



Catalyzing Economic Development through Research and Innovation

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National Science Foundation Statutory Charge

“ to strengthen research and education in science and engineering throughout the United States and to avoid undue concentration of such research and education.”



NSF Mission

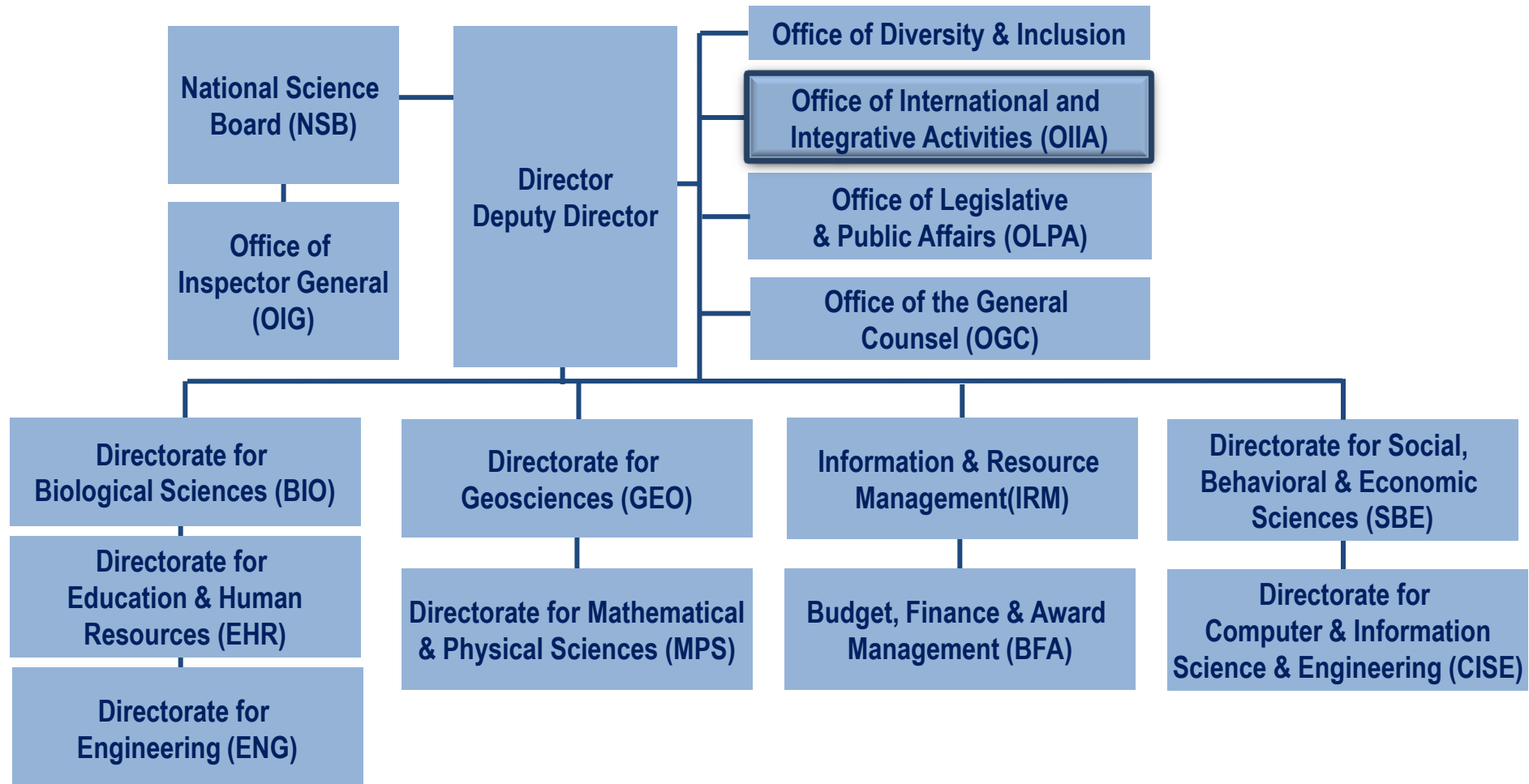
- To promote the progress of science
- To advance the national health, prosperity, and welfare
- To secure the national defense

NSF Vision

NSF envisions a nation that capitalizes on new concepts in science and engineering and provides global leadership in advancing research and education.



NSF Organization



NSF FY12 Statistics

Budget: **\$6.73B**

- \$5.63B for Research Support
- \$901M for Education & Human Resources
- \$198M for Major Research Equipment

Proposals received: 48,623

Proposals awarded: 11,534 (24%)

Administration: ~2100 staff in Arlington, VA



Let's try to describe basic research

- Basic scientific research yields new knowledge and understanding of nature and its laws.
- It focuses on one or a few questions grounded in that broader framework.
- It uses scientifically sound approaches to assess the viability of answers to those questions.
- A variety of paths can lead to productive advance of knowledge



As a result...

- Basic research provides the scientific capital from which practical applications of knowledge can be drawn.
- Basic research, while seeking no practical ends, is not “impractical” research.
- It’s research that’s valuable even if we don’t care about its specific findings or applications.
- This research is a necessary element for training scientists



Basic vs. Applied Research

- It's not "either/or"
- It's relative
- Basic research results often have great direct and indirect utility and applicability
- Basic research is first and foremost about broader theoretical development, not focused application of specific research results.
- Analysis and synthesis are favored over prescription



How can NSF turn basic research into applied innovation?

- Grant Opportunities for Academic Liaison with Industry (GOALI)
- NSF Innovation Corps (I-Corps)
- Integrated NSF Support Promoting Interdisciplinary Research and Education (INSPIRE)
- Small Business Innovation Research (SBIR)
- Partnerships for Innovation (PFI)
- Industry and University Cooperative Research Program (I/UCRC)



Interdisciplinary Research Portal

The screenshot shows the NSF website's 'Interdisciplinary Research' section. At the top, the NSF logo and tagline 'WHERE DISCOVERIES BEGIN' are visible, along with a search bar and a navigation menu. The main content area features a sidebar with a list of links: Introduction, Definition, Sources of Support, Contact Options, Points of Contact, What To Submit, and FAQs. The main text is titled 'Introduction to Interdisciplinary Research' and discusses NSF's commitment to interdisciplinary research. It includes two images: a virtual reality wall displaying protein visualizations and a group of scientists in a laboratory setting. Captions for the images credit Jurgen Schulze and R. Sabinelli.

National Science Foundation
WHERE DISCOVERIES BEGIN

SEARCH
NSF Web Site

HOME | FUNDING | AWARDS | DISCOVERIES | NEWS | PUBLICATIONS | STATISTICS | ABOUT | FastLane

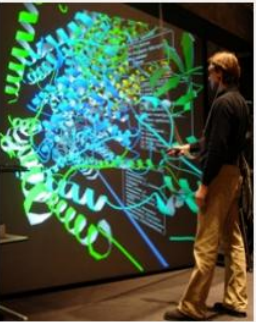
Interdisciplinary Research

- Introduction
- Definition
- Sources of Support
- Contact Options
- Points of Contact
- What To Submit
- FAQs

Introduction to Interdisciplinary Research


NSF has long recognized the value of interdisciplinary research in pushing fields forward and accelerating scientific discovery. Important research ideas often transcend the scope of a single discipline or program. NSF also understands that the integration of research and education through interdisciplinary training prepares a workforce that undertakes scientific challenges in innovative ways. Thus, NSF gives high priority to promoting interdisciplinary research and supports it through a number of specific solicitations. NSF also encourages researchers to submit unsolicited interdisciplinary proposals for ideas that are in novel or emerging areas extending beyond any particular current NSF program.

This site is meant to be a guide to the different mechanisms through which NSF promotes and supports interdisciplinary research. Here we provide information on whom to contact for assistance in deciding where and how to submit an interdisciplinary proposal. A primary purpose of this site is to assist investigators in submitting an unsolicited interdisciplinary proposal for which there may not be a natural "home" in one of the existing NSF programs.



A virtual reality wall displays interactive visualizations of proteins.

Credit: *Jurgen Schulze, UC-San Diego*



PIRE Exchange Program with China.

Credit: *R. Sabinelli*

http://www.nsf.gov/od/oia/additional_resources/interdisciplinary_research/



Funding for Crosscutting Programs



The screenshot shows the NSF website's funding page. At the top left is the NSF logo with the tagline "WHERE DISCOVERIES BEGIN". To the right is a search bar with "NSF Web Site" selected. Below the search bar is a navigation menu with links for HOME, FUNDING, AWARDS, DISCOVERIES, NEWS, PUBLICATIONS, STATISTICS, ABOUT, and FastLane. The main content area features a "Funding" sidebar with a "Find Funding" link and an "A-Z Index of Funding Opportunities" link. The main heading is "Crosscutting and NSF-wide Active Funding Opportunities". The text below the heading reads: "This site provides program information for activities sponsored by more than one NSF organization. In addition, all NSF organizations accept proposals that cut across organizational and programmatic boundaries. We suggest that those seeking support for interdisciplinary work not described here consult the NSF program site(s) closest to the science, engineering or education focus of the planned work and contact relevant..."

http://www.nsf.gov/funding/pgm_list.jsp?type=xcut



Grant Opportunities for Academic Liaison with Industry (GOALI)

The screenshot shows the NSF website interface. At the top left is the NSF logo with the tagline "National Science Foundation WHERE DISCOVERIES BEGIN". To the right is a "QUICK LINKS" button and a search bar. Below the header is a navigation menu with links for HOME, FUNDING, AWARDS, DISCOVERIES, NEWS, PUBLICATIONS, STATISTICS, ABOUT NSF, and FASTLANE. The main content area features a "Funding" sidebar on the left with links like "Find Funding", "A-Z Index of Funding Opportunities", and "Recent Funding Opportunities". The main content area displays the "Grant Opportunities for Academic Liaison with Industry (GOALI)" program, including a "CONTACTS" table and "PROGRAM GUIDELINES" section.

NSF-wide

Grant Opportunities for Academic Liaison with Industry (GOALI) ■

CONTACTS

Name	Email	Phone	Room
Donald Senich	dsenich@nsf.gov	(703) 292-7082	575S
Dean M. Evasius	devasius@nsf.gov	(703) 292-8132	
William S. Bainbridge	wbainbri@nsf.gov	(703) 292-8930	1125S
John C. Chermiavsky	jchemia@nsf.gov	(703) 292-5136	855S
Leonard E. Johnson	lejohnso@nsf.gov	(703) 292-8559	785S
Graham M. Harrison	gharriso@nsf.gov	(703) 292-7252	115S
Fahmida N. Chowdhury	fchowdhu@nsf.gov	(703) 292-4672	905N
Diane J. Okamuro	dokamuro@nsf.gov	(703) 292-4400	690N

PROGRAM GUIDELINES

Solicitation [12-513](#)

- Contact disciplinary program office for deadlines and contact information.
- Supplements and Full Proposals accepted anytime
- Current solicitation: NSF 12-513



GOALI Program Goals

- To promote university-industry partnerships by making project funds or fellowships/traineeships available
- To fund research that lies beyond that which industry would normally fund by themselves
- Targets high-risk/high-gain research with a focus on fundamental research, new approaches to solving generic problems, innovative collaborative industry-university educational programs, and direct transfer of new knowledge between academe and industry



GOALI Eligibility Information

- For fellowships/traineeships, only U.S. citizens, nationals, or permanent residents are eligible to apply for support under this program.
- NSF funds cannot go to an industry partner; they can only be used by the academic institution. The industry partner is expected to participate in the research effort to facilitate in the commercialization of the research.
- **Submission:**
 - To disciplinary program (not GOALI), at its deadline
 - Estimated number of awards: 60-80
 - Anticipated funding: \$5M from all participating directorates



NSF Innovation Corps (I-Corps)

NSF National Science Foundation
WHERE DISCOVERIES BEGIN

QUICK LINKS

SEARCH

HOME FUNDING AWARDS DISCOVERIES NEWS PUBLICATIONS STATISTICS ABOUT NSF FASTLANE

Funding

1 2 3 4

Find Funding

A-Z Index of Funding Opportunities

Recent Funding Opportunities

Upcoming Due Dates

Advanced Funding Search

Interdisciplinary Research

How to Prepare Your Proposal

About Funding

Proposals and Awards

Proposal and Award Policies and Procedures Guide

Introduction

Proposal Preparation and Submission

Email Print Share

[NSF-wide](#)

Innovation Corps Teams Program (I-Corps Teams)

CONTACTS

Name	Email	Phone	Room
Errol B. Arkilic	earkilic@nsf.gov	703 292-8095	
Rathindra DasGupta	rdasgupt@nsf.gov	703 292-8353	
Anita J. La Salle	alasalle@nsf.gov	703 292-5006	

PROGRAM GUIDELINES

Solicitation [12-602](#)

Important Notice to Proposers

A revised version of the NSF Proposal & Award Policies & Procedures Guide (PAPPG), [NSF 13-1](#), was issued on October 4, 2012 and is effective for proposals submitted, or due, on or after January 14, 2013. Please be advised that, depending on the specified due date, the guidelines contained in [NSF 13-1](#) may apply to proposals submitted in response to this funding opportunity.

- **Contact:**
 - Errol Arkilic: (703) 292-8095; earkilic@nsf.gov
 - Rathindra DasGupta: (703) 292- 8353 rdasgupt@nsf.gov
 - Anita La Salle: (703) 292-5006; alasalle@nsf.gov
- **Submission Windows:**
 - Jan 1, 2013 – Mar 15, 2013
 - Apr 1, 2013 – June 15, 2013
 - July 1, 2013 – Sep 15, 2013
 - Oct 1, 2013 – Dec 15, 2013
- **Current solicitation : NSF 12-602**



I-Corps Program Goals

- Establishes a **public-private partnership** to support the translation of NSF research into the development of technologies, products, and processes
- Aims to help create a **national network** of scientists, engineers, innovators, business leaders and entrepreneurs building on existing NSF grantee events



I-Corps Eligibility Information

- **Projects are Team-based** and must have an entrepreneurial lead, an I-Corps mentor, and a PI
- PI(s) *must* contact one of the cognizant I-Corps program officers and receive **prior written authorization to submit** a proposal.
- Proposers **must have an active NSF award** or one that has been active within the previous five years from the date of submission of the I-Corps proposal in a science or engineering field relevant to the proposed innovation.
- A PI is limited to **one I-Corps proposal** during each submission window.



I-Corps Anticipated Outcomes

- Functioning network of Mentors/Advisors
- Scientist and Engineers trained as Entrepreneurs
- Increased impact of NSF-funded basic research
- Estimated Number of Awards: 150 in FY 2013
- Anticipated Funding in FY 2013: \$18M

**Informational Webinars held on the first
Tuesday of every month**



Integrated NSF Support Promoting Interdisciplinary Research and Education (INSPIRE)

Integrated NSF Support Promoting Interdisciplinary Research and Education (INSPIRE)

to support bold interdisciplinary projects in all NSF-supported areas of science,
engineering, and education research

PROGRAM SOLICITATION NSF 13-518



National Science Foundation
Office of Integrative Activities
Directorate for Biological Sciences
Directorate for Computer & Information Science & Engineering
Directorate for Education & Human Resources
Directorate for Engineering
Directorate for Geosciences
Directorate for Mathematical & Physical Sciences
Directorate for Social, Behavioral & Economic Sciences
Office of Cyberinfrastructure
Office of International Science and Engineering
Office of Polar Programs

Letter of Intent Due Date(s) (required) (due by 5 p.m. proposer's local time):

December 10, 2012 - February 20, 2013

INSPIRE Track 2 Inquiries

December 10, 2012 - March 29, 2013

INSPIRE Track 1 Inquiries

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

May 13, 2013

INSPIRE Track 2 Full Proposals

May 29, 2013

INSPIRE Track 1 Full Proposals

May 29, 2013

Director's INSPIRE Awards Full Proposals

- Solicitation: NSF 13-518
- In a nutshell:
 - Only internal merit review is required
 - Proposals **must** be interdisciplinary **and** potentially transformative
 - Maximum award size: \$1,000,000
 - Maximum award duration: 5 years
- To begin process, PI submits inquiry form



INSPIRE Program Goals

- Attract unusually creative high-risk / high-reward interdisciplinary proposals, including ones that PIs may have been reluctant to submit to a standard review process
- Provide substantial funding, not limited to the exploratory stage
- Be open to all NSF-supported areas of science, engineering, and education research – no favored topics
- INSPIRE is ***not*** for proposals that are more appropriate for existing mechanisms:
 - Primarily advance a single discipline, or
 - Can be expected to receive an appropriate evaluation through external review in regular programs, or
 - Continue a well-established line of research, leading to the next expected step

Through inquiry process, PI must have at least 2 program directors' authorizations in advance to submit a proposal



Small Business Innovation Research Program (SBIR)

The screenshot shows the NSF Directorate for Engineering (ENG) website. The main navigation bar includes links for HOME, FUNDING, AWARDS, DISCOVERIES, NEWS, PUBLICATIONS, STATISTICS, ABOUT NSF, and FASTLANE. The sub-navigation bar includes ENG HOME, ENG FUNDING, ENG AWARDS, ENG DISCOVERIES, ENG NEWS, and ABOUT ENG. The page title is "Small Business Innovation Research & Small Business Technology Transfer (Program Description) (SBIR/STTR)". The page includes a search bar, a "QUICK LINKS" button, and a "CONTACTS" table. The "CONTACTS" table lists the following individuals and their affiliations:

Name	Dir/Div	Name	Dir/Div
Errol B. Arkilic	OD/OIA	Gregory T. Baxter	
Juan E. Figueroa	ENG/IIP	Muralidharan S. Nair	ENG/EFRI
Benaiah (Ben) Schrag	ENG/IIP	Ruth M. Shuman	ENG/EFRI
Grace J. Wang	ENG/IIP		

The page also includes a "SYNOPSIS" section with the following text:

The SBIR/STTR Program stimulates technological innovation in the private sector by:

- Strengthening the role of small business concerns in meeting Federal research and development needs,
- Increasing the commercial application of federally supported research results, and
- Fostering and encouraging participation by socially and economically disadvantaged persons and women-owned small businesses in technological innovation.

The primary objective of the NSF SBIR/STTR Program is to increase the incentive and opportunity for small firms to undertake cutting-edge, high risk, high quality scientific, engineering, or science/engineering education research that would have a high potential economic payoff if the research is successful.

The STTR program further expands the public/private partnership to include joint venture opportunities for small businesses and non-profit research institutions. NSF

- Solicitation – NSF 13-546
- Estimated number of awards: 200
- Estimated FY13 funding: \$30M
 - \$150k per award

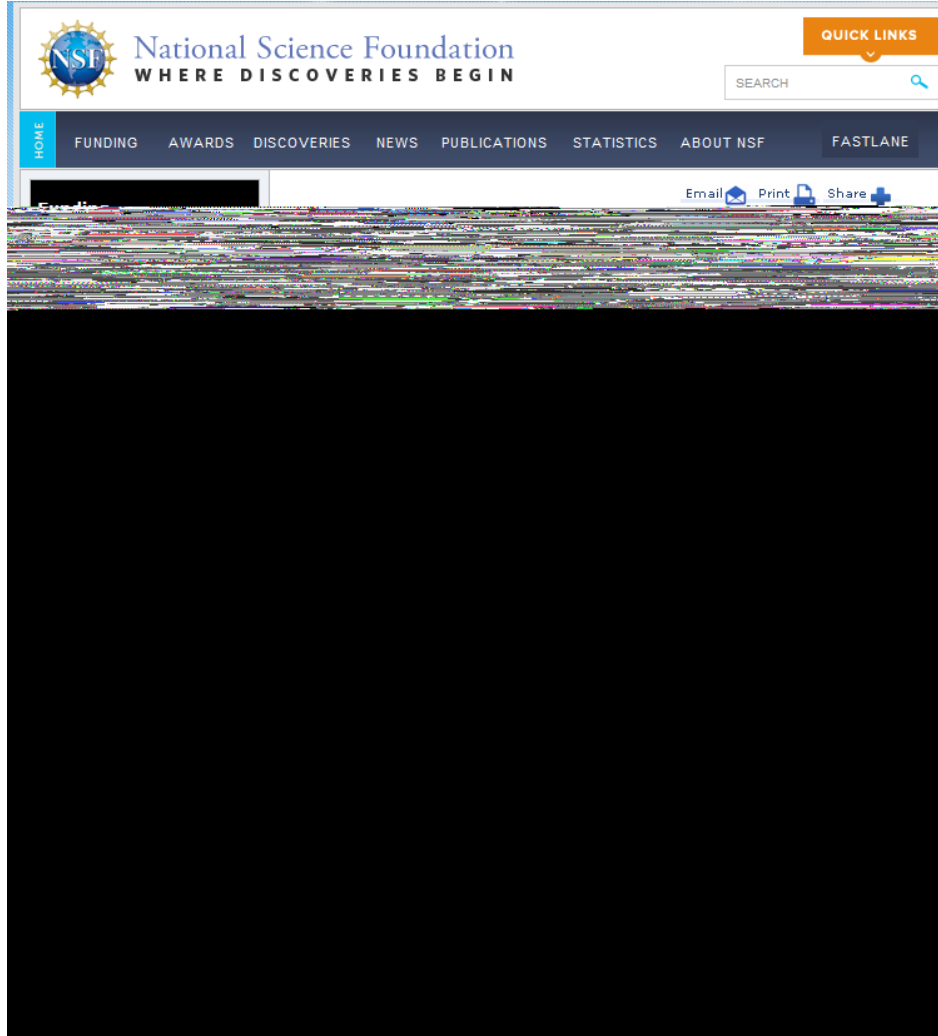


SBIR Program Goals

- To stimulate technological innovation in the private sector by strengthening the role of small business concerns in meeting Federal research and development needs, increasing the commercial application of federally supported research results, and fostering and encouraging participation by socially and economically disadvantaged and women-owned small businesses.
- FY13 Topics include:
 - Biological and Chemical Technologies
 - Education Applications
 - Electronics, Information and Communication Technologies
 - Nanotechnology, Advanced Materials, and Manufacturing



Partnerships for Innovation: Accelerating Innovation Research (PFI:AIR)



- Solicitation – NSF 12-571
- Estimated number of awards:
 - 30-35 for Technology Translation
 - 10-12 for Research Alliance
- Estimated funding:
 - Technology Translation:
\$150k for 18 months per award
 - Research Alliance:
\$800k for 24 months per award



PFI:AIR Program Goals

To accelerate innovation that results in the creation of new wealth and the building of strong local, Regional, and national economies through these two pathways:

- Technology Translation encourages the translation of technologically-promising research discoveries made by prior and/or current NSF-funded investigators toward a path of commercialization
- Research Alliance promotes synergistic collaborations between an existing NSF-funded research alliance (e.g. Centers) and other public and private entities to motivate the translation and transfer of research discoveries into innovative technologies and commercial reality



Industry & University Cooperative Research Program (I/UCRC)

The screenshot shows the NSF Directorate for Engineering (ENG) website. The top navigation bar includes links for HOME, FUNDING, AWARDS, DISCOVERIES, NEWS, PUBLICATIONS, STATISTICS, ABOUT NSF, and FASTLANE. The main header features the NSF logo and the text "National Science Foundation Directorate for Engineering (ENG)". A search bar is located on the right. Below the header, a secondary navigation bar lists "ENG HOME", "ENG FUNDING", "ENG AWARDS", "ENG DISCOVERIES", "ENG NEWS", and "ABOUT ENG". The main content area is titled "Industry & University Cooperative Research Program (I/UCRC)". It includes a sidebar with links for "IIP Home", "I/UCRC Home", "About the Program", "Staff Directory", "Center Directory", "Meetings and Events", "Recent Awards", and "Funding Opportunities". The main content area lists "I/UCRC centers are supported by these NSF organizations:" followed by "Directorate for Engineering (ENG)" and "Directorate for Computer and Information Science and Engineering (CISE)". It also mentions "Other NSF and government organizations also offer support for I/UCRCs". A blue box contains the text: "Upcoming planning, IAB, and other meetings of interest to industry and university partners. Please announce your upcoming meetings to the Webmaster". Below this, there are sections for "Funding Opportunities" (listing "Dear Colleague Letter - Innovative Managing Director Model", "Dear Colleague Letter - Collaborative Opportunity for Research Between I/UCRCs (CORBI)", "Fundamental Research Proposal", "Current Solicitation", and "SBIR Phase II memberships") and "Center Directory & Map" (with a link to "I/UCRC Directory and Fact Sheets" and a map of the United States). At the bottom, there are sections for "Industry Partners" (listing "NSF Presentation for New and Potential Members", "Sample Membership Agreement for Industry Partners", "Sample Membership Agreement for Associations and Institutions", and "Government MIPRs and IIAs") and "Planning, Implementing, and Operating a Center" (listing "Planning and Implementing a Center", "How to run a successful Planning Grant Meeting (Word)", "Sample Meeting agendas", "Planning Grant and First IAB Meeting Research Project Slide Presentation Format (PPT)", and "Center Status Check List for Evaluators").

- Dear Colleague Letters:
 - NSF 11-074
 - NSF 13-016
- Current Solicitation: NSF 12-516
- Estimated number of awards:
 - 4-12 planning grants
 - 2-8 for full centers
- Estimated funding: \$10M annually



I/UCRC Program Goals

- Develop long-term partnerships among industry, academe, and government
- Centers are catalyzed by a small investment from NSF and are primarily supported by industry center members, with NSF taking a supporting role in the development and evolution of the center.
- Contributes to the Nation's research infrastructure base and enhances the intellectual capacity of the engineering and science workforce through the integration of research and education.
- International collaboration used to advance these goals within the global context





Thank you!

