Broadening Participation Research Initiation Grants in Engineering 2012 (BRIGE)

PROGRAM SOLICITATION
NSF 11-576

REPLACES DOCUMENT(S):
NSF 10-609

National Science Foundation

Directorate for Engineering
  Division of Chemical, Bioengineering, Environmental, and Transport Systems
  Division of Civil, Mechanical and Manufacturing Innovation
  Division of Electrical, Communications and Cyber Systems
  Engineering Education and Centers
  Industrial Innovation and Partnerships

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

   January 20, 2012

IMPORTANT INFORMATION AND REVISION NOTES

A new solicitation for the BRIGE program is in preparation for a Fiscal Year 13 competition. The due date for full proposals will be determined at a later time, but will be no fewer than 90 days from the date of posting of the solicitation. NSF advises that potential PIs should delay preparation of proposals until the new solicitation is released.

A revised version of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), NSF 11-1, was issued on October 1, 2010 and is effective for proposals submitted, or due, on or after January 18, 2011. Please be advised that the guidelines contained in NSF 11-1 apply to proposals submitted in response to this funding opportunity.

Cost Sharing: The PAPPG has been revised to implement the National Science Board's recommendations regarding cost sharing. Inclusion of voluntary committed cost sharing is prohibited. In order to assess the scope of the project, all organizational resources necessary for the project must be described in the Facilities, Equipment and Other Resources section of the proposal. The description should be narrative in nature and must not include any quantifiable financial information. Mandatory cost sharing will only be required when explicitly authorized by the NSF Director. See the PAPP Guide Part I: *Grant Proposal Guide (GPG)* Chapter II.C.2.g(xi) for further information about the implementation of these recommendations.

Data Management Plan: The PAPPG contains a clarification of NSF's long standing data policy. All proposals must describe plans for data management and sharing of the products of research, or assert the absence of the need for such plans. FastLane will not permit submission of a proposal that is missing a Data Management Plan. The Data Management Plan will be reviewed as part of the intellectual merit or broader impacts of the proposal, or both, as appropriate. Links to data management requirements and plans relevant to specific Directorates, Offices, Divisions, Programs, or other NSF units are available on the NSF website at: http://www.nsf.gov/bfa/dias/policy/dmp.jsp. See Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

Postdoctoral Researcher Mentoring Plan: As a reminder, each proposal that requests funding to support postdoctoral researchers must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals. Please be advised that if required, FastLane will not permit submission of a proposal that is missing a Postdoctoral Researcher Mentoring Plan. See Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

   Broadening Participation Research Initiation Grants in Engineering (BRIGE)

Synopsis of Program:

   A new solicitation for the BRIGE program is in preparation for a Fiscal Year 13 competition. The due date for full proposals will be determined at a later time, but will be no fewer than 90 days from the date of posting of the solicitation. NSF advises that potential PIs should delay preparation of proposals until the new solicitation is released.

To address the need to enhance diversity in its programs, the Directorate for Engineering (ENG) at the National Science Foundation is offering research initiation grants under the Broadening Participation Research Initiation Grants in Engineering program, **BRIGE**. ENG offers this BRIGE funding opportunity to all beginning engineers with the intent of increasing the diversity of researchers in the engineering disciplines. The goal of the BRIGE solicitation is to increase the number of proposals to the Directorate for Engineering from individuals who can serve as role models and mentors for an increasingly diverse engineering student population who will become the workforce of the future. BRIGE aims to support innovative research and diversity plans that contribute to recruiting and retaining a broad representation of engineering researchers especially those from groups that are underrepresented in the engineering population. **Throughout this solicitation, the term underrepresented groups will refer to and include the following: women, persons with disabilities, and ethnic/racial groups which are in the minority in engineering such as African Americans, Hispanics, Native Americans, Alaska Natives, and Pacific Islanders.**

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.

- Richard N. Smith, telephone: (703) 292-8071, email: rnsmith@nsf.gov

- Richard A. Cheville, EEC, telephone: (703) 292-7107, email: rchevill@nsf.gov

- Ted A. Conway, CBET, telephone: (703) 292-7091, email: tconway@nsf.gov

- Juan E. Figueroa, IIP, telephone: (703) 292-7054, email: jfiguero@nsf.gov

- Lawrence S. Goldberg, ECCS, telephone: (703) 292-8339, email: lgoldber@nsf.gov

- Mary Toney, CMMI, telephone: (703) 292-7008, email: mtoney@nsf.gov

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

- 47.041 --- Engineering

Award Information

Anticipated Type of Award: Standard Grant

Estimated Number of Awards: 25 to 30 awards

Anticipated Funding Amount: $5,000,000 anticipated program budget for FY 2012 pending the availability of funds.

Eligibility Information

Organization Limit:

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.

PI Limit:

Only one investigator per proposal is allowed; co-principal investigators and senior personnel are not permitted.

Principal investigators (PIs) must hold a primary position in an engineering department.

Support for graduate students and undergraduate students, especially underrepresented students, is highly encouraged. Collaborations with other scientists and/or researchers in other universities, industry, and national laboratories are encouraged but cannot receive funding.

See **Additional Eligibility Info** section for further information.

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI:

One per solicitation.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable

- **Preliminary Proposal Submission:** Not Applicable

- **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.

- 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)

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

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

    January 20, 2012

Proposal Review Information Criteria

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

Award Administration Information

Award Conditions: Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements: Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

The Directorate for Engineering (ENG) promotes diversity in all aspects of its programs. The BRIGE program is intended to be a vehicle to promote the participation of engineers from all segments of the engineering community, especially from under-represented groups. These BRIGE grants provide an opportunity to support engineering researchers early in their careers who share NSF's commitment to diversity in the following ways:

- Fund engineering research projects that use innovative ways to attract and retain members of underrepresented groups to careers in engineering.

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- Increase the number of engineering researchers at minority serving institutions actively and competitively engaged in research as independent investigators, thereby creating new research opportunities for students from underrepresented groups.

BRIGE seeks proposals that are innovative and transformative in terms of engineering research and promoting diversity in the fields of engineering. While both the Intellectual Merit and the Broader Impacts of the research proposal will be important in the review of the proposal, of equal importance will be the Broadening Participation Plan presented by the PI.

PIs must include a Broadening Participation Plan that describes activities that will broaden the participation of individuals from underrepresented groups in the engineering disciplines supported by ENG. Additionally, the BRIGE proposal should demonstrate the potential of the research initiation activities to produce sufficient preliminary results to serve as the basis for a future competitive research proposal to ENG.

II. PROGRAM DESCRIPTION

The establishment of the Broadening Participation Initiation Grant in Engineering (BRIGE) reflects the continuing effort by the Directorate for Engineering (ENG) to promote increased participation of new tenure track investigators starting their professional career in all fields of engineering research.

The purpose of the BRIGE program is to broaden the participation of and increase opportunities for the engineering workforce of the future including those from underrepresented groups in research activities, and to encourage individuals to become actively and competitively engaged in research as independent investigators in all disciplines of engineering.

The BRIGE awards are for beginning investigators (see Additional Eligibility Information below) to undertake activities such as exploratory investigations, acquisition of preliminary data, and development of collaborations. It is a specific goal of the BRIGE program that these activities will lead beginning investigators to formulate future competitive grant applications. Investigators are encouraged to develop future long-term research goals. Research proposed in this program must be within the scope of areas supported within the Directorate for Engineering.

The Broadening Participation Plans developed for BRIGE proposals should describe activities that will broaden the participation of individuals from underrepresented groups in the engineering disciplines supported by ENG. These activities should involve engineering research projects that use innovative ways to attract and retain members of underrepresented groups to careers in engineering. Additionally, the PIs will be expected to serve as role models and mentors for members of underrepresented groups that will make up the new generation of engineers.

It is the Directorate for Engineering's intent that the BRIGE program will make all ENG programs more inclusive in the future. Thus, one measure of success of this program will be the number of future proposals received by ENG from awardees of BRIGE grants and from members of underrepresented groups influenced or mentored by BRIGE awardees.

Principal investigators affiliated with Minority-Serving Institutions (MSIs) including Historically Black Colleges and Universities (HBCUs), Hispanic-serving Institutions (HSIs), Tribal Colleges and Universities (TCUs), and persons with disabilities are encouraged to apply.

III. AWARD INFORMATION

Anticipated Type of Award: Standard Grant. The Directorate for Engineering expects to invest $5,000,000 in the BRIGE program for FY 2012 and to fund 25 to 30 grants. The number of awards is subject to the availability of funds. The awards are limited to a maximum of $175,000 in total (direct plus indirect) costs for a duration of 24 months. Durations may be longer if circumstances warrant and are justified.

IV. ELIGIBILITY INFORMATION

Organization Limit:

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.

PI Limit:

Only one investigator per proposal is allowed; co-principal investigators and senior personnel are not permitted.

Principal investigators (PIs) must hold a primary position in an engineering department.

Support for graduate students and undergraduate students, especially underrepresented students, is highly encouraged. Collaborations with other scientists and/or researchers in other universities, industry, and national laboratories are encouraged but cannot receive funding.

See **Additional Eligibility Info** section for further information.

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI:

One per solicitation.

Additional Eligibility Info:

Principal investigators are eligible to apply to this BRIGE solicitation only if **all** of the following criteria are met at the time of submission deadline, January 20, 2012. The principal investigator:

- is a **citizen or permanent resident** of the United States;
- does **not** currently hold **a post-doctoral appointment**;
- is a **new investigator**, *i.e.*, has held any fulltime, tenure-track faculty position for **less than *three years*** on the date of proposal submission deadline, January 20, 2012. Tenure track positions at other universities prior to the current appointment must be included. Official leave from your position for illness or maternity, etc. may be subtracted from your total time in tenure track position if approval documentation from your institution is submitted in the Supplementary Docs section of the proposal; and
- has **NOT** previously served as principal investigator, co-PI, or senior personnel on **any research grants and/or contracts, the combined total of which exceeds $50,000.** Thus, the proposer's name cannot appear as PI or co-PI on the cover sheet of the grant(s) and/or contract(s), regardless of how much funding the proposer received on the grant or contract. Nor has the PI received any other *research funding* which would bring the combined total in excess of $50,000. Instrumentation and workshop grants and internal university start-up funding do not count toward the $50,000 maximum limit. Previous federal support through a doctoral dissertation improvement award, as a Fellow (post-doctoral or graduate), or through a fellowship research starter grant is not disqualifying. **NOTE: Please see Special Award Conditions in Section VII.B.**

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

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. 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. 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). 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.

Because of the special nature of BRIGE proposals, applicants are strongly encouraged to read this program solicitation in its entirety and the Frequently Asked Questions (FAQs) before sending inquiries to the program contacts listed in Section VIII of the solicitation.

In addition to following the general format contained in the GPG, proposals submitted in response to this program solicitation must also adhere to the following special instructions.

Cover Sheet: "**BRIGE:**" must precede the title of your research project in the title section of the NSF cover sheet.

The primary division for submission must be EEC; the secondary unit of consideration should be the ENG program within the CMMI, CBET, ECCS, or EEC division with which your proposed research is most closely affiliated.

Co-principal investigators or senior personnel are not permitted. Support for graduate students and undergraduate students is encouraged. Collaborations with other scientists and/or researchers in other universities, industry, or national laboratories are encouraged, but cannot receive funding.

Project Summary (one-page limit): Provide a succinct summary of the **intellectual merit** of the proposed project. This should include the transformative nature of the proposed research. Describe the **broader impacts** of the proposed work, including benefits to society, dissemination of work, enhancements to scientific knowledge, as well as how the proposed activity will **broaden participation** of underrepresented groups. Project summaries that do not contain separate paragraphs that are labeled and explicitly address both intellectual merit and broader impacts will be returned without review.

Project Description (15 page limit, including tables, figures, and other visual supplements): Provide a detailed statement of the proposed research and broadening participation activities to be undertaken. It should contain:

- A brief description of the PI's **overall research and education goals**.
- A **detailed description of the proposed research activities** including any preliminary data already available and

a description of data that the PI plans to obtain.
- The relationship of the proposed activities to the PI's projected **longer term research goals**.
- A discussion of how those activities will facilitate **development of subsequent research** proposals.

Current and Pending Support: Information must be provided for the PI for all research grants or contracts on which her/his name appears as a PI, co-PI, or senior personnel. **Do not list** any support for which you are not listed as a PI, co-PI, or senior personnel on the cover sheet or budget of the award. List this BRIGE proposal as **PENDING SUPPORT**.

Budget (see below for limitations, and consult the GPG for instructions on budget preparation)**:** Prepare a realistic project budget that is consistent with the proposed activities not to exceed $175,000 over two years.

- Proposed budgets must include funds for the PI to attend the annual BRIGE grantee's meetings.
- Budget Justification (not to exceed three pages) should explain each line item for which funds are requested. Major cost items or unusual situations should be explained in detail.

Facilities and Equipment: Provide a description of available facilities and priorities for its use, if applicable. Please note that this section is a required part of the proposal. If not applicable, the proposer should enter "Not applicable" in the Facilities, Equipment, and Other Resources section of the proposal.

Special Information and Supplementary Documentation: Include the following:

1. Broadening Participation Plan which includes specific explanation of how the proposed activities will broaden the participation of individuals from underrepresented groups in the engineering disciplines supported by ENG.

2. A letter from the PI's Department Chair or Dean which must include confirmation of the following criteria:

- The PI has **NOT** previously served as principal investigator, co-PI, or senior personnel on **any research grants and/or contracts, the combined total of which exceeds $50,000.** Thus, the proposer's name cannot appear as PI or co-PI on the cover sheet of the grant(s) and/or contract(s), regardless of how much funding the proposer received on the grant or contract. Nor has the PI received any other *research funding* which would bring the combined total in excess of $50,000. Instrumentation and workshop grants and internal university start-up funding do not count toward the $50,000 maximum limit. Previous federal support through a doctoral dissertation improvement award, as a Fellow (post-doctoral or graduate), or through a fellowship research starter grant is not disqualifying.
- The PI has held a fulltime, tenure-track faculty position for **less than *three years*** on the date of proposal submission deadline, January 20, 2012. Tenure-track positions at other universities prior to the current appointment must be included in the consideration for eligibility. Official leave of absence for illness or maternity, etc. may be subtracted from the total time in tenure-track position if approval documentation from the institution is submitted in the Supplementary Docs section of the proposal.
- The PI has availability to facilities and support for the research from her/his institution.
- The PI is a US citizen or permanent resident.

3. Documentation of official Leave of Absence, if applicable.

4. A **Post-Doctoral Mentoring Plan,** if post-docs will be supported.

5. A **Data Management Plan.**

6. Letters describing any **collaborative arrangements and commitments**.

Pre-Submission Checklist

- Proposal should follow the GPG guidelines and special instructions contained in this solicitation.
- One-page Project Summary which explicitly labels and addresses Intellectual Merit and Broader Impact.
- PI must state that she/he is either a U.S. citizen or a permanent resident (i.e. in bio sketch).
- Project Description includes:
  - A brief description of the PI's overall research and education goals,
  - A detailed description of the proposed research activities including any preliminary data already available and a description of data that the PI plans to obtain
  - PI's projected longer-term research goals, and
  - A discussion of how those activities will facilitate development of subsequent research proposals.
- Two-page bio sketch must comply with the NSF standard format.
- Proposal budget and budget justification; must include funds to attend annual Grantees' Conference.
- Current and Pending Support form must be submitted even if the proposer has no current support. List this BRIGE proposal as Pending Support.
- Broadening Participation Plan.
- Letter from the PI's Department Chair or Dean confirming the following criteria:
  - The PI has NOT previously served as principal investigator, co-PI, or senior personnel on any research grants and/or contracts, the combined total of which exceeds $50,000. Thus, the proposer's name cannot appear as PI or co-PI on the cover sheet of the grant(s) and/or contract(s), regardless of how much funding the proposer received on the grant or contract. Nor has the PI received any other *research funding* which would bring the combined total in excess of $50,000. Instrumentation and workshop grants and internal university start-up funding do not count toward the $50,000 maximum limit. Previous federal support through a doctoral dissertation improvement award, as a Fellow (post-doctoral or graduate), or through a fellowship research starter grant is not disqualifying.
  - The PI has held a fulltime, tenure-track faculty position for less than *three years* on the date of the proposal submission deadline, January 20, 2012. Tenure-track positions at other universities prior to the current appointment must be included in this consideration for eligibility.
  - The PI has availability to facilities and support for the research from her/his institution.
  - The PI is a US citizen or permanent resident.
- Documentation of official Leave of Absence, if applicable.
- Post-Doctoral Mentoring Plan, if post-docs will be supported.
- Data Management Plan
- Letters describing any collaborative arrangements and commitments.
- You are not eligible to submit a BRIGE proposal if you are a post-doctoral researcher.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

Budget Preparation Instructions: Funds should be budgeted for the PI to attend an annual two day Grantees' Conference in Arlington, VA.

C. Due Dates

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

    January 20, 2012

D. FastLane/Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

    Detailed technical instructions regarding the technical aspects of preparation and submission via FastLane are 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. 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.

    Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: https://www.fastlane.nsf.gov/fastlane.jsp.

- **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://www07.grants.gov/applicants/app_help_reso.jsp. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding 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. 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.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program where they will be reviewed if they meet NSF proposal preparation requirements. 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 who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the 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.

A. NSF Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgments.

> **What is the intellectual merit of the proposed activity?**
> How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?
How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf .

Mentoring activities provided to postdoctoral researchers supported on the project, as described in a one-page supplementary document, will be evaluated under the Broader Impacts criterion.

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf .

Mentoring activities provided to postdoctoral researchers supported on the project, as described in a one-page supplementary document, will be evaluated under the Broader Impacts criterion.

Additional Solicitation Specific Review Criteria

For BRIGE awards, of paramount importance are the intellectual merit and broader impacts of the proposed research as well as the extent to which the proposed Broadening Participation Plan activities will contribute to recruiting and retaining underrepresented groups in engineering.

Additionally, the proposal will be judged on the potential of the research initiation activities to produce sufficient preliminary results to serve as the basis for a future competitive research proposal to ENG. The PI should elaborate on her/his long term research goals.

NSF staff also will give careful consideration to the following in making funding decisions:

Integration of Research and Education
One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities
Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- 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.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. 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 is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, 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.

In all cases, 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 and 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.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

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

An NSF award consists of: (1) the award letter, 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 letter; (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 letter. 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. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from 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.

Special Award Conditions:

If the PI receives research support that contributes to a total which exceeds $50,000 between the time of the BRIGE proposal submission and the time of award, the proposal will not be eligible for an award.

C. Reporting Requirements

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 before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after 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 that PI. 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 FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project participants (individual and organizational), publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report 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.

In addition to the standard NSF reporting requirements, three additional statements are required:

1. An explanation of how the award contributed to broadening participation of underrepresented groups in the engineering workforce, particularly in the engineering disciplines supported by ENG.
2. Highlights of interesting research results and/or students or faculty activities.
3. A description of how the results of the award will contribute to the submission of a future NSF research proposal.

Awardees will be required to attend and present their research results and plans as well as broadening participation activities annually at an annual BRIGE Grantees' Conference for the duration for their award.

VIII. AGENCY CONTACTS

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:

- Richard N. Smith, telephone: (703) 292-8071, email: rnsmith@nsf.gov

- Richard A. Cheville, EEC, telephone: (703) 292-7107, email: rchevill@nsf.gov

- Ted A. Conway, CBET, telephone: (703) 292-7091, email: tconway@nsf.gov

- Juan E. Figueroa, IIP, telephone: (703) 292-7054, email: jfiguero@nsf.gov

- Lawrence S. Goldberg, ECCS, telephone: (703) 292-8339, email: lgoldber@nsf.gov

- Mary Toney, CMMI, telephone: (703) 292-7008, email: mtoney@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: 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.

IX. OTHER INFORMATION

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, National Science Foundation Update is a free e-mail subscription service 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 Regional Grants Conferences. Subscribers are informed through e-mail when new publications are issued that match their identified interests. Users can subscribe to this service by clicking the "Get NSF Updates by Email" link on the NSF web site.

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

ABOUT THE NATIONAL SCIENCE FOUNDATION

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:**

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    or telephone: (703) 292-7827

- **To Locate NSF Employees:** (703) 292-5111

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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 3145-0058. Public reporting burden for this collection of information is estimated to average 120 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
Division of Administrative Services
National Science Foundation
Arlington, VA 22230

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