

# Grant Opportunities for Academic Liaison with Industry (GOALI)

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## PROGRAM SOLICITATION

NSF 12-513

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### REPLACES DOCUMENT(S):

NSF 10-580

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#### National Science Foundation

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 Integrative Activities

#### Supplement Due Date(s) (due by 5 p.m. proposer's local time):

Proposals Accepted Anytime

Please discuss with the appropriate disciplinary program office prior to submitting a request for supplemental funding.

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

Proposals Accepted Anytime

Please contact the appropriate disciplinary program office to obtain information about current deadline dates.

## IMPORTANT INFORMATION AND REVISION NOTES

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### Proposals must be submitted to the appropriate disciplinary program and are subject to that program's due dates.

Additional information concerning deadline dates, research scope, or other technical research details should be directed to a program officer for a specific discipline within the division most suited for the scope of the research being proposed. The NSF Staff Directory at <http://www.nsf.gov/staff/> can be used to help identify an appropriate disciplinary program office where proposal and supplemental funding requests are submitted.

GOALI program officers, listed in this solicitation, should only be contacted for information with respect to the NSF wide GOALI program and its requirements. They may not necessarily be prepared to answer questions intended for a disciplinary program office.

Industry involvement and participation is required for GOALI funded projects.

General plans must be made as to how the research project will be managed.

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

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### General Information

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#### Program Title:

Grant Opportunities for Academic Liaison with Industry (GOALI)

#### Synopsis of Program:

Grant Opportunities for Academic Liaison with Industry (GOALI) promotes university-industry partnerships by making

project funds or fellowships/traineeships available to support an eclectic mix of industry-university linkages. Special interest is focused on affording the opportunity for:

- Faculty, postdoctoral fellows, and students to conduct research and gain experience in an industrial setting;
- Industrial scientists and engineers to bring industry's perspective and integrative skills to academe; and
- Interdisciplinary university-industry teams to conduct research projects.

This solicitation targets high-risk/high-gain research with a focus on fundamental research, new approaches to solving generic problems, development of innovative collaborative industry-university educational programs, and direct transfer of new knowledge between academe and industry. GOALI seeks to fund transformative research that lies beyond that which industry would normally fund.

#### **Cognizant Program Officer(s):**

*Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.*

- Rathindra DasGupta, telephone: (703) 292-8353, email: [rdasgupt@nsf.gov](mailto:rdasgupt@nsf.gov)
- Clark Cooper, GOALI Program, Head of OMA, Directorate for Mathematical and Physical Sciences, 1005 N, telephone: (703) 292-7899, email: [ccooper@nsf.gov](mailto:ccooper@nsf.gov)
- William S. Bainbridge, GOALI Program, Program Director, Information and Intelligent Systems, Directorate for Computer & Information Science & Engineering, 1125S, telephone: (703) 292-8930, email: [wbainbri@nsf.gov](mailto:wbainbri@nsf.gov)
- John C. Cherniavsky, GOALI Program, Senior EHR Advisor for Research, Directorate for Education and Human Resources, 855S, telephone: (703) 292-5136, email: [jchernia@nsf.gov](mailto:jchernia@nsf.gov)
- Leonard E. Johnson, GOALI Program, Program Director, Division of Earth Sciences, Directorate for Geosciences, 785S, telephone: (703) 292-8559, email: [lejohnso@nsf.gov](mailto:lejohnso@nsf.gov)
- Graham M. Harrison, GOALI Program, Program Director, Office of International Science and Engineering, 1155, telephone: (703) 292-7252, email: [gharriso@nsf.gov](mailto:gharriso@nsf.gov)
- Fahmida N. Chowdhury, GOALI Program, Program Director, Office of Multidisciplinary Activities, Directorate for Social, Behavioral & Economics Sciences, 905N, telephone: (703) 292-4672, email: [fchowdhu@nsf.gov](mailto:fchowdhu@nsf.gov)
- Diane J. Okamuro, GOALI Program, Program Director, Integrative Organismal Systems, Directorate for Biological Sciences, 690N, telephone: (703) 292-4400, email: [dokamuro@nsf.gov](mailto:dokamuro@nsf.gov)

#### **Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):**

- 47.041 --- Engineering
- 47.049 --- Mathematical and Physical Sciences
- 47.050 --- Geosciences
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences
- 47.075 --- Social Behavioral and Economic Sciences
- 47.076 --- Education and Human Resources
- 47.079 --- Office of International Science and Engineering
- 47.083 --- Office of Integrative Activities (OIA)

### **Award Information**

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**Anticipated Type of Award:** Standard Grant or Continuing Grant or Fellowship or Supplement to Existing Award

**Estimated Number of Awards:** 60 to 80

**Anticipated Funding Amount:** \$5,000,000 pending availability of funds.

### **Eligibility Information**

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#### **Who May Submit Proposals:**

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

#### **Who May Serve as PI:**

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.

#### **Limit on Number of Proposals per Organization:**

There are no restrictions or limits.

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

There are no restrictions or limits.

### **Proposal Preparation and Submission Instructions**

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## 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 text of the GPG is available electronically on the NSF website at: [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpg](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg).
  - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (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](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide))

## B. Budgetary Information

- **Cost Sharing Requirements:** Inclusion of voluntary committed cost sharing is prohibited.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Not Applicable

## C. Due Dates

- **Supplement Due Date(s)** (due by 5 p.m. proposer's local time):

Proposals Accepted Anytime

Please discuss with the appropriate disciplinary program office prior to submitting a request for supplemental funding.

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

Proposals Accepted Anytime

Please contact the appropriate disciplinary program office to obtain information about current deadline dates.

## Proposal Review Information Criteria

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**Merit Review Criteria:** National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

## Award Administration Information

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**Award Conditions:** Standard NSF award conditions apply.

**Reporting Requirements:** Standard NSF reporting requirements apply.

## TABLE OF CONTENTS

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### Summary of Program Requirements

- I. **Introduction**
- II. **Program Description**
- III. **Award Information**
- IV. **Eligibility Information**
- V. **Proposal Preparation and Submission Instructions**
  - A. Proposal Preparation Instructions
  - B. Budgetary Information
  - C. Due Dates
  - D. FastLane/Grants.gov Requirements
- VI. **NSF Proposal Processing and Review Procedures**
  - A. Merit Review Principles and Criteria
  - B. Review and Selection Process
- VII. **Award Administration Information**
  - A. Notification of the Award
  - B. Award Conditions
  - C. Reporting Requirements
- VIII. **Agency Contacts**
- IX. **Other Information**

## I. INTRODUCTION

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A major objective of the National Science Foundation (NSF) is to improve the nation's capacity for intellectual and economic growth by increasing the number of industrial partnerships and collaborations. By serving as a catalyst for industry-university partnerships, NSF helps ensure that intellectual capital and emerging technologies are brought together in ways that promote economic growth and an improved quality of life. Benefits to universities may include extensions to in-house research capabilities, alignment of efforts with viable technology options; direct and more immediate impact on technology and its design infrastructure; and the training of students for industrial positions. Possible benefits for industry include more research-intensive activities, investigations of high-risk ideas, increased efforts towards research, shortening the research and development cycles, training students for future employment, and vetting of future hires.

To meet this objective, the GOALI program seeks to stimulate interactions and staff exchange between universities and industry. For example, faculty, postdoctoral fellows, and students are encouraged to develop creative modes of collaborative interactions with industry through individual or small-group projects, and industry-based fellowships or traineeships for students and post-doctoral fellows. The GOALI mechanisms suggested below are *examples only* and proposers are encouraged to modify or adapt them to meet individual needs or realize imaginative ideas.

### Examples of Proposal Ideas

- An extended faculty experience in industry (of several months duration) to foster industry-university collaboration;
- A faculty visit to industry (of several months duration) at the beginning of a multiple-year university-based research project to better enable the transfer of research results to industry by project's end;
- Visit of a leading engineer, scientist, or manager from industry to a university, to catalyze collaborative research or teach and develop curricula;
- Support for one or two semesters of work in industry by a graduate or an undergraduate student under the guidance of an academic advisor;
- Post-doctoral support for one or two years of work in an industrial setting, under the guidance of an academic mentor in collaboration with an industrial partner;
- Support for a supplement to an existing grant for high-risk/high-gain research in order to gain basic knowledge necessary for development of a generic technology;
- Opportunities for graduate students and faculty to attend planned seminars or carry-out of research;
- Support of untenured faculty for an internship in industry;
- Research Experiences for Industry (REI) opportunity support;
- University-based support for partnering university and industry scientists, or engineers, or both on a research project of mutual interest, including joint graduate student advising. A letter from the industrial collaborator(s) documenting the intention to collaborate should be appended to the proposal;
- Support for interdisciplinary research or educational projects of two or three faculty from different academic units to interact with one or more industrial partners in a virtual industry-university group or network;
- Research support in conjunction with a new industrial chair position,
- Support for continuing education in industry towards advanced degrees; and
- Research Experiences for Teachers in Industry (RETI) to gain research experience in an industrial setting.

International collaborations that strengthen proposed project activities are encouraged, when there is an opportunity for coordinated funding with colleagues from foreign institutions who will add value to the project. This program will support the US-based scientists and their students. Collaborators in institutions outside the US must seek funding from their respective funding organizations. Proposals for international collaborations will be evaluated on the value that they add to the domestic research proposed. NSF requires that proposals with international collaborations include the following: description of the collaboration; discussion of US and foreign contributions to the project; costs of travel to work with foreign partners; costs for students to travel overseas for short or extended visits in foreign laboratories; foreign collaborators' biographical sketches (CVs); and documentation of their agreement to collaborate on the proposed project, as well as the means by which they will support their part of the work.

## II. PROGRAM DESCRIPTION

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The topics addressed in a GOALI proposal should address research within an intellectual envelope shared by the industrial partner. Fundamental research generally is performed in academe in parallel with more applied research in industry. Investigators are expected to integrate their research objectives with educational and industrial needs. Industry involvement assures that the research is industrially relevant.

The GOALI program emphasizes improving industry-university research linkages in the design and implementation of products and processes. The research should strengthen the fundamental scientific and engineering foundations on which new design and production practices and methods are based. This emphasis aims to improve basic understanding and the development of integrated design tools in both academe and industry. The length of support requested should be appropriate to the purpose and may vary.

Industry participation in the research and education projects is required for collaborative work at industrial sites. However, industrial organizations may partner in research awards for projects performed in universities. Proposals may include participation by a "third partner" such as one of the National Labs or a non-profit organization.

A co-investigator or co-advisor from industry is required in a collaborative project or industrial fellowship/traineeship. This provides relevance for the research effort through the active participation of industry in the design and implementation.

### NSF Organizational Opportunities.

*Important: GOALI proposers must communicate with a specific program director in the disciplinary area of the proposed research for guidance on proposal submission, not with one of the GOALI representatives listed in this solicitation. The NSF web site at <http://www.nsf.gov> has a staff and organizational list of programs and contact information. GOALI does not directly accept GOALI proposals or supplemental funding requests. Each NSF directorate may handle and fund GOALI requests differently. GOALI directorate offices usually only see proposals that were recommended for funding by the disciplinary program offices.*

For additional current information, you are encouraged to browse the web sites of the appropriate directorate. While flexibility exists for

proposals focused on one or several of the examples listed above, the following directorates offer specific guidelines for GOALI-related activities:

**Directorate for Biological Sciences (BIO)** -offers opportunities in all areas usually supported by the directorate using these GOALI mechanisms:

- Industry-University Collaborative Projects
- Faculty and Students in Industry:
  - Faculty-in-Industry
  - Post Doctoral Industrial Fellowships
  - Graduate Student Industrial Fellowships
  - Undergraduate Industrial Fellowships

**Directorate for Computer and Information Science and Engineering (CISE)** - offers opportunities in all areas usually supported by the directorate. GOALI mechanisms of interest include:

- Industry-University Collaborative Projects
- Faculty and Students in Industry:
  - Faculty-in-Industry
  - Post Doctoral Industrial Fellowships
  - Graduate Student Industrial Fellowships
  - Undergraduate Industrial Fellowships
- Industry Engineers and Scientists in Academe
  - Industry Presence on Campus
  - Industry-Based Graduate Assistantship

**Directorate for Education and Human Resources (EHR)** - supports research and education projects and fellowships in all areas of the directorate using these GOALI mechanisms:

- Industry-University Collaborative Projects
- Faculty and Students in Industry:
  - Faculty-in-Industry
  - Post Doctoral Industrial Fellowships
  - Graduate Student Industrial Fellowships
  - Undergraduate Industrial Fellowships
- Industry Engineers and Scientists in Academe
  - Industry Presence on Campus
  - Industry-Based Graduate Assistantship

**Directorate for Engineering (ENG)** - supports research/education projects and fellowships in all areas of the directorate. GOALI mechanisms of interest include:

- Industry-University Collaborative Projects
- Faculty and Students in Industry:
  - Faculty-in-Industry
  - Post Doctoral Industrial Fellowships
  - Graduate Student Industrial Fellowships
  - Undergraduate Industrial Fellowships
- Industry Engineers and Scientists in Academe
  - Industry Presence on Campus
  - Industry-Based Graduate Assistantship

**Directorate for Geosciences (GEO)** - supports research/education projects and fellowships in all areas of the directorate. GOALI mechanisms of interest include:

- Industry-University Collaborative Projects
- Faculty and Students in Industry:
  - Faculty-in-Industry
  - Post Doctoral Industrial Fellowships
  - Graduate Student Industrial Fellowships
  - Undergraduate Industrial Fellowships
- Industry Engineers and Scientists in Academe
  - Industry Presence on Campus
  - Industry-Based Graduate Assistantship

**Directorate for Mathematical and Physical Sciences (MPS)** - encourages a broad range of GOALI full proposals and requests for supplemental funding reflecting innovative academic-industrial cooperative pursuits in research and education in all areas supported by the directorate. GOALI mechanisms of interest include:

- Industry-University Collaborative Projects
- Faculty and Students in Industry:
  - Faculty-in-Industry
  - Post Doctoral Industrial Fellowships
  - Graduate Student Industrial Fellowships
  - Undergraduate Industrial Fellowships
- Industry Engineers and Scientists in Academe
  - Industry Presence on Campus
  - Industry-Based Graduate Assistantship

**Directorate for Social, Behavioral and Economic Sciences (SBE)**- encourages theory building in actual operational and managerial processes, problem solving, risk management, strategic planning and decision-making in private-sector organizations. GOALI mechanisms of interest include:

- Industry-University Collaborative Projects

**Office of International Science and Engineering (OISE)** - participates with mechanisms that have an international component. NSF requires that proposals with international collaborations include the following: description of the collaboration; discussion of US and foreign contributions to the project; costs of travel to work with foreign partners; costs for students to travel overseas for short or

extended visits in foreign laboratories; foreign collaborators' biographical sketches (CVs); and documentation of their agreement to collaborate on the proposed project, as well as the means by which they will support their part of the work. NSF will consider proposals for cooperative projects involving US and foreign organizations, provided support is requested only for the US portion of the collaborative effort.

### GOALI Program Mechanisms

These guidelines provide additional information regarding the characteristics of the GOALI program mechanisms for the industry-university collaboration in NSF directorates. The proposers may combine or modify these mechanisms to meet their interests, or propose other arrangements to achieve directorate GOALI objectives. Proposers interested in submitting proposals for GOALI must contact the appropriate NSF program director in their area of research/education prior to proposal submission. Some programs may only consider requests for supplemental funding while other programs may only fund full proposals.

#### Program 1: Industry - University Collaborative Projects (Full proposals or requests for supplemental funding)

Opportunities are made available for collaborative industry-university projects for individuals or small groups. These research and education projects are jointly designed and implemented by university and industry engineers and scientists. The principal investigators and their students are encouraged to perform some of their research at the industrial sites. Researchers from industry and academe tend to complement each other and thus form effective teams. Many teams provide expertise in materials, devices, characterization, measurements, or other areas that exceed the capabilities of a single group. This mechanism offers a special opportunity for industry, including small businesses, to leverage their research efforts with university research in collaborative projects.

Interdisciplinary research and educational projects of two or three faculty from different academic departments or institutions to interact with one or more industrial partners in virtual industry-university groups or networks are also encouraged. Valuable educational opportunities may be derived that would be unobtainable from a single academic department. Students gain exposure to the real world workings of industry, and from research and potential employment opportunities and mentoring that they receive from industrial colleagues.

*Proposal description:* The proposal must describe the research approach and a detailed plan of the industry-university collaboration including the tasks for both partners. The purpose of the eventual visit(s) in industry or academe must be explained. In the last year of the project, the principal investigator must plan at least two industrial seminars, one of which should be within the collaborating industrial unit. GOALI research projects must demonstrate measurable industry collaboration and involvement that accelerates fundamental research.

*Budget:* NSF funds are for university research/educational activities. The university grant may support activities of faculty and his/her students and research associates in the industrial setting. NSF funds cannot be used by the industrial research partner.

*Research Project Management:* GOALI research proposals must be well planned with professional project management principles applied to help assure success. As such, the first page of the Project Description section of the proposal must use (or include the information requested on) the GOALI Project Proposal Form shown below to be considered as responsive to this solicitation.

<b>GOALI Project Proposal Form (Snapshot)</b>	
Project Title:	
University Participant:	
Industry Participant:	
Project head (PI):	
Total NSF Request: \$	
Project Description:	
Experimental plan:	
Related work elsewhere:	
Is this project unique or if it is based on previous research, how does it differ?	
Milestones:	
Deliverables:	
How the project may be transformative and/or benefit society:	
Potential Commercialization:	
Estimated Start Date:	Estimated Completion Date:

Other pages of the proposal should be used to provide details on the information provided on the one page Project Proposal Form.

#### Program 2: Faculty and Students in Industry (requests for supplemental funding to existing NSF awards).

Opportunities are made available for academic personnel to gain research experience in an industrial setting. Industrial partners can help frame the research and refine the projects for relevancy. The request for supplemental funding must include the research and education plans, industry-university collaboration plan, and facilities and resources that will be available to support the research during the visit. Students must provide a résumé showing their special qualifications, and a statement of planned interactions with the academic advisor and industrial mentor. Postdoctoral fellows must include a résumé, a professional goal statement, and a statement of planned interaction with the academic advisor and industrial mentor. Supplemental funding requests must contain a supporting letter from the industrial mentor for students or postdoctoral fellows. The following Faculty and Students in Industry opportunities may be considered:

*Faculty-in-Industry* - for science, engineering, and mathematics faculty to conduct research for three to twelve months in industry.

*Budget* - Faculty-in-Industry awards will typically range from \$30,000 to \$75,000 for up to one year and may include a portion of the faculty salary and fringe benefits during the industrial residency period. Up to 20 percent of the total requested amount may be used for travel and research expenses for the faculty and his/her students, including materials but excluding equipment. Faculty in Industry proposals must include clear evidence of the institution's partnership with industry.

*Postdoctoral Industrial Fellowship* - for engineering, science, and mathematics fellows for full-time work in industry under the guidance of an academic advisor and an industrial mentor. *Budget:* The total amount of support to be provided to the Fellow by the institution is \$75,000 (inclusive) for a 12-month period. The \$75,000 includes: stipend/salary plus benefits, research expenses such as materials & supplies, publication costs, computer, travel, and moving expenses.

*Graduate Student Industrial Fellowship/Traineeship - for science, engineering, and mathematics graduate students for full or part-time work in industry in an area related to his/her research under the guidance of an academic advisor and an industrial mentor. Supplemental funding requests must include plans for managing the project and evaluating the outcomes and the commitment of both academic advisor and industrial mentor. Budget: Awards will be for up to one year with award amounts typically up to \$30,000, and may include the following: a stipend of \$1,500 to \$1,800 per month for one to four semesters (3 to 24 months); transportation expenses for the graduate student; and up to \$2,500 allowance for the faculty advisor for research-related expenses.*

*Undergraduate Student Industrial Fellowship/Traineeship - for engineering, science, and mathematics undergraduate students for summer projects, or one to two semesters of part-time or full-time work in industry in an area related to his/her academic program under the guidance of an academic advisor and an industry mentor. Supplemental funding requests must include plans for managing the project and evaluating the outcomes and the commitment of both academic advisor and industrial mentor. Budget: Awards include annual stipends in amounts typically \$10,000. Total project costs are expected to be typically \$500 to \$800 per student per week and may include some assistance with housing, or travel expenses, or both.*

### **Program 3: Industry Engineers and Scientists in Academe (requests for supplemental funding to existing NSF awards).**

Opportunities are made available for industry personnel to interact with the academic community. The request for supplemental funding is submitted by the host university on behalf of an academic principal investigator or the student's advisor and a co-principal investigator or student's co-advisor from industry. The visitor must maintain his/her initial affiliation in industry during the project. Supplemental funding requests for Industry Presence on Campus awards must include the objectives of the research/educational project, and a plan of the industry-university interaction on campus. Supplemental funding requests for Industry-Based Graduate Assistantships must include the research plan, a résumé of the graduate student showing the student's special qualifications, training arrangements, description of the facilities, and graduate student working conditions. Two examples for the Industry Engineers and Scientists in Academe opportunity are:

*Industry Presence on Campus - for industrial engineers and scientists to visit academe for two to twelve months to catalyze collaborative research or provide innovations in teaching and engineering curricula, or both. Flexibility of time periods within the duration of an award may be accommodated. Budget: Supplement awards are for a maximum of \$75,000 for up to one year. The supplement award may include part-time salary support for the visiting specialist(s); expenses for student projects; teaching enhancement; and visits of faculty and students to the industrial site.*

*Industry-Based Graduate Assistantship - for part-time science and engineering students, with permanent positions in industry to continue their graduate studies, particularly toward the Ph.D. The stipend will partially support the time necessary for course work and interaction with a faculty research advisor. Supplement awards are limited to \$30,000 per year for one year including indirect cost. A statement detailing the contributions by industry is required and will be considered in the determination of an award.*

## **III. AWARD INFORMATION**

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Estimated program budget, number of awards and average award size/duration are subject to the availability of funds. Please see the solicitation description for additional information. All awards are subject to the availability of funds and quality of proposals. NSF funds cannot be used by the industry GOALI partner and are only available for the academic institution.

## **IV. ELIGIBILITY INFORMATION**

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### **Who May Submit Proposals:**

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

### **Who May Serve as PI:**

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.

### **Limit on Number of Proposals per Organization:**

There are no restrictions or limits.

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

There are no restrictions or limits.

## **V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS**

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### **A. Proposal Preparation Instructions**

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**Full Proposal Preparation Instructions:** Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of



the GPG is available electronically on the NSF website at: [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpg](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg). Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov). Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of 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](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov).

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.5 of the Grant Proposal Guide provides additional information on collaborative proposals.

See Chapter II.C.2 of the GPG for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the GPG instructions.

**Supplemental funding requests must be submitted via the NSF FastLane system.**

**Before submitting a GOALI proposal:**

Read the entire solicitation. There are a few things you need to do before trying to submit a GOALI proposal to NSF. These are:

1. Identify and contact the specific NSF disciplinary program officer who handles the type of research that you are planning to propose or who best matches your discipline area. Use the NSF organization phone directory at <http://www.nsf.gov/staff/orglist.jsp> to narrow the directorate, division, and program where you need to apply. The GOALI program office cannot take the place of the disciplinary program officer with respect to this requirement.
2. Discuss your proposal with the disciplinary program officer to find out:
  - If your proposed project is within the scope of the program (in some NSF directorates, the GOALI office may only co-fund or provide management support), and
  - If not readily apparent from the website, when the proposal submissions dates are open for that program.

### **GOALI Submission Instructions**

Unless otherwise instructed by the program officer, submit your proposal to the program for your discipline as an unsolicited proposal. The title of your project will start with "GOALI:" and then the normal title of your project. Again, do NOT submit a proposal directly to the GOALI Solicitation unless instructed by the program director to do so as this document is only a vehicle to describe this special opportunity for unsolicited proposals.

The following instructions *must* also be followed in preparing the GOALI proposal for NSF:

- Industrial co-PI must be listed on the cover page at the time of submission; know that the industrial participant cannot use or receive any of the NSF funds.
- The Project Summary must address in separate statements the intellectual merit and the broader impacts of the proposed activity and, within the context of these two statements, the value added by the proposed industrial collaboration; and
- The PI is encouraged to list at least two prospective reviewers who may be familiar with the subject of the proposal including persons from industry.

Collaborations with foreign companies must be justified by significant benefits to the U.S. researcher and education enterprise, and overall benefits for the U.S. The proposal must address how distant teams will be enabled for collaboration and industry/university interactions.

The industry-university interaction must be presented in the "Proposal Description".

All commitment letters, industry-university agreement letters on intellectual property, and documentation of collaborative arrangements of significance to the proposal should be provided as supplementary documentation. This supplementary documentation will not be counted towards the 15-page Project Description limitation.

- A letter from the industrial partner must confirm the participation of a co-PI or co-advisor from industry. If applicable, the letter must also state the degree of industry participation and detail any support that the industry is providing to the academic partner.
- Intellectual Property (IP) - Academic and industry partners must agree in advance as to how intellectual property rights will be handled. An industry-university agreement on intellectual property including publication and patent rights must be submitted prior to an award. Documentation outlining the IP agreement should be submitted with the proposal, and the signed agreement must be submitted by the date of award. NSF will examine this document to ensure that the graduation of students will not be unduly affected.

## **B. Budgetary Information**

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**Cost Sharing:** Inclusion of voluntary committed cost sharing is prohibited.

## **C. Due Dates**

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- **Supplement Due Date(s)** (due by 5 p.m. proposer's local time):

Proposals Accepted Anytime



Please discuss with the appropriate disciplinary program office prior to submitting a request for supplemental funding.

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

Proposals Accepted Anytime

Please contact the appropriate disciplinary program office to obtain information about current deadline dates.

Proposal submission dates vary by disciplinary program.

## D. FastLane/Grants.gov Requirements

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### For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions available at: <https://www.fastlane.nsf.gov/a1/newstan.htm>. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail [fastlane@nsf.gov](mailto:fastlane@nsf.gov). The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

### For Proposals Submitted Via Grants.gov:

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: <http://www.grants.gov/web/grants/applicants.html>. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: [support@grants.gov](mailto:support@grants.gov). The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

**Submitting the Proposal:** Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

Proposers that submitted via FastLane are strongly encouraged to use FastLane to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

## VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

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Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in the GPG as [Exhibit III-1](#).

A comprehensive description of the Foundation's merit review process is available on the NSF website at: [http://nsf.gov/bfa/dias/policy/merit\\_review/](http://nsf.gov/bfa/dias/policy/merit_review/).

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in [Investing in Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014-2018](#). These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

## A. Merit Review Principles and Criteria

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The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to

support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

## 1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- 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. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- 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. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

## 2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. ([GPG Chapter II.C.2.d.i.](#) contains additional information for use by proposers in development of the Project Description section of the proposal.) Reviewers are strongly encouraged to review the criteria, including [GPG Chapter II.C.2.d.i.](#), prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be 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.

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 organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

### Additional Solicitation Specific Review Criteria

Reviewers may be asked to evaluate the measurable industry collaboration (degree and extent to which industries appear to be involved with the proposed research) and the extent to which students and/or post-doctoral associates will benefit from the interaction. Ideally the proposed research should be transformative, beneficial to industry, and provide for collaboration between the academic and industry partners. Reviewers may also review supplemental funding requests and may evaluate the degree of industry participation that may occur with industry engineers and scientists.

## B. Review and Selection Process

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Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review, or Internal NSF Review.

Proposals will be reviewed in accordance with NSF policy. For specific details on the review process, please contact the disciplinary program office receiving the proposal.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will be completed and submitted by each reviewer. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF strives to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new awardees may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

After programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications. After an administrative review has occurred, Grants and Agreements Officers perform the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

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## VII. AWARD ADMINISTRATION INFORMATION

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### A. Notification of the Award

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Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process).

### B. Award Conditions

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An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)\*; or Research Terms and Conditions\* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

\*These documents may be accessed electronically on NSF's Website at [http://www.nsf.gov/awards/managing/award\\_conditions.jsp?org=NSF](http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF). Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov).

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=aag](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag).

### C. Reporting Requirements

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For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). Within 90 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=aag](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag).

## VIII. AGENCY CONTACTS

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Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Rathindra DasGupta, telephone: (703) 292-8353, email: [rdasgupt@nsf.gov](mailto:rdasgupt@nsf.gov)
- Clark Cooper, GOALI Program, Head of OMA, Directorate for Mathematical and Physical Sciences, 1005 N, telephone: (703) 292-7899, email: [ccooper@nsf.gov](mailto:ccooper@nsf.gov)
- William S. Bainbridge, GOALI Program, Program Director, Information and Intelligent Systems, Directorate for Computer & Information Science & Engineering, 1125S, telephone: (703) 292-8930, email: [wbainbri@nsf.gov](mailto:wbainbri@nsf.gov)
- John C. Cherniavsky, GOALI Program, Senior EHR Advisor for Research, Directorate for Education and Human Resources, 855S, telephone: (703) 292-5136, email: [jchernia@nsf.gov](mailto:jchernia@nsf.gov)
- Leonard E. Johnson, GOALI Program, Program Director, Division of Earth Sciences, Directorate for Geosciences, 785S, telephone: (703) 292-8559, email: [lejohnso@nsf.gov](mailto:lejohnso@nsf.gov)
- Graham M. Harrison, GOALI Program, Program Director, Office of International Science and Engineering, 1155, telephone: (703) 292-7252, email: [gharriso@nsf.gov](mailto:gharriso@nsf.gov)
- Fahmida N. Chowdhury, GOALI Program, Program Director, Office of Multidisciplinary Activities, Directorate for Social, Behavioral & Economics Sciences, 905N, telephone: (703) 292-4672, email: [fchowdhu@nsf.gov](mailto:fchowdhu@nsf.gov)
- Diane J. Okamuro, GOALI Program, Program Director, Integrative Organismal Systems, Directorate for Biological Sciences, 690N, telephone: (703) 292-4400, email: [dokamuro@nsf.gov](mailto:dokamuro@nsf.gov)

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: [fastlane@nsf.gov](mailto:fastlane@nsf.gov).

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: [support@grants.gov](mailto:support@grants.gov).

## IX. OTHER INFORMATION

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The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "NSF Update" is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF [Grants Conferences](#). Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on [NSF's website](#).

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this mechanism. Further information on Grants.gov may be obtained at <http://www.grants.gov>.

Other programs may be of interest to those seeking GOALI opportunities. Please check the NSF website for the latest opportunities in the following programs:

- NSF Graduate STEM Fellows in K-12 Education (GK-12)
- Integrative Graduate Education and Research Traineeship Program (IGERT)
- Developing Global Scientists and Engineers
- Industry/University Cooperative Research Centers Program
- Partnerships for Innovation (PFI)
- Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs

## ABOUT THE NATIONAL SCIENCE FOUNDATION

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The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US

participation in international scientific and engineering efforts, and educational activities at every academic level.

*Facilitation Awards for Scientists and Engineers with Disabilities* provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at <http://www.nsf.gov>

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**
  - Send an e-mail to: [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov)
  - or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

## PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, [NSF-50](#), "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and [NSF-51](#), "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0023. Public reporting burden for this collection of information is estimated to average 12 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton  
Reports Clearance Officer  
Office of the General Counsel  
National Science Foundation  
Arlington, VA 22230

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