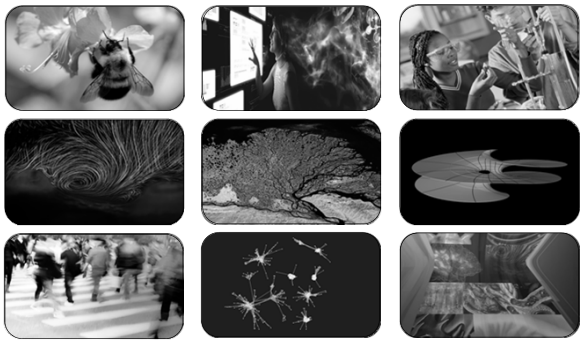
The NSF Directorates and Offices



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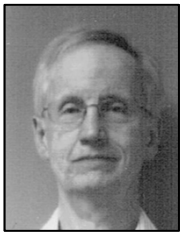
Computer & Information Science & Engineering (CISE)

Ralph Wachter
Computer Network Systems (CNS) Division
rwachter@nsf.gov



Expertise in computer science and mathematics.

Involved in cross-directorate programs involving Cyber-Physical Systems, the National Robotics Initiative, Secure and Trustworthy Cyberspace and Designing Materials to Revolutionize and Engineer our Future.

Reviewer for AFOSR, DARPA, DHS, OSD and DMS&T.

Member, OSTP's Subcommittee on Homeland and National Security.

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Computer & Information Science & Engineering (CISE)

James F. Kurose, Assistant Director
Erwin Gianchandani, Deputy Assistant Director (Acting)

Division of Advanced Cyberinfrastructure (ACI)
Irene M. Qualters, Division Director
Amy Friedlander, Deputy Division Director

Division of Computer and Network Systems (CNS)
Peter Arzberger, Division Director (Acting)
Admela Jukan, Deputy Division Director (Acting)

Division of Information and Intelligent Systems (IIS)
Lynne Parker, Division Director (vacant),
Deputy Division Director

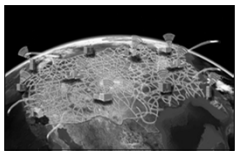
Division of Computing and Communication Foundations (CCF)
S. Rao Kosaraju, Division Director
James J. Donlon, Deputy Division Director

15 March 2016

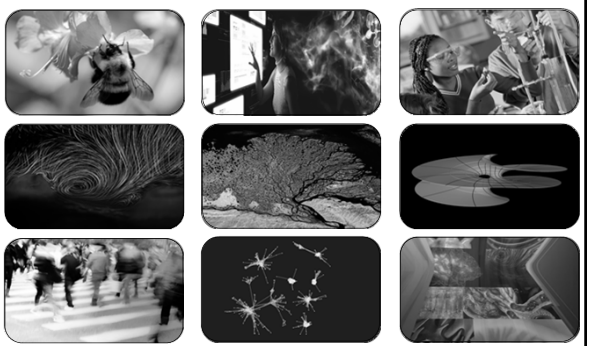
Computer & Information Science & Engineering (CISE)

Directorate Priorities

- Core research programs across computer science (CS)
- Cross-directorate and cross-NSF programs (e.g., BRAIN, Cyberlearning, Secure and Trustworthy Cyberspace, Cyber-Physical Systems, NRI, BIG DATA, Smart and Connected Health)
- CS education – STEM+C
- Building cyber infrastructure for science and engineering



The NSF Directorates and Offices



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Education & Human Resources (EHR)

Lee Zia
Division of Undergraduate Education (DUE)
lzia@nsf.gov

Deputy Division Director DUE

Lead program director for the STEM Talent Expansion Program (STEP)

Lead program director, NSDL, from its FY2000 inception to its FY2010 sunsetting.

Former Commerce Science and Technology Fellow, Senator John D. Rockefeller IV.

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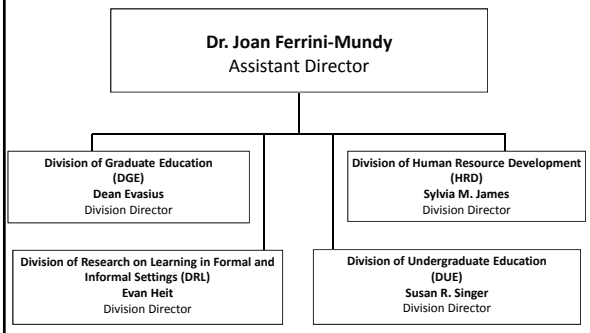
Education & Human Resources (EHR)



Education & Human Resources (EHR)

Learning and learning environments

Cognitive and non-cognitive foundations of STEM
Creative uses of formal and informal STEM learning

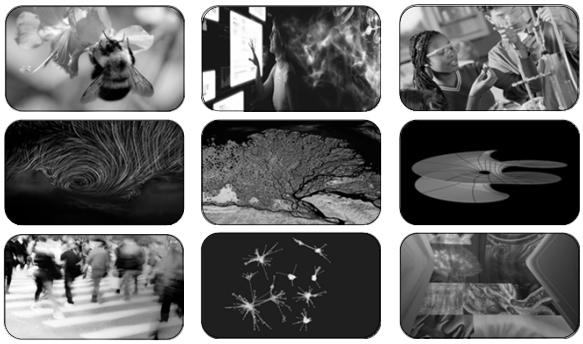
Broadening participation in STEM

Access to and success in high-quality STEM education for underrepresented groups

STEM professional workforce development

Capitalize on scientific advances
Address not yet imagined global, social & econ challenges

The NSF Directorates and Offices



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Engineering (ENG)

Deborah Jackson
Education Research Centers (ERC) Program
djackson@nsf.gov

Leads the Microelectronics, Sensors, and Information Technologies Cluster within the ERC.

More than 30 years of broad based experience in R&D, project management, strategic planning and product delivery.

Fosters successful development of innovative ecosystems.

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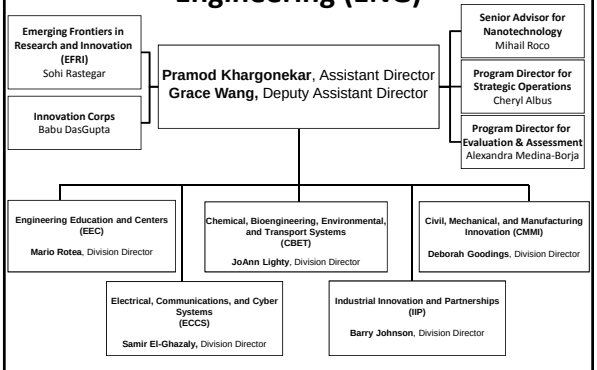
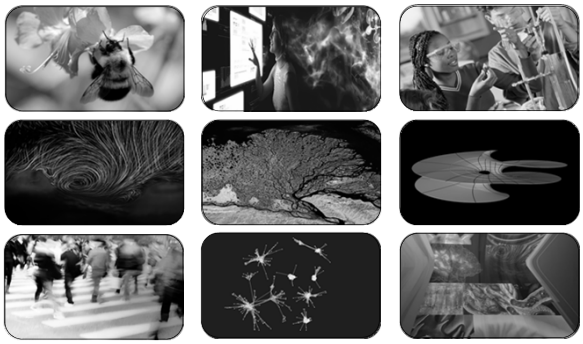
Engineering (ENG)



The NSF Directorates and Offices



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Geosciences (GEO)

Anjuli Bamzai
Division of Atmospheric and Geospace Sciences
abamzai@nsf.gov

Program Director, Climate and Large-Scale Dynamics Program (CLD)

Program management stints at:
- DOE Office of Science
- NOAA Climate Program Office
- NSF Polar Division

Managed and led the development of various interagency reports
E.g.
- 2008 USGCRP Synthesis and Assessment Reports
- 2015 Biennial Report for the IARPC

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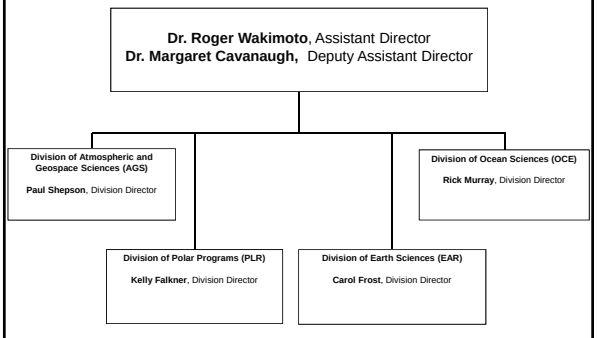
Geosciences (GEO)

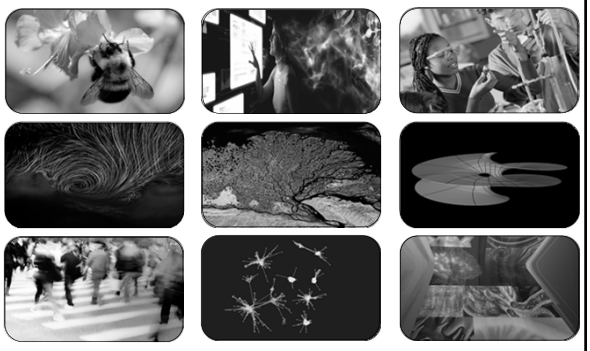


Geosciences (GEO)

Directorate Priorities

- Support basic research in atmosphere, earth, and ocean sciences
- Support research facilities and infrastructure (NCAR, research vessels, OOI, Antarctic base)
- Develop community-driven cyber-infrastructure
- Promote education and diversity in the geosciences
- Initiatives in hazards and resilience (PREEVENTS, INFEWS)

The NSF Directorates and Offices



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Office of Integrative Activities (OD/OIA)

DIALOG, NGPR , DISCCRS Initiatives for interdisciplinary early career researchers

Susan Weiler
Experimental Program to Stimulate Competitive Research (EPSCoR)
sweiler@nsf.gov

- Manages EPSCoR co-funding
- Manages RII Track-1 & RII Track-2 proposals and awards
- Former program director in NSF's GEO OPP (88/89) and GEO AGS (09-12)
- Former executive director, ASLO
- Senior research scientist, Whitman College

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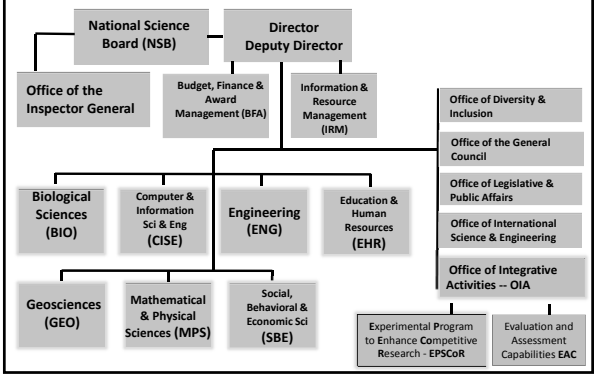
OIA: Office of Integrative Activities

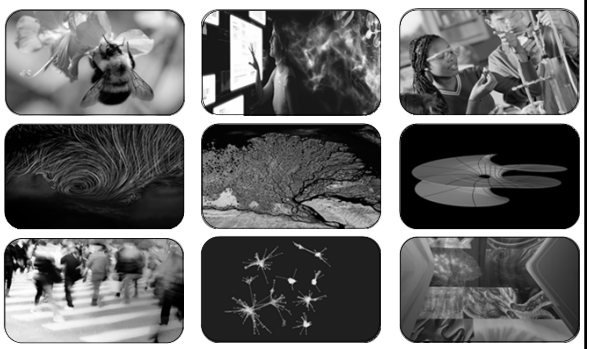


Office of Integrative Activities (OD/OIA)

Office Priorities

- IA: Science and Technology Centers (STC)
- IA: Major Research Instrumentation (MRI)
- IA: Integrated NSF Support Promoting Inter-disciplinary Research and Education (INSPIRE)
- IA: Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES) 16-544
- EPSCoR: Research Infrastructure Improvement (RII)
- EPSCoR: Co-Funding
- EAC: Evaluation and Assessment of Cross-cutting programs

The NSF Directorates and Offices



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Budget, Finance & Award Management (BFA)

Jean Feldman
Division of Institution & Award Support
Jfeldman@nsf.gov

Head, NSF Policy Office

Establishes proposal and award policies and procedures

- *Proposal & Award Policies & Procedures Guide*
- *Award Terms and Conditions*
- *Grants.gov Application Guide*

Chair, various interagency working groups

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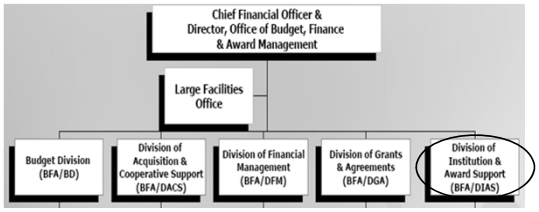
Budget, Finance & Award Management (BFA)



Getting Started The Essentials

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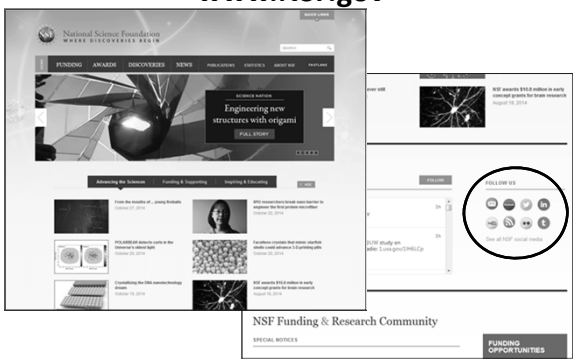
www.NSF.gov



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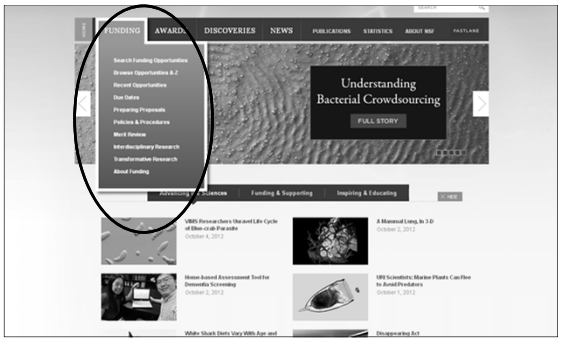
Navigating www.NSF.gov



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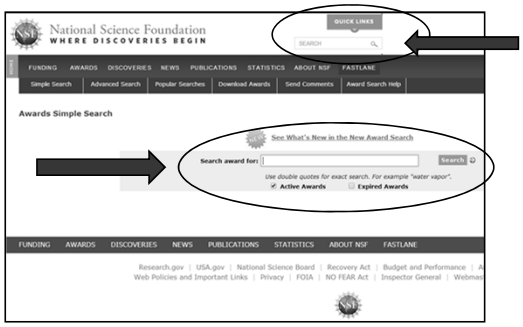
Navigating www.NSF.gov



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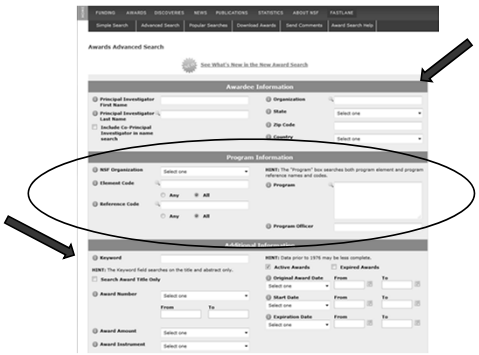
Navigating www.NSF.gov



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Additional Information on Resources

Join Directorate Specific Listserves!

Use Grants.gov's search feature

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What is the Proposal & Award Policies & Procedures Guide?

The Proposal and Award Policies and Procedures Guide (PAPPG) contains documents relating to NSF's proposal and award process. It has been designed for use by both our customer community and NSF staff and consists of two parts:

What is the Proposal & Award Policies & Procedures Guide?

Part I is NSF's proposal preparation and submission guidelines -- the NSF Grant Proposal Guide (GPG) and the NSF Grants.gov Application Guide.

What is the Proposal & Award Policies & Procedures Guide?

Part II is NSF's award and administration guidelines -- the documents used to guide, manage, and monitor the award and administration of grants and cooperative agreements made by NSF.

Grant Proposal Guide

- Provides guidance for preparation and submission of proposals to NSF
- Describes process – and criteria – by which proposals will be reviewed
- Outlines reasons why a proposal may not be accepted or may be returned without review
- Describes process for withdrawals, returns, and declinations
- Describes the NSF Reconsideration Process

Types of Funding Opportunities

Program Descriptions	Proposals for a **Program Description** must follow the instructions in the GPG.
Program Announcements	Proposals for a **Program Announcement** must follow the instructions in the GPG.
Program Solicitations	Proposals must follow the instructions in the **Program Solicitation**; the instructions in the GPG apply unless otherwise stated in the solicitation.
Dear Colleague Letters	**Dear Colleague Letters** are notifications of opportunities or special competitions for supplements to existing NSF awards.

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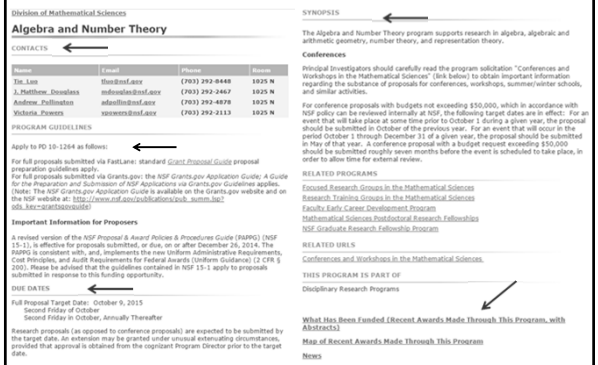
Navigating a Program Description



Division of Mathematical Sciences

Algebra and Number Theory

CONTACTS

Name	Email	Phone	Room
Tie Luo	tluo@nsf.gov	(703) 292-0448	1025 N
J. Matthew Douglass	mdouglas@nsf.gov	(703) 292-2467	1025 N
Andrew Pollington	apollin@nsf.gov	(703) 292-4878	1025 N
Victoria Powers	vpowers@nsf.gov	(703) 292-2113	1025 N

PROGRAM GUIDELINES

Apply to PD 10-1264 as follows:

For full proposals submitted via FastLane: standard *Grant Proposal Guide* proposal preparation guidelines apply.
For full proposals submitted via Grants.gov: the *NSF Grants.gov Application Guide; A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines* applies. (Note: The *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)

Important Information for Proposers

A revised version of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 15-1), is effective for proposals submitted, or due, on or after December 26, 2014. The PAPPG is consistent with, and, implements the new Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance) (2 CFR § 200). Please be advised that the guidelines contained in NSF 15-1 apply to proposals submitted in response to this funding opportunity.

DUE DATES

Full Proposal Target Date: October 9, 2015
Second Friday of October
Second Friday in October, Annually Thereafter

Research proposals (as opposed to conference proposals) are expected to be submitted by the target date. An extension may be granted under unusual extenuating circumstances, provided that approval is obtained from the cognizant Program Director prior to the target date.

SYNOPSIS

The Algebra and Number Theory program supports research in algebra, algebraic and arithmetic geometry, number theory, and representation theory.

Conferences

Principal Investigators should carefully read the program solicitation "Conferences and Workshops in the Mathematical Sciences" (link below) to obtain important information regarding the substance of proposals for conferences, workshops, summer/winter schools, and similar activities.

For conference proposals with budgets not exceeding $50,000, which in accordance with NSF policy can be reviewed internally at NSF, the following target dates are in effect: For an event that will take place at some time prior to October 1 during a given year, the proposal should be submitted in October of the previous year. For an event that will occur in the period October 1 through December 31 of a given year, the proposal should be submitted in May of that year. A conference proposal with a budget request exceeding $50,000 should be submitted roughly seven months before the event is scheduled to take place, in order to allow time for external review.

RELATED PROGRAMS

Focused Research Groups in the Mathematical Sciences
Research Training Groups in the Mathematical Sciences
Faculty Early Career Development Program
Mathematical Sciences Postdoctoral Research Fellowships
NSF Graduate Research Fellowship Program

RELATED URLS

Conferences and Workshops in the Mathematical Sciences

THIS PROGRAM IS PART OF

Disciplinary Research Programs

What Has Been Funded (Recent Awards Made Through This Program, with Abstracts)

Map of Recent Awards Made Through This Program

News

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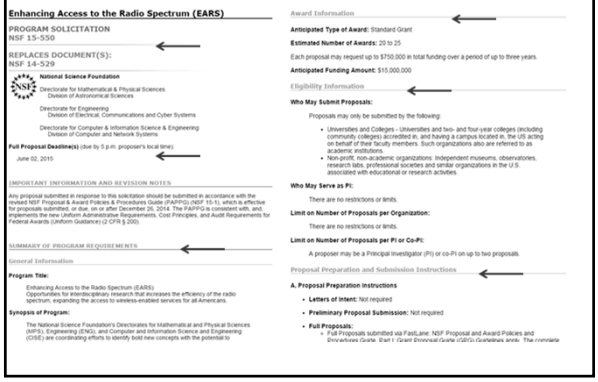
Navigating a Program Solicitation



Enhancing Access to the Radio Spectrum (EARS)

PROGRAM SOLICITATION
NSF 15-550

REPLACES DOCUMENT(S):
NSF 14-529

National Science Foundation
Directorate for Mathematical & Physical Sciences
Division of Astronomical Sciences

Directorate for Engineering
Division of Electrical, Communications and Cyber Systems

Directorate for Computer & Information Science & Engineering
Division of Computer and Network Systems

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):
June 02, 2015

IMPORTANT INFORMATION AND REVISION NOTES

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised NSF Proposal & Award Policies & Procedures Guide (PAPPG) (NSF 15-1), which is effective for proposals submitted, or due, on or after December 26, 2014. The PAPPG is consistent with, and, implements the new Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance) (2 CFR § 200).

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Enhancing Access to the Radio Spectrum (EARS)
Opportunities for interdisciplinary research that increases the efficiency of the radio spectrum, expanding the access to wireless-enabled services for all Americans.

Synopsis of Program:

The National Science Foundation's Directorates for Mathematical and Physical Sciences (MPS), Engineering (ENG), and Computer and Information Science and Engineering (CISE) are coordinating efforts to identify bold new concepts with the potential to

Award Information

Anticipated Type of Award: Standard Grant

Estimated Number of Awards: 20 to 25

Each proposal may request up to $750,000 in total funding over a period of up to three years.

Anticipated Funding Amount: $15,000,000

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI:

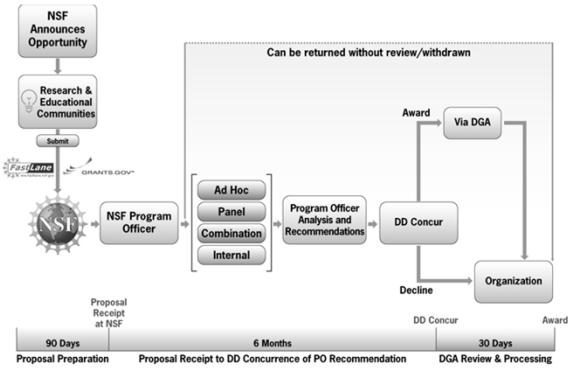
A proposer may be a Principal Investigator (PI) or co-PI on up to two proposals.

Proposal Preparation and Submission Instructions

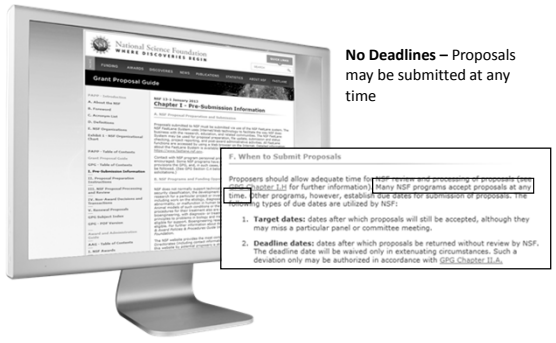
A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete

NSF Proposal & Award Process Timeline

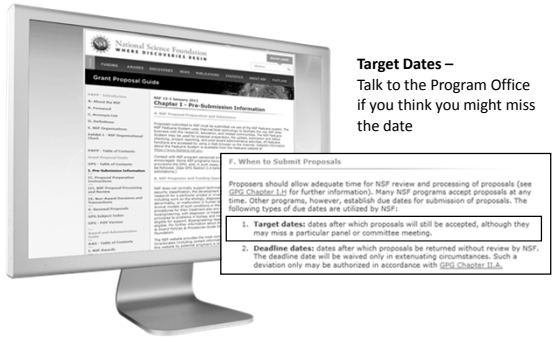


Types of Proposal Submissions



No Deadlines – Proposals may be submitted at any time

Types of Proposal Submissions



Target Dates –
Talk to the Program Office if you think you might miss the date

Types of Proposal Submissions

Deadline Dates –
Proposals will not be accepted after this date and time (5 pm submitter's local time)

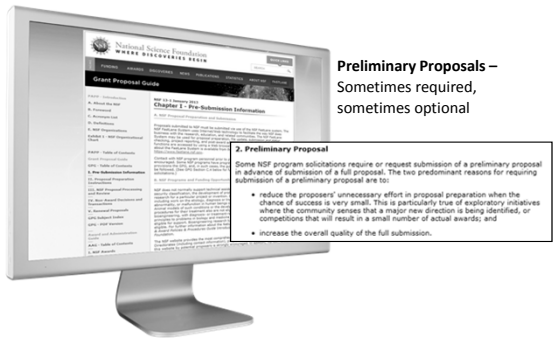
Types of Proposal Submissions

Submission Windows –
Closing date converts to a deadline date

Types of Proposal Submissions

Letters of Intent –
Enables better management of reviewers and panelists

Types of Proposal Submissions



Preliminary Proposals – Sometimes required, sometimes optional

Types of Proposals

- RAPID
- EAGER
- Research (Other than RAPID or EAGER)
- Ideas Lab
- Equipment
- Conference
- International Travel
- Fellowship
- Facility/Center

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Questions on Funding Opportunities?

Contact your NSF Program Officer

Work with your organization's sponsored projects office

Ask Early, Ask Often
policy@nsf.gov

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Things to Consider Before Applying…

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Five Key Elements

1. Great idea
2. Fit with current research expertise and career development plans
3. Ability to devise a strategy including benchmarks, timelines, and metrics
4. Adequate resources to accomplish your project
5. Assessment Plan

62

Developing your Proposal

Key Questions for Prospective Investigators

- What has already been done?
- What do you intend to do?
- Why is the work important?
- How is the work unique or cutting edge?
- How are you going to do the work?
- Do you have the right team?

63

Proposal Development Strategies:

What Do You Need Besides $???

- Prepare to do the project
  - Realistically assess needs
  - Determine available resources
  - Develop preliminary data
  - Present to colleagues/mentors/students
- Determine possible funding sources (NSF may not be the right or the only one)

64

Proposal Development Strategies:

What details should you glean from the solicitation?

- Overall scope and mission
- Instructions (deviations from the GPG)
- How your proposed project fits with the solicitation
- Review procedures and criteria
- Deadlines

65

Proposal Development Strategies:

Who Should You Talk To?

NSF Program Officer

- Your proposed project
- Clarifications on specific program requirements/limitations
- Current program patterns

Your Organization's Sponsored Projects Office

- University guidelines for applications
- Institutional Review Board "IRB" Approvals
  - e.g. institutional Animal Care and Use Committee (IACUC) approvals

66

So You Want to Write a Proposal…

67

What to Look for in a Program Announcement or Solicitation

- Goals
- Eligibility Requirements
- Special proposal preparation and/or award requirements
- Review Criteria

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Sample Cover Page of a Solicitation

Louis Stokes Alliances for Minority Participation (LSAMP)

PROGRAM SOLICITATION
NSF 15-594

REPLACES DOCUMENT(S):
NSF 12-564

National Science Foundation
Directorate for Education & Human Resources
Division of Human Resource Development

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):
November 04, 2015
Bridge to the Doctorate; Pre-Alliance Planning Grants
November 20, 2015
LSAMP Alliance Proposals (including Bridge to the Baccalaureate)
October 14, 2016
Bridge to the Doctorate; Pre-Alliance Planning Grants
November 04, 2016
LSAMP Alliance Proposals (including Bridge to the Baccalaureate)

Program Solicitation Number

NSF Directorates and Offices providing funding for this opportunity

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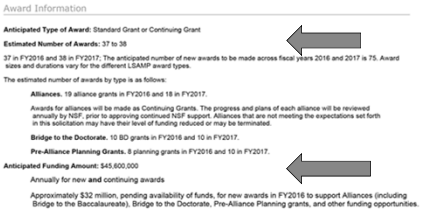
Solicitation — Award Information



Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 37 to 38

37 in FY2016 and 38 in FY2017. The anticipated number of new awards to be made across fiscal years 2016 and 2017 is 75. Award sizes and durations vary for the different LSAMP award types.

The estimated number of awards by type is as follows:

Alliances. 19 alliance grants in FY2016 and 18 in FY2017.

Awards for alliances will be made as Continuing Grants. The progress and plans of each alliance will be reviewed annually by NSF, prior to approving continued NSF support. Alliances that are not meeting the expectations set forth in this solicitation may have their level of funding reduced or may be terminated.

Bridge to the Doctorate. 10 BD grants in FY2016 and 10 in FY2017.

Pre-Alliance Planning Grants. 8 planning grants in FY2016 and 10 in FY2017.

Anticipated Funding Amount: $45,600,000

Annually for new **and** continuing awards

Approximately $32 million, pending availability of funds, for new awards in FY2016 to support Alliances (including Bridge to the Baccalaureate), Bridge to the Doctorate, Pre-Alliance Planning grants, and other funding opportunities.

Expected number of awards funded by the program per year

Expected funds available to the program per year

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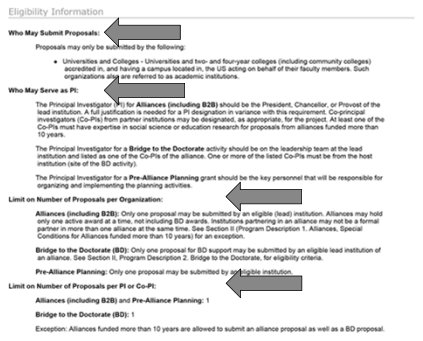
Sample Cover Page — Eligibility



Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.

Who May Serve as PI:

The Principal Investigator (PI) for **Alliances (including B2B)** should be the President, Chancellor, or Provost of the lead institution. A full justification is needed for a PI designation in variance with this requirement. Co-principal investigators (Co-PIs) from partner institutions may be designated, as appropriate, for the project. At least one of the Co-PIs must have expertise in social science or education research for proposals from alliances funded more than 10 years.

The Principal Investigator for a **Bridge to the Doctorate** activity should be on the leadership team at the lead institution and listed as one of the Co-PIs of the alliance. One or more of the listed Co-PIs must be from the host institution (site of the BD activity).

The Principal Investigator for a **Pre-Alliance Planning** grant should be the key personnel that will be responsible for organizing and implementing the planning activities.

Limit on Number of Proposals per Organization:

Alliances (including B2B): Only one proposal may be submitted by an eligible (lead) institution. Alliances may hold only one active award at a time, not including BD awards. Institutions partnering in an alliance may not be a formal partner in more than one alliance at the same time. See Section II (Program Description 1. Alliances, Special Conditions for Alliances funded more than 10 years) for an exception.

Bridge to the Doctorate (BD): Only one proposal for BD support may be submitted by an eligible lead institution of an alliance. See Section II, Program Description 2. Bridge to the Doctorate, for eligibility criteria.

Pre-Alliance Planning: Only one proposal may be submitted by an eligible institution.

Limit on Number of Proposals per PI or Co-PI:

Alliances (including B2B) and **Pre-Alliance Planning:** 1

Bridge to the Doctorate (BD): 1

Exception: Alliances funded more than 10 years are allowed to submit an alliance proposal as well as a BD proposal.

Eligibility information for institutions/PIs submitting proposals

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Parts of a Proposal

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NSF PROPOSAL INGREDIENTS

- ❑ Cover Page
- ❑ Project Summary (1 page)
- ❑ Table of Contents (auto-generated)
- ❑ Project Description (15 pages)
- ❑ References Cited
- ❑ Biographical Sketches (for all senior personnel)
- ❑ Budget
- ❑ Current and Pending Support
- ❑ Facilities, Equipment, and Other Resources
- ❑ Post-doctoral mentoring plan (if applicable)
- ❑ Data management plan
- ❑ Supplementary Documentation (if applicable)

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Parts of an NSF Proposal

Cover Sheet
Many of the boxes on the cover sheet are electronically prefilled as part of the FastLane login process.

COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

FOR NSF USE ONLY
NSF PROPOSAL NUMBER
1509402

NSF 14-1
PHY - ASTROPHYSICS & COSMOLOGY THEOR

DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS#	FILE LOCATION
11/03/2014	1	0301000 PHY	1208	004184116521	

NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE: nsf
ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9-DIGIT ZIP CODE: Arlington, VA 222000000 US
AWARDEE ORGANIZATION CODE (IF KNOWN): 4102852000
NAME OF PRIMARY PLACE OF PERF:
ADDRESS OF PRIMARY PLACE OF PERF, INCLUDING 9-DIGIT ZIP CODE:

TITLE OF PROPOSED PROJECT: International Conference Cosmical Magnetic Fields

REQUESTED AMOUNT	PROPOSED DURATION (1-60 MONTHS)	REQUESTED STARTING DATE	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE
$ 30,000	0 months		

THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW
BEGINNING INVESTIGATOR (GPG II.D.2)
DISCLOSURE OF LOBBYING ACTIVITIES (GPG II.C.1.e)
PROPRIETARY & PRIVILEGED INFORMATION (GPG II.C.1.d)
HISTORIC PLACES (GPG II.C.2.j)
VERTEBRATE ANIMALS (GPG II.D.6) IACUC App. Date
PHS Animal Welfare Assurance Number
EAGER (GPG II.D.2) RAPID
Conference, Symposium, Workshop
HUMAN SUBJECTS (GPG II.D.7) Human Subjects Assurance Number
Exemption Subsection or IRB App. Date
INTERNATIONAL ACTIVITIES: COUNTRY/COUNTRIES INVOLVED (GPG II.C.2.j)
COLLABORATIVE STATUS
Not a collaborative proposal

PI/PD NAME	PI/PD DEPARTMENT	PI/PD POSTAL ADDRESS	PI/PD FAX NUMBER
Physics		4201 WILSON BLVD ARLINGTON, VA 222300000 United States	

NAME(S) (TYPED)	High Degree	Yr of Degree	Telephone Number	Email Address
PI/PD NAME				
Terry Dono	DSc	1999	703-292-9000	tdt@nsf.gov
CO-PI/PD				
CO-PI/PD				
CO-PI/PD				
CO-PI/PD				

Page 1 of 3

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Parts of an NSF Proposal

Project Summary Requirements:
Overview
Statement on Intellectual Merit
Statement of Broader Impacts
Special characters (e.g., formulas) may be uploaded as a PDF

Project Description Addresses:
What you want to do
Why you want to do it
How you plan to do it
How you measure success
What are the benefits
Results from prior NSF support

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Parts of an NSF Proposal

A separate section,
***Broader Impacts of the Proposal Work*,**
must be completed

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Budgetary Guidelines

Amounts should be:

- **Realistic and reasonable**
- **Well-justified and should establish need**
- **Consistent w/program guidelines in solicitation, GPG, and in Award and Administration Guide (AAG)**

Eligible costs consist of:

- **Personnel**
- **Equipment**
- **Travel**
- **Participant support**
- **Other** (e.g., subawards, consultant and computer services, publications costs)
- **Indirect costs** (as appropriate)

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NSF Cost Sharing Policy

Inclusion of *voluntary committed* cost sharing is <u>prohibited</u> in the budget of solicited & unsolicited proposals.

Organizations may, at their own discretion, continue to contribute voluntary uncommitted cost sharing to NSF-sponsored projects as part of the section for Facilities, Equipment, and Other Resources.

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Sections of an NSF Proposal

Facilities, Equipment, and Other Resources

Used to assess the adequacy of the organizational resources available to perform the effort proposed. Should not contain quantifiable financial information.

Current and Pending Support

This section of the proposal requires reporting on all current and pending support for ongoing projects and proposals from any funding source.

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Special Information and Supplementary Documentation

Letters of support versus letters of commitment

Postdoctoral mentoring plans

Data management plans

You should alert NSF officials to unusual circumstances that require special handling (i.e. proprietary information)

Solicitations may specify what is and is not allowed to be submitted

80

Mentoring for Postdoctoral Researchers

- **Explicit description of the mentoring activities**
- **Must include a mentoring plan as a supplementary document (maximum one-page)**
- **For collaborative proposals, lead organization must submit a single mentoring plan for all postdoctoral researchers supported under the entire project.**

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Data Management Plan Requirements

Requirements by Directorate, Office, Division, Program, or other NSF Unit

Links to data management requirements and plans relevant to specific Directorates, Offices, Divisions, Programs, or other NSF units, are provided below. If guidance specific to the program is not provided, then the requirements established in Grant Proposal Guide, Chapter II.C.2.j apply.

Please note that if a specific program solicitation provides guidance on preparation of data management plans, such guidance must be followed.

- Engineering Directorate (ENG)
  - Directorate-wide Guidance
- Geological Sciences Directorate (GEO)
  - Division of Earth Sciences
  - Integrated Ocean Drilling Program
  - Division of Ocean Sciences
- Mathematical and Physical Sciences Directorate (MPS)
  - Division of Astronomical Sciences
  - Division of Chemistry
  - Division of Materials Research
  - Division of Mathematical Sciences
  - Division of Physics
- Social, Behavioral and Economic Sciences Directorate (SBE)
  - Directorate-wide Guidance

Data Management & Sharing Frequently Asked Questions (FAQs) - updated November 30, 2010

Requirements may vary by Directorate or Office

nsf.gov/bfa/dias/policy/dmp.jsp

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Questions?

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The Merit Review Process

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Video

http://www.nsf.gov/news/mmg/mmg_disp.jsp?med_id=76467

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NSF's Proposal & Award Process Timeline

Black Box?

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MERIT REVIEW CRITERIA

Intellectual Merit:
the potential to advance knowledge

Broader Impacts:
the potential to benefit society and contribute to the achievement of specific, desired societal outcomes

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When Preparing Proposals

- Read the funding opportunity; ask a Program Officer for clarifications if needed
- Address all the proposal review criteria
- Understand the NSF merit review process
- Avoid omissions and mistakes
- Check your proposal to verify that it is complete!
- Double Check that the proposal NSF receives is the one you intended to send

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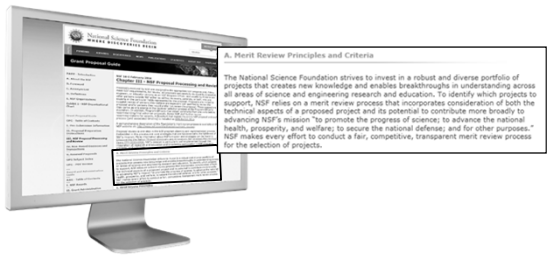
Merit Review Guiding Principles & Criteria

The Grant Proposal Guide (GPG) contains a description of the Merit Review Criteria



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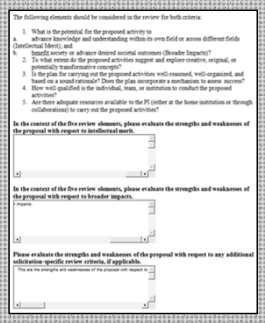
Review Format in FastLane

- Reviewers provide feedback to NSF based on the Review Criteria and the Review Elements
- Review Criteria and Elements are available as reviewers provide feedback



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Over 2,000 proposals were RWR in FY 2014

6 most common reasons why

1. **Not responsive to the GPG or program announcement/solicitation (960)**
2. **Does not meet an announced proposal deadline date and time (171)**
3. **It is inappropriate for NSF funding (74)**
4. **Duplicative or substantially similar to a proposal already under consideration (66)**
5. **Not substantively revised from a proposal that was previously reviewed and declined (37)**
6. **Duplicates another proposal that was already awarded (24)**

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Types of Reviews

- Ad Hoc
  - Proposals are sent out for review
- Panel
  - Face-to-Face sessions conducted with reviewers. Held at NSF, or virtually via assistive technologies such as WebEx or BlueJeans
- Combination
  - Some proposals may undergo supplemental ad hoc reviews before or after a panel review
- Internal
  - Reviewed by NSF Program Officers

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How are Reviewers Selected?

- **Three or more external reviewers per proposal are selected**
- **Types of Reviewers Recruited**
  - Specific content expertise
  - General science or education expertise
- **Sources of Reviewers**
  - Former reviewers
  - Program Officer's knowledge of the research area
  - References listed in proposal
  - Recent professional society programs
  - S&E journal articles related to the proposal
  - Reviewer recommendations included in proposal

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What is the Role of the Reviewer?

- **Review all proposal material and consider**
  - The two NSF merit review criteria and any program specific criteria
  - Adequacy of the proposed project plan- including the budget, resources, and timeline
  - Priorities of the scientific field and of the NSF program
  - Potential risks and benefits of the project
- **Make independent written comments on the quality of the proposal content and assign a rating: E,V,G,F,P**

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What is the Role of the Review Panel?

- **Discuss the merits of the proposal with the other panelists**
- **Write a summary based on that discussion**
- **Provide some indication of the relative merits of different proposals considered**

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Why Serve on an NSF Panel?

- **Gain first-hand knowledge of the merit review process**
- **Learn about common problems with proposals**

- **Discover proposal writing strategies**
- **Meet colleagues and NSF Program Officers managing the programs related to your research**

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How Do I Become a Reviewer?

Contact the NSF Program Officer(s) of the program(s) that fit your expertise

- Introduce yourself as a strong potential reviewer based on your research experience
- Offer to send a 2-page CV with current contact information
- Stay in touch if you don't hear back right away

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Conflicts of Interest (COI)

What is a COI?

How we address conflict of interest

NSF checks and avoids COIs in the review process

Institutional COIs

Personal COIs

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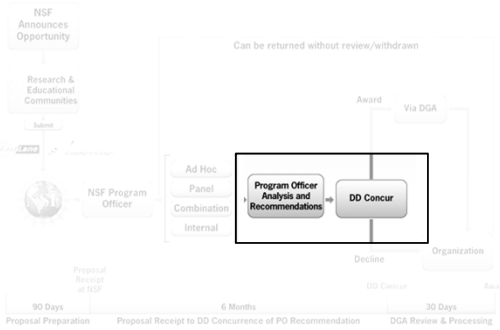
Proposal Review and Processing



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Funding Decisions
Reviews are Advisory to NSF

- **The merit review process provides:**
  - Review of the proposal and a recommendation on funding.
  - Feedback (strengths and weaknesses) to the proposers.
- **NSF Program Officers make funding recommendations guided by program goals and portfolio considerations.**
- **NSF Division Directors either concur or reject the Program Officers' funding recommendations.**

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Feedback from Merit Review

- **Reviewer ratings (such as: E, V, G, F, P)**
- **Analysis of how well proposal addresses both review criteria: Intellectual Merit and Broader Impacts**
- **Proposal strengths and weaknesses**
- **Reasons for decline (if applicable)**
- **If you have any questions, contact the cognizant Program Officer.**

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Documentation from Merit Review

- **Verbatim copies of individual reviews, excluding reviewer identities**
- **Panel summary or summaries (if panel review was used)**
- **Context statement (usually)**
- **Program Officer to Principal Investigator comments (formal or informal, written, email or verbal) as necessary to explain a decision**

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Examples of Reasons for Declines

- **Not considered competitive based on merit review criteria and program office concurrence**
- **Flaws or issues identified by the Program Officer**
- **Funds were not adequate to fund all competitive proposals**

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Revisions and Resubmissions

- Do the reviewers and the NSF Program Officer identify significant strengths in your proposal?
- Can you address the identified weaknesses?
- Can the proposal be **significantly** revised?
- Are there other ways your colleagues or you think a resubmission can be strengthened?

Questions?

Contact your cognizant Program Officer!

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Possible Considerations for Funding a Competitive Proposal

- **Addresses all review criteria**
- **Likely high impact**
- **Broadening participation**
- **Educational impact**
- **Impact on institution/state**
- **Special programmatic considerations (e.g. CAREER/RUI/EPSCoR)**
- **Other support for PI**
- **"Launching" versus "Maintaining"**
- **Portfolio balance**

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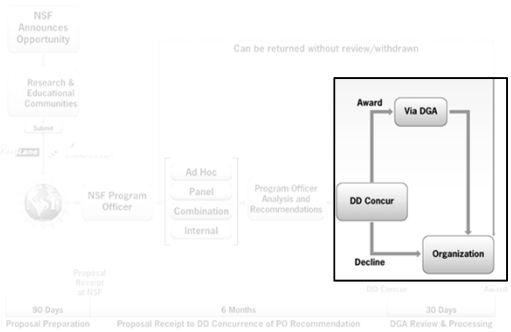
Proposal Review and Processing



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For More Information

Go to NSF's Home Page (http://www.nsf.gov)

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Ask Early, Ask Often!

Contact the cognizant Program Officer

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Questions?

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Directorate Breakout Sessions

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Faculty Early Career Development program "CAREER"

http://www.nsf.gov/career

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CAREER Awards

Solicitation 15-555

Due Dates: July 20, 2016 BIO, CISE, EHR
July 21, 2016 ENG
July 22, 2016 GEO, MPS, SBE

http://www.nsf.gov/career

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CAREER Awards

Foundation wide
Supports junior faculty
Research and education integration
PECASE *(Presidential Early Career Award for Scientists and Engineers)* eligibility

http://www.nsf.gov/career

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CAREER Awards

Stable support for 5 years

NSF wide: 400 per year

> $400K – CISE, EHR, MPS, SBE

> $500K - ENG, BIO, GEO/PLR

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CAREER eligible investigators must:

Hold PhD (by proposal deadline)

Be employed in a tenure-track (or equivalent) position at an eligible institution as an Assistant Professor (until Oct 1st following deadline)

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An eligible institution must be:

An academic institution in the U.S., its territories or possessions, and the Commonwealth of Puerto Rico that award degrees in fields supported by NSF.

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An eligible institution may also be:

Non-profit, non-degree-granting (e.g. a museum, observatory or lab) if the eligibility requirements of the PI are satisfied.

NSF encourages proposals from different institutional types, including minority serving and undergraduate institutions

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CAREER eligible investigators may NOT:

- **Receive tenure before Oct 1st following proposal deadline**
- **Have previously received a CAREER award**
- **Have had more than two CAREER proposals reviewed**
- Be an u**ntenured associate professor**

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CAREER varies across NSF

- **Number of submitted CAREER proposals**
- **Review and Funding methods**
- **Other Proposals with which CAREERs compete**

NSF CAREER Coordinating Committee Sets NSF-wide goals

http://www.nsf.gov/career

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CAREER Proposals

Contact program manager liaison* and ask about:

- **Expectations for scope of research and education**
- **Assessment of 2-page departmental letter**
- **Funding rate trend for regular proposals in the program of interest**

*** see http://www.nsf.gov/crssprgm/career/contacts.jsp**

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Are CAREER awards right for you?

Yes, if:

Your proposed research is innovative, ambitious and within NSF's the purview of research and education supported

You have support from your department/ organization, mentors.

You are at the right stage of your career.

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CAREER Personnel and Budgets

YES	NO
Consultants, subawards, unpaid collaborators	**Co-PI, senior personnel**
Academic year buyouts for teaching intensive institutions	

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CAREER Departmental 2 Page Letter

- Statement of PI CAREER program eligibility
- Support for PI's s proposed research and education activities
- Description of how the PIs career goals and responsibilities mesh with that of the organization and department
- Commitment to support professional development and mentoring of the PI
- NOT a letter of recommendation or endorsement of the PI or the research project

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CAREER Awards Urban Myths

"You cannot apply because you have another NSF award. . ."

"It is an entry program, so you must first apply to CAREER. . ."

"I need to see a successful proposal to write a successful proposal. . ."

"You have no chance, if you are not from a research intensive institution…"

"CAREER proposals are more portable than other NSF funding."

"The education component does not matter.

"I read on the web that to succeed, I have to…."

Traits of a Successful CAREER Proposal

High quality -- This is a highly competitive program!

Matches disciplinary program expectations

Includes an appropriate scope of activities for a 5-year plan, not one's whole life!

Goes outside the education box of regular research proposals in the field

Strikes a balance between doable research activities and more risky pursuits

PECASE:
Presidential Early Career Awards for Science and Engineering
April 18, 2014

CAREER Awards Resources:

- **Program Solicitation - NSF 15-555**
- **Frequently Asked Questions - NSF 15-057**
- **CAREER Directorate/Division Contacts**
  - **http://www.nsf.gov/crssprgm/career/contacts.jsp**
- **Links to recent CAREER and PECASE awards**

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Questions?

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Crosscutting & NSF-wide Opportunities

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What Is meant by crosscutting?

Sponsored by >1 NSF unit….

Cuts across NSF in different ways...

Collaborative with other U.S. government agencies…

Types of Crosscutting Activities

- International
- Interdisciplinary research – theme-based (e.g., Designing Materials, Hazards and Disasters)
- People-oriented (e.g., ADVANCE, CAREER, REU, Work-Life Balance)
- Infrastructure (e.g., MRI)
- Translational (ICorps, SBIR)
- Institutional, Centers (e.g., IUCRC, STC)

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Find Funding for NSF-wide and Crosscutting Opportunities

Go to: www.nsf.gov/funding/pgm.list.jsp?type=xcut

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RAPID/ EAGER

Grants for Rapid Response Research (RAPID)

Severe Urgency

Up to $200K/one year

Brief project description

Internal review

EArly-concept Grants for Exploratory Research (EAGER)

Potentially transformative

Up to $300K/one year

"High risk-high payoff"

Internal review

Rare but occasional external review

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ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers

Goals:
Strategies to undertake organizational change to address gender diversity issues in STEM

Systemic approaches to increase the representation and advancement of women in academic STEM careers.

Contribute to and inform the general knowledge base on gender equity in the academic STEM disciplines.

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ADVANCE
Three types of awards

Institutional Transformation

Institutional Transformation Catalyst

Partnership for Learning and Adaptation Networks

Next solicitation ~ summer 2016

International - A Crosscutting Portfolio

International activities at NSF

- **Span all NSF Directorates and Offices**
- **Globalize NSF research and education**
- **Strengthen partnerships with international funding agencies**
- **Cooperate with other U.S. government agencies, private foundations**

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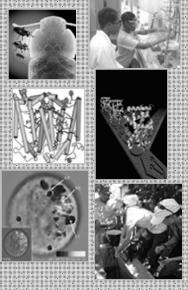
Examples of Support for International Activities

- **Partnerships for International Research and Education (PIRE)**
- **Partnerships for Enhanced Engagement in Research (PEER) – with USAID**
- **International Research Experiences for Students (IRES)**
- **East Asia Pacific Summer Institutes for Graduate Students (EAPSI)**
- **(International) Postdoctoral Research Fellowship Program**
- **Science Across Virtual Institutes (SAVI)**
- **Graduate Research Opportunities Worldwide (GROW)**



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Major Research Instrumentation (MRI)

Goals:

- Support acquisition of major state-of-the-art instrumentation
- Foster development of the next generation of major instrumentation
- Integrate research with education
- Use, advance, expand the nation's cyber-infrastructure and/or high performance computing capability
- Promote academic & private sector instrument development partnerships

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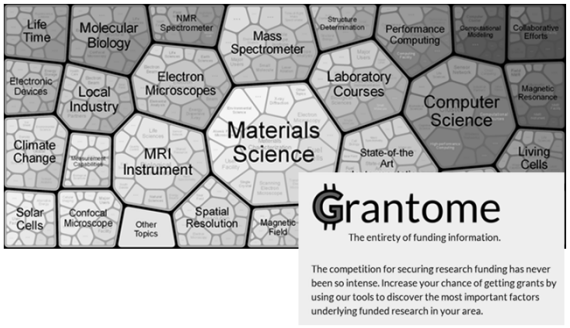
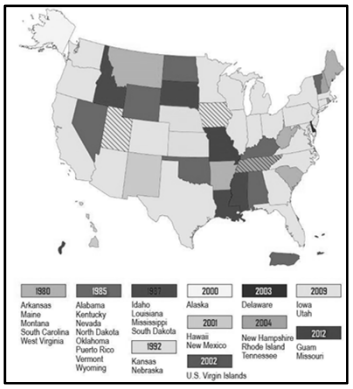
Major Research Instrumentation (MRI)

Thematic Areas:



NSF EPSCoR Jurisdictions



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Investment Strategies

- **Research Infrastructure Improvement (RII)** (79%)
  Support physical, human, and cyber infrastructure within academic institutions
  - ***RII Track-1:*** *State-based capacity building, multi-discip & inst*
  - RII Track-2: Focused EPSCoR Collaborations, more than 1 state
  - RII Track-3: Building Diverse Communities *i.e.*, Broadening Participation in STEM fields
- **Co-Funding with NSF Directorates and Offices** (20%)
- **Outreach and Workshops** (1%)

EPSCoR funding, ~ $160 Million total, represents ~2.7% of NSF's overall research support

Graduate Research Fellowship Program

Goals:

- Select, recognize, and financially support early in their careers individuals with the demonstrated potential to be high achieving scientists and engineers
- Broaden participation in science and engineering of underrepresented groups, including women, minorities, persons with disabilities, and veterans

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5 Year Award = $138,000

$34,000/year for 3 years +
+
$12,000 Educational allowance to institution

Professional Development Opportunities:
GROW: International Research
GRIP: Internships

Supercomputer access: XSEDE

Career Life Balance (family leave)

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RESOURCES:

Solicitation and links
www.nsf.gov/grfp

NSF GRFP FastLane Website
www.fastlane.nsf.gov/grfp

Application, guides, announcements
GRFP Website, www.nsfgrfp.org

Current & former Fellows
866-NSF-GRFP, info@nsfgrfp.org

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NSF Research Traineeship (NRT) Program

Replaces IGERT

Encouraging the development and implementation of bold, new, potentially transformative, and scalable models for STEM graduate training

Traineeship Track
$3,000,000
for up to 5 years

Innovations in Graduate Education (IGE) Track
$300,000 - $500,000 for 2-3 years

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NSF Research Traineeship (NRT) Program

APPLICATION DUE DATES:

Letter of Intent Deadline Date: December 9, 2016
For both tracks

Full Proposal Deadline Date: February 7, 2017
For both tracks

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Graduate Research Internship Program (GRIP)

Expands opportunities for NSF Graduate Fellows

Open only to NSF GRFP recipients

Internship allowance of up to $5,000 for travel and research costs.

Partner agencies include: Census, DHS, EPA, FBI, NOAA, ONR, SI, and USGS. Other being added.

Details in Dear Colleague Letter 16-015 and via agencies.

See: http://www.nsf.gov/grip – Supplement deadline: May 6, 2016

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Graduate Research Opportunities Worldwide (GROW))

Provides international research experiences to NSF GRFP recipients through partnerships with counterpart agencies around the world.

Open only to NSF GRFP recipients

$5,000 NSF travel allowance plus in-country support provided by partner

Country partners: Australia, Austria, Brazil, Chile, Denmark, Finland, France, India, Ireland, Japan, Korea, Mexico, Netherlands, Norway, Singapore, Sweden, and Switzerland. Others being added.

Please see application details in the Dear Colleague Letter 16-012.

See http://www.nsf.gov/grow – Submission window: Sept. 4 – Dec. 11

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Research Experiences for Undergraduates

REU Goals:

- **Initiate and conduct projects that engage a number of undergraduate students in research.**
- **Involve in research students who might not otherwise have the opportunity, particularly those from academic institutions where research programs are limited.**

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Research Experiences for Teachers

RET Goals:

Enable K-12 teachers and community college faculty
to engage in STEM research and then
adapt knowledge into their teaching

- RET Sites and Supplements
- May be included in REU proposals
- Check Directorates for specific mechanisms

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Support for Undergraduates
RUI, ROA for PUIs

RUIs and ROAs support research
by faculty members at PUIs.

PUIs = accredited institutions that award
Associate's, Bachelor's, and/or Master's degrees
but have not awarded > 20 Ph.D./D.Sci. degrees
in all NSF-supported fields
during the combined previous two academic years.

ALL NSF directorates evaluate and fund RUIs and ROAs

They are funded within R & E program allocations

Directorate contacts found at : http://www.nsf.gov/crsspgrm/rui_roa/contacts.jsp 152

INCLUDES

(Inclusion across the Nation of Communities of Learners that have been Underrepresented for Diversity in Engineering and Science)

NSF 16-544

Foundational pillar to:

- Foster community & stakeholder engagement
- Spur a national conversation to identify "bold visions" for broadening participation

Design and Development Launch Pilots:
Preliminary proposals – April 15, 2016
Full proposals – June 24, 2016

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505289 153

The NSF Innovation Corps Program

I-Corps Goals

Develops scientific and engineering discoveries into technologies, products and processes that benefit society;

Engages our nation's faculty and students to *transform* discoveries into *innovative technologies* and strengthen our nation's *entrepreneurial ecosystem*

Building a National Innovation Network

I-Corps Model

- Eligible NSF PIs with ideas !
- I-Corps Team: A student entrepreneurial lead and a business mentor
- I-Corps Curriculum: Online instruction and on-site activities at an I-Corps node
- I-Corps Regional Nodes: Groups of institutions dedicated to advance entrepreneurial research and training

I-Corps Stats

- 700+ completed I-Corps Projects in 4 years
- More than 50% created start-up companies
- I-Corps trained teams are more successful

I-Corps Resources

I-Corps Solicitations

I-Corps Nodes: NSF 16-539
http://www.nsf.gov/pubs/2016/nsf16539/nsf16539.htm

Sites: NSF 16-547
http://www.nsf.gov/pubs/2016/nsf16547/nsf16547.htm

Teams: NSF 12-602
http://www.nsf.gov/pubs/2012/nsf12602/nsf12602.htm

NSF I-Corps Home Page
http://www.nsf.gov/news/special_reports/i-corps/index.jsp

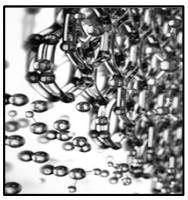
About I-Corps
http://www.nsf.gov/news/special_reports/i-corps/about.jsp

The I-Corps Components
http://www.nsf.gov/news/special_reports/i-corps/components.jsp

Resources
http://www.nsf.gov/news/special_reports/i-corps/resources.jsp

Grant Opportunities for Academic Liaison with Industry - GOALI

- **Promotes university-industry partnerships**
- **Supplies project funds or fellowships/traineeships**



- **Supports eclectic mix of industry-university linkages**

Encourages Research that lies beyond that which industry would normally fund solo

Grant Opportunities for Academic Liaison with Industry - GOALI

Proposals accepted anytime *however . . .*

Proposals must be submitted to the appropriate disciplinary program and are subject to that program's due dates. Contact the Program Officer in charge prior to submission.

NSF funds can only go to academic institution. The industry partner is expected to participate in the research effort to facilitate in the commercialization of the research.

http://www.nsf.gov/pubs/2012/nsf12513/nsf12513.htm

Small Business Innovation Research / Small Business Technology Transfer (SBIR/STTR) Program

SBIR/STTR Program Goals

SBIR • STTR
America's Seed Fund

Societal and economic benefit

Catalyze private sector commercialization

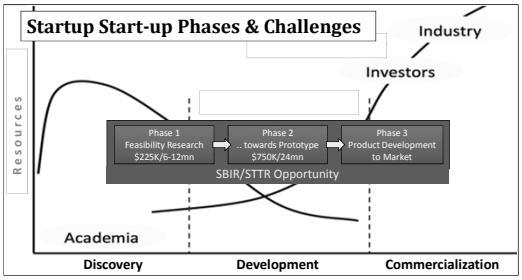
Increase incentives and opportunities for startups and small businesses to undertake cutting-edge, high-quality scientific R&D

Facilitate cooperative R&D via STTR

- **Grants, not contracts – *equity-free investment***
- **Seed funding for start-up and early stage technology ventures**
- **NSF funding *reduces risks* for other investors**

New SBIR and STTR solicitations opened in March 2016, www.nsf.gov/eng/iip/sbir/

NSF SBIR/STTR Program



NSF SBIR/STTR Program

What NSF Will and Will Not Fund in the Program

WHAT IS FUNDED

- ☑ **High-tech high-risk high-reward**
- ☑ **R&D only**
- ☑ **Focus on start-ups and early stage companies**
- ☑ **2014 Program Stats:**
  - **72% of the companies < 5 years old**
  - **90% of the companies < 10 employees**
  - **80% of the companies no prior Phase II award**

WHAT IS NOT FUNDED

- X **Basic research**
- X **Incremental/evolutionary improvements**
- X **Little chance of commercial success**
- X **Sales and marketing, customer/market discovery**

NSF SBIR/STTR Program

SBIR Success Story | See a 2D drawing become 3D

Julie Dorsey
Yale professor of computer science

http://graphics.cs.yale.edu/site/people/julie-dorsey

Founder
Mental Canvas
2013 – Present

http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=135955&org=NSF

Questions?

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Directorate Breakout Sessions

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