

International Collaborations in Organismal Biology Between US and Israeli Investigators (ICOB)

PROGRAM SOLICITATION NSF 12-577



National Science Foundation

Directorate for Biological Sciences
Division of Integrative Organismal Systems

Preliminary Proposal Due Date(s) (required) (due by 5 p.m. proposer's local time):

September 04, 2012

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

December 03, 2012

IMPORTANT INFORMATION AND REVISION NOTES

- **This is a new program. Please read this Program Solicitation carefully before preparing a preliminary proposal and consult with a Program Director if you have any questions about the suitability of your proposal for the ICOB Program.**
- Applications must include a US and Israeli PI and should focus on a scientific area that is supported by the Division of Integrative Organismal Systems (IOS) core programs or Plant Genome Research Program at NSF.
- Preliminary proposals are required
- A US investigator may participate as a PI, Co-PI, or other senior personnel in only **one proposal** submitted to this solicitation.

Important Reminders

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:

International Collaborations in Organismal Biology Between US and Israeli Investigators (ICOB)

Synopsis of Program:

The National Science Foundation (NSF) is partnering with the United States-Israel Binational Science Foundation (BSF) to support collaborative research between US and Israeli investigators in areas of biology supported by the

NSF Division of Integrative Organismal Systems. The Division of Integrative Organismal Systems (IOS) supports research aimed at an integrative understanding of organisms. The goal is to predict why organisms are structured the way they are, and function as they do. Projects that innovatively apply systems biology approaches, i.e. approaches that combine experimentation, computation, and modeling, and which lead to new conceptual and theoretical insights and predictions about integrated organismal properties that may be experimentally verified, are particularly encouraged.

In the context of greater accessibility to ever-expanding and increasingly detailed biological information, the overriding objective of IOS is to support research to understand the fundamental nature of life by understanding the emergent properties of organisms. Some of these properties include but are not restricted to: complexity (how interwoven organismal components or processes produce more than a sum of their parts), robustness (the degree to which an organism resists perturbation or stressful influences); communication (the processes that enable individual components in a system to instruct one another or alter one another's behavior); resilience (the ability to recover from perturbation or stress), adaptability (the capacity of organisms to change in response to perturbations in ways that maintain overall organismal integrity), and cooperation (behaviors of cells or organisms that benefit more than the individual). These emergent properties can be understood through studies of the evolution, development, behavior, regulatory processes and structural properties of all organisms. Therefore comparative studies and the use of a wide variety of organisms as models are encouraged.

Understanding these emergent, systems properties of organisms requires integrative, interdisciplinary approaches. The Division encourages proposals that include analyses across multiple levels of biological organization, from molecular through ecological, theoretical as well as advanced computational techniques, and interdisciplinary collaborations involving scientists from all areas of biology, behavioral science, physical science, mathematics, engineering, and computer science.

The scientific emphases of IOS are:

- BEHAVIORAL SYSTEMS
- DEVELOPMENTAL SYSTEMS
- NEURAL SYSTEMS
- PHYSIOLOGICAL AND STRUCTURAL SYSTEMS
- PLANT GENOME RESEARCH

BSF supports a wide range of basic research, including the areas of biology supported by IOS. Proposers are encouraged to consult the IOS (<http://www.nsf.gov/div/index.jsp?org=IOS>) and BSF (<http://www.bsf.org.il/BSFPublic/Default.aspx>) program descriptions prior to development of a proposal.

Proposals are expected to include substantial collaborative activities between US and Israeli investigators. Proposers are strongly encouraged to develop joint activities that are synergistic and have added value over and above individual activities. Proposals that address aspects of organism-environment interactions and organismal adaptation are especially encouraged.

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.

- Michelle Elekonich, Science Advisor, telephone: (703) 292-7202, email: melekoni@nsf.gov

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

- 47.074 --- Biological Sciences

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 10 to 40

Anticipated Funding Amount: \$2,500,000

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.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI: 1

A US investigator may participate as a PI, Co-PI or other senior personnel in only one proposal submitted in response to this solicitation.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable
- **Preliminary Proposals:** Submission of Preliminary Proposals is required. Please see the full text of this solicitation for further information.
- **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

- **Preliminary Proposal Due Date(s) (required)** (due by 5 p.m. proposer's local time):
September 04, 2012
- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):
December 03, 2012

Proposal Review Information Criteria

Merit Review Criteria: National Science Board approved criteria apply.

Award Administration Information

Award Conditions: Standard NSF award conditions apply.

Reporting Requirements: Standard NSF reporting requirements apply.

TABLE OF CONTENTS

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. NSF Merit Review 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

Recognizing the importance of international collaboration in promoting scientific discovery, the National Science Foundation (NSF) and the United States-Israel Binational Science Foundation (BSF) seek to enhance opportunities for collaborative activities in organismal biology between US and Israeli investigators. The NSF Division of Integrative Organismal Systems will accept new bilateral collaborative research proposals with BSF that are not currently funded by other sources. The proposed projects must have clear relevance to science supported by IOS and BSF as well as a clear synergy over and above projects funded by the individual agencies. Proposals that address aspects of organism-environment interactions and organismal adaptation are especially encouraged.

II. PROGRAM DESCRIPTION

The National Science Foundation (NSF) seeks to enhance opportunities for collaborative activities between US and Israeli investigators. Towards this goal, the Division of Integrative Organismal Systems (IOS) in the Biological Sciences Directorate at NSF and the United States-Israel Binational Science Foundation (BSF) are partnering to support collaborative projects between US and Israeli investigators in areas of research supported by IOS and BSF.

The International Collaborations in Organismal Biology (ICOB) seeks new and highly innovative three-year collaborative projects that break new ground, make use of unique resources and capabilities in Israel and the US, and demonstrate a high level of synergy between the collaborating investigators. Formation of new collaborations is strongly encouraged. The ICOB program will only accept basic research proposals that clearly fit the scope of the following programmatic areas in IOS:

- Behavioral Systems
- Developmental Systems
- Neural Systems
- Physiological and Structural Systems
- Plant Genome Research

A description of these programmatic areas can be found at <http://www.nsf.gov/div/index.jsp?div=IOS>. Both the NSF and BSF (<http://www.bsf.org.il/BSFPublic/Default.aspx>) web pages should be consulted carefully to ensure programmatic fit prior to submission of a preliminary proposal. **Principal Investigators are strongly encouraged to contact a Program Director to confirm the suitability of a project for this competition prior to submission of a preliminary proposal.**

Investigators who have been collaborators in the past must demonstrate in the preliminary proposal and full proposal (if encouraged) that the proposed project represents a new research direction for the collaborative team and is not a continuation of ongoing studies. The ICOB Program will *not* accept proposals that overlap significantly with projects currently funded by NSF or BSF.

The ICOB Program requires that US applicants allocate significant financial resources in their requested budget to ensure meaningful participation of students, postdoctoral researchers, and junior investigators, including those from underrepresented groups, in the proposed collaboration through extended research visits of 3-10 weeks in the international collaborator's laboratory. The ICOB Program also encourages the development and use of infrastructure to increase the synergy of the proposed research.

III. AWARD INFORMATION

NSF expects to fund 10-40 standard or continuing awards. Approximately \$2,500,000 is available in the first year pending availability of funds. Subsequent rounds will depend on further availability of funds. Israeli partners will be funded by BSF. The anticipated date of awards: July 2013.

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.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI: 1

A US investigator may participate as a PI, Co-PI or other senior personnel in only one proposal submitted in response to this solicitation.

Additional Eligibility Info:

Applications must include a US and Israeli Principal Investigator.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Preliminary Proposals (required): Preliminary proposals are required and must be submitted via the NSF FastLane system, even if full proposals will be submitted via Grants.gov.

Preliminary Proposal Submission Requirements

Preliminary proposals must be submitted to NSF by the US Principal Investigator. The same preliminary proposal must be submitted by the Israeli PI to BSF following the instructions for proposal preparation and submission given in the separate call for this collaborative program.

Preliminary proposals are required and must be submitted via the NSF FastLane system, even if full proposals will be submitted via Grants.gov.

- 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 email from nsfpubs@nsf.gov.

The following exceptions and additions to the GPG guidelines apply to preliminary proposals submitted to this Program:

- Submission of a Preliminary Proposal is required to be eligible for encouragement for a Full Proposal. Proposals that are not compliant with the guidelines may be returned without review. It is the submitting organization's responsibility to ensure that the proposal is compliant with all applicable guidelines.
- Preliminary proposals must contain the items listed below and adhere strictly to the specified page limitations. No additional information may be provided as an appendix or by links to Web pages. Figures and tables must be included within the applicable page limit. All elements of the proposal, including legends and tables, must meet the formatting requirements for font size, characters per inch, margins, etc. as specified in the GPG.

Preliminary Proposal Content and Page Limit

Preliminary proposals must adhere to the general guidelines described in NSF's Grant Proposal Guide (GPG), except as specified below.

- Cover Sheet:** Select the program solicitation number from the pull-down list. Check the box indicated for the preliminary proposal. Entries on the Cover Sheet are limited to the Principal Investigator and a maximum of four-co-principal investigators. Beginning Investigators (individuals who have not been a Principal Investigator [PI] or co-Principal Investigator [co-PI] on a Federally-funded award with the exception of doctoral dissertation, postdoctoral fellowship or research planning grants) must check the box for "Beginning Investigator" on the proposal Cover Sheet. For more FastLane instructions, see section V.D. below. In addition, the US PI should check the box "International Cooperative Activities" listed under Other Information and identify Israel as the country involved. The Cover Sheet should identify the IOS Program to consider the application and list the names and affiliations of the US investigators. The PI must select the option indicating that this a preliminary proposal. To ensure correct processing in FastLane, enter \$2 as the requested amount.
- Title of Proposed Project:** The title of the proposal to NSF should begin "ICOB:...".
- Project Description (maximum 5 pages total):** Include the following sections:
 - Section 1:** List the name, affiliation and contact information (phone number and email address) of the Israeli Principal Investigator.
 - Section 2:** List the IOS Program to which the preliminary proposal is submitted and state why the proposal is appropriate to this BIO/IOS program.
 - Section 3:** Describe the proposed research problem, including a research outline and any key preliminary results or publications supporting feasibility of the proposed approach.
 - Section 4:** Describe the role and expertise of each collaborative investigator, the collaborative approach to be used, and anticipated synergies.
 - Section 5:** Describe the plan to facilitate meaningful involvement of students, postdoctoral researchers, and junior investigators in the proposed research, including international training experiences.
- References Cited:** Up to 10 key references may be cited to provide context for the proposed research. The References Cited section will not count against the 5-page limit for the preliminary proposal project description.
- Biographical Sketch:** (2-page limit for each) should be included for each US Investigator listed on the Cover page. It should include the individual's expertise as related to the proposed research, professional preparation, professional appointments, five relevant publications, five additional publications, and up to five synergistic activities. Advisors, advisees, and collaborators should not be listed on this document, but in a separate table (see below). For the Israeli Principal Investigator, the biographical sketch should be limited to 2 pages and be included in the Supplementary Documents section of the proposal.
- Current and Pending Support:** For the US Principal Investigator, a Current and Pending Support Statement should be

submitted using the NSF format specified in the GPG. For the Israeli Principal Investigator, information about current and pending support should be included in the Supplementary Documents section of the proposal.

- **No budget should be submitted**; however, please enter \$2 in the Requested Amount box on the FastLane Cover Sheet (this entry allows correct FastLane processing).
- **Combined Conflict of Interest document.** In **Single-Copy Documents**, upload a single, alphabetized table identifying conflicts of interest for all persons listed on the first page of the project description. The table should list (by column): (A) full names (last, first), (B) institutional affiliations, (C) type of conflict, and (D) Name of PI/co-PI/senior personnel having the conflict. The table should be alphabetized on column (A). Conflicts to be identified are (1) Ph.D. dissertation advisors or advisees, (2) collaborators or co-authors, including postdoctoral researchers, for the past 48 months, (3) co-editors within the past 24 months, (4) spouse or other relative, and (5) any other individuals with whom, or institutions with which, the senior personnel (PI, co-PIs, and any named personnel) have financial ties, including advisory committees (specify type), boards of directors, or prospective employees.

Applicants must include the above documents (prepared in accordance with standard NSF formatting guidelines). Other documents, including Facilities, Equipment and Other Resources; Budget and Budget Justification; Data Management Plan; and Postdoctoral Mentoring Plan are not required of preliminary proposals and should not be included.

Other than the biographical sketch and current and pending support for Israeli Principal Investigators listed above, no other supplementary documents or appendices are permitted for preliminary proposals.

Preliminary Proposal Review Procedure

The preliminary proposals will be reviewed by NSF and BSF. At NSF, the preliminary proposals will be reviewed programmatically for their fit with research areas supported by IOS. A detailed description of IOS programs can be found at <http://www.nsf.gov/div/index.jsp?div=IOS>.

The preliminary proposals will also be reviewed to ensure that the proposed projects do not overlap significantly with projects that are already funded by NSF or other US funding agencies. The Program will discourage submission of full proposals if the proposed research is considered an incremental advance over currently-funded research in the US PI's laboratory. Upon completion of the review preliminary proposals, NSF and BSF will make a joint decision whether to encourage or discourage submission of full proposals to the ICOB Program. While submitters of both favorably and unfavorably reviewed preliminary proposals are eligible to submit full proposals, before deciding to proceed, PIs are urged to carefully consider the feedback to make sure concerns can be addressed in a full proposal. Investigators will be notified of the decision 60 days prior to the full proposal submission deadline whenever possible.

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.

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.4 of the Grant Proposal Guide provides additional information on collaborative proposals.

The following guidelines should be used in addition to those provided in the NSF Grant Proposal Guide or NSF Grants.gov Application Guide:

- On the Proposal Cover Sheet, the title of the proposal to NSF should begin "ICOB:...". In addition, the US PI should check the box labeled " International Cooperative Activities" listed under "Other Information" and identify Israel.
- The duration of the project should be three years for both the US and Israeli sides of the collaboration
- The Project Summary, which is limited to one page, must address in separate statements the Intellectual Merit and Broader Impacts of the proposed activity as well as the value added by the proposed international collaboration. PIs are strongly encouraged to use separate headings for these three sections.
- The Project Description, which is limited to 15 pages, should clearly state the need for, and the anticipated scientific benefits of, the proposal international collaboration as well as the intellectual contribution of each collaborator to the proposed project, and a timeline should be provided. The Project Description must also describe the plans for meaningful involvement of students, postdoctoral researchers, and junior investigators, including those from underrepresented groups, through extended research visits in the international collaborator's laboratory.
- Information pertinent to the Israeli PI will be submitted as a single Supplementary Document through NSF FastLane or Grants.gov. This Supplementary Document must contain the Israeli PI's budget request from BSF, a Current and Pending Support Statement, a list of resources (facilities and equipment available for this collaborative project, and a two-page Biographical Sketch.
- The proposal must provide a Postdoctoral Mentoring Plan as a Supplementary Document (if funds are requested for postdoctoral researchers) and a Data Management Plan, as described in the NSF Grant Proposal Guide.
- **Combined Conflict of Interest document.** In **Single-Copy Documents**, upload a single, alphabetized table identifying

conflicts of interest for all persons listed on the first page of the project description. The table should list (by column): (A) full names (last, first), (B) institutional affiliations, (C) type of conflict, and (D) Name of PI/co-PI/senior personnel having the conflict. The table should be alphabetized on column (A). Conflicts to be identified are (1) Ph.D. dissertation advisors or advisees, (2) collaborators or co-authors, including postdoctoral researchers, for the past 48 months, (3) co-editors within the past 24 months, (4) spouse or other relative, and (5) any other individuals with whom, or institutions with which, the senior personnel (PI, co-PIs, and any named personnel) have financial ties, including advisory committees (specify type), boards of directors, or prospective employees.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

C. Due Dates

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

September 04, 2012

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

December 03, 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.

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 Ad hoc Review and/or 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.

NSF will coordinate and manage the review of proposals jointly with BSF. Relevant information about proposals and reviews of proposals will be shared between the participating organizations as appropriate.

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.

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.

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:

- Michelle Elekonich, Science Advisor, telephone: (703) 292-7202, email: melekoni@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:**
 - Send an e-mail to: 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 3145-0058. 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