

International Research Fellowship Program (IRFP)

PROGRAM SOLICITATION

NSF 06-582

REPLACES DOCUMENT(S):

NSF 05-599



National Science Foundation

Office of International Science and Engineering

Full Proposal Target Date(s):

October 03, 2006

September 11, 2007

Second Tuesday in September, Annually Thereafter

September 09, 2008

Second Tuesday in September, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

The revision:

- re-words the synopsis in light of the change in NSF's strategic plan from People, Ideas and Tools
- clarifies application instructions;
- changes the eligibility criteria for time past the Ph.D. from three years to two;
- states that NSF does not support research in clinical medicine or disease-related research (statement not included in last version);
- adds note on requirement to address Intellectual Merit and Broader Impacts in the Project Summary;
- adds requirement that the foreign host cannot be an American national;
- corrects the minimum living allowance from \$500 to \$2,500;
- clarifies allowable dependent expenses: dependent allowance for the foreign period only; dependent insurance allowance for entire fellowship period; and the price of only one ticket over and back;
- adds that the host cv should conform to NSF guidelines;
- defines re-entry period;
- limits institutional allowance to \$500 per month maximum;
- adds instruction to contact Program Manager before applying if applicant has previous international research experience;
- adds instruction to indicate disposition of equipment at the end of the fellowship.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide (PAPPG) (NSF 16-1)*, which is effective for proposals submitted, or due, on or after January 25, 2016.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

International Research Fellowship Program (IRFP)

Synopsis of Program:

The objective of the International Research Fellowship Program (IRFP) is to introduce scientists and engineers in the early stages of their careers to international collaborative research opportunities, thereby furthering their research capacity and global perspective and forging long-term relationships with scientists, technologists and engineers abroad. These awards are available in any field of science and engineering research and education supported by the NSF.

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.

- Cassidy Burke, Program Analyst, 1155 II, telephone: (703) 292-2464, email: cburke@nsf.gov

- Thomasina P. Edwards, 1155 II, telephone: (703) 292-7244, email: tedwards@nsf.gov

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

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

Award Information

Anticipated Type of Award: Fellowship

Estimated Number of Awards: 30 to 35 Approximately 30-35 fellowships will be offered each year to U.S. investigators for research abroad.

Anticipated Funding Amount: \$3,500,000 Total program support will be approximately \$3.5 million in each fiscal year, contingent upon the quality of applications and availability of funds.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Applications are submitted directly by the individual researcher, unlike standard NSF proposals that are submitted through the researcher's U.S. institutional representative. In the IRFP FastLane application process (Section V. D.), the applicant acts as the Authorized Organizational Representative (AOR).

If a successful applicant wishes to have his/her award administered by his/her U.S. institution, this modification can be done at the time of award. NOTE: No indirect costs are allowed.

Who May Serve as PI:

Applicants must:

- 1) be U.S. citizens or permanent residents as of the application deadline (Applicants who are permanent residents of the United States may not request a host site in their country of origin.);
- 2) have been awarded a Ph.D. within two years of the application deadline or expect to receive the doctoral degree by the start of the project. (If an applicant is recommended for an award, the award may be made before the Ph.D. is awarded, but the applicant must provide proof of the degree before any funds are released);
- 3) propose collaboration with foreign host (cannot be an American national) to conduct scientific and engineering research at appropriate institutions of higher education, industrial research institutions/laboratories, government research institutes/laboratories/centers, nonprofit research organizations, and foreign centers of excellence located outside of the United States.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI: 1

Applicants may submit only one fellowship per program year. Recipients of previous International Research Fellowship Program awards are not eligible.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposal Preparation Instructions:** This solicitation contains information that deviates from the standard NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full text of this solicitation for further information.

B. Budgetary Information

- **Cost Sharing Requirements:**
Cost Sharing is not required under this solicitation.
- **Indirect Cost (F&A) Limitations:**
No indirect costs are allowed.

- **Other Budgetary Limitations:**

Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Target Date(s):**

October 03, 2006

September 11, 2007

Second Tuesday in September, Annually Thereafter

September 09, 2008

Second Tuesday in September, Annually Thereafter

Proposal Review Information Criteria

Merit Review Criteria:

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

Award Administration Information

Award Conditions:

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

Reporting Requirements:

Standard NSF reporting requirements apply.

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I. INTRODUCTION

The objective of the International Research Fellowship Program (IRFP) is to introduce scientists and engineers in the early stages of their careers to international collaborative research opportunities, thereby furthering their research capacity and global perspective and forging long-term relationships with scientists, technologists and engineers abroad.

II. PROGRAM DESCRIPTION

Support of international activities is an integral part of the NSF mission to sustain and strengthen the nation's science, mathematics, and engineering capabilities, and to promote the use of those capabilities in service to society. In particular, NSF recognizes the importance of enabling U.S. researchers and educators to advance their work through international collaborations, and of helping ensure that future generations of U.S. scientists and engineers gain professional experience beyond this nation's borders early in their careers.

The IRFP contributes to NSF's mission by supporting highly meritorious research and education activities that present unique opportunities and offer potentially high benefits because of the vital and integral nature of the foreign collaboration. Fellowship support is intended to both advance the research and develop a cadre of scientists and engineers who will play a leadership role in forging international collaborations of great value to the nation.

IRFP awards are available in any field of science and engineering research or education supported by NSF. Applicants are encouraged to consider any site that will provide a unique and beneficial research experience. Applicants are reminded that NSF does not support research with disease-related goals, including the etiology, diagnosis, or treatment of physical or mental disease, abnormality, or malfunction in humans or animals. Animal models of such conditions or the development or testing of drugs or other procedures for their treatment also are not eligible for support. Applications with a biomedical focus are returned without review.

Appropriate organizations include institutions of higher education, industrial research institutions/laboratories, government research institutes/laboratories/centers, nonprofit research organizations, and foreign centers of excellence. Applicants should check the [IRFP Funding Opportunity page on the OISE website](#) for possible country-specific opportunities. NOTE: Foreign host cannot be an American national.

Eligible applicants, in addition to being citizens or permanent residents of the United States, must have earned a doctoral degree within two years of the deadline date, or expect to receive the doctoral degree by the start of the project. Women, minorities, and persons with disabilities are strongly encouraged to apply.

Support may be requested for residence abroad for nine to 24 months (minimum of nine continuous months). The purpose of this fellowship is to give young researchers international research experience. In addition, the applicant may also request that a portion of the 24-months include a period of re-entry back in the United States. This re-entry period must consist of a research experience relevant to the foreign fellowship period. The re-entry component must be for research, not just to write up results. Any re-entry component must be submitted with the original research proposal, and cannot be requested later. The re-entry component must be included in the Project Description, and include a designated U.S. host and host institution. The U.S. host must provide a letter of invitation and his/her curriculum vitae. The re-entry component is reviewed along with the foreign component. The re-entry component must be of a duration equal to or less than that of the foreign period. The foreign period must be taken first, the re-entry last. No indirect costs will be provided to the U.S. institution.

Awardees are expected to work full time on their research projects.

Priority will be given to those applicants who have not yet secured a tenure-track position and have no previous international experience. IRFP aims to provide an international experience to those individuals who have never had one previously. Those applicants who have had previous international experience or who are already at the foreign host site, must contact the cognizant Program Manager before submitting an application in order to verify suitability. Applicants who received their Ph.D. at a foreign institution will be given lower priority.

As this program is open to all research fields and disciplines supported by NSF, as well as suitable research institutions anywhere in the world, efforts will be made to ensure appropriate distribution of fellowships across disciplinary fields and geographic regions.

III. AWARD INFORMATION

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

Anticipated Type of Award: Fellowship

Estimated Number of Awards: 30-35 - Approximately 30-35 fellowships will be offered each year to U.S. investigators for research abroad. Awards in recent years have ranged in size from \$57,000 to \$200,000, depending on location of host site, cost of research project, duration and number of dependents.

Anticipated Funding Amount: \$3,500,000 - Total program support will be approximately \$3.5 million in each fiscal year, contingent upon the quality of applications and availability of funds.

Limitations

Fellowships will provide support for periods of from nine to 24 months. Requests to divide the fellowship term between multiple institutions should be clearly described in the application.

Awardees are encouraged to begin the fellowship within 12 months of notification of an award. Any exceptions, such as a delay in completion of the Ph.D., will be considered on a case-by-case basis.

NOTE: Any requests for a re-entry component must be made within the original application. A re-entry host and project must be included. That component is reviewed along with the foreign component. A request for a re-entry component to write up results back in the United States is not appropriate.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Applications are submitted directly by the individual researcher, unlike standard NSF proposals that are submitted through the researcher's U.S. institutional representative. In the IRFP FastLane application process (Section V. D.), the applicant acts as the Authorized Organizational Representative (AOR).

If a successful applicant wishes to have his/her award administered by his/her U.S. institution, this modification can be done at the time of award. NOTE: No indirect costs are allowed.

Who May Serve as PI:

Applicants must:

- 1) be U.S. citizens or permanent residents as of the application deadline (Applicants who are permanent residents of the United States may not request a host site in their country of origin.);
- 2) have been awarded a Ph.D. within two years of the application deadline or expect to receive the doctoral degree by the start of the project. (If an applicant is recommended for an award, the award may be made before the Ph.D. is awarded, but the applicant must provide proof of the degree before any funds are released);
- 3) propose collaboration with foreign host (cannot be an American national) to conduct scientific and engineering research at appropriate institutions of higher education, industrial research institutions/laboratories, government research institutes/laboratories/centers, nonprofit research organizations, and foreign centers of excellence located outside of the United States.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI: 1

Applicants may submit only one fellowship per program year. Recipients of previous International Research Fellowship Program awards are not eligible.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Instructions: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the guidelines specified 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-PUBS (7827) or by e-mail from nsfpubs@nsf.gov.

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

All page limits indicated within this program solicitation include images, figures, graphics, tables, etc. Applicants must adhere to page limitations, font size (no smaller than Courier New 10 point), and margins (minimum of 2.5 cm). While specified guidelines establish the minimum type size requirements, PIs are advised that readability is of paramount importance and should take precedence in selection of an appropriate font for use in the proposal. Proposals that do not conform to the requirements will be returned without review. In cases where requirements given in this program solicitation differ from those given in the Grant Proposal Guide, this solicitation takes precedence.

International Research Fellowship Program (IRFP) Application must be submitted electronically using FastLane. Go to www.nsf.gov, click on FastLane, select Postdoctoral Fellowships on the FastLane navigation bar, select 'I am An Applicant', choose IRFP from list of postdoc programs, and **print detailed How to Apply instructions**.

The instructions describe how you **register as an individual (rather than through your research institution)** in order to apply to this program. Before starting a proposal in FastLane, a candidate must register as an independent Principal Investigator (PI). Postdoctoral fellowship candidates can find information regarding this process at <https://www.fastlane.nsf.gov/n1/N1IndvReg.html>. This means that a candidate functions as his or her own institution and a proposal must be submitted in FastLane by the candidate, not by the candidate's institutional Sponsored Research Office (SRO). This also means that the candidate serves as his or her own SRO for the purposes of any research administration function in FastLane, using the same login and password. This registration step must be completed before beginning your actual application. After you have registered, you may begin your proposal application.

Your **International Research Fellowship Program (IRFP) application** consists of:

1. **Cover Page** - You must complete the cover page first. Check that **your** name and address show as both Awardee and Performing Organization. Select this program announcement from the list shown.
2. **Project Summary (1-page limit)**- Include a heading with your name, project title, host(s) name and institution(s). *NOTE: It is a requirement of the NSF that the Project Summary include separate, clearly identified paragraphs to address Intellectual Merit and Broader Impacts. Any proposals that do not conform to this requirement will be returned without review.* Provide paragraphs that describe the proposed research project, the hypothesis, technical approach and expected results. Describe why you want to go to a particular site and why you want to work with your host.
3. **Detailed Project Description (not to exceed seven single-spaced pages)** - If necessary, up to an additional 3 pages may be used for forms, graphs and images, to be submitted as Supplementary Documents. The Project Description must contain the following six items:
 - a. Detailed project description - If you are also requesting a re-entry component, it must be included within the seven-page limit.
 - b. Detailed justification for conducting the research abroad.

- c. Identification of the collaborating host(s).
- d. Clear relationship between your proposed research and the current research efforts at the host institution.
- e. Description of facilities and any other evidence of the suitability of the foreign collaborator(s) and site(s).
- f. Explanation of your long-term career goals and the role of this postdoctoral experience in achieving them, including future plans for collaborative activities.

4. References Cited

5. **Applicant's Biographical Sketch** and list of publications with full title and complete references. (Do not send reprints or abstracts.) At the top of this document, include your name and current affiliation. You may substitute your curriculum vitae or resume as this biographical sketch. This document, plus your two letters of reference, is what the reviewers will use to evaluate you. Be sure to include all that you believe they need to know in order to evaluate your abilities and potential. There is no page limit for this document.
6. **Host Scientist's Invitation/Sponsoring Scientist Statement** - Applicant uses the Supplementary Document section in FastLane to upload this letter and curriculum vitae (CV) from the host. An important basis for judging the suitability of the host and host institution is the degree to which the host scientist invitation letter describes and offers a research environment and mentoring opportunity that could not be obtained without fellowship support. The Letter of Invitation is from the prospective host scientist(s) or engineer(s) both for the foreign tenure and any re-entry component. The letter must describe the proposed interaction between the applicant's research plan and ongoing research efforts at the foreign site. The host's CV in English (strictly limited to two pages, and in compliance with NSF's instructions for Biographical Sketches) must be attached following the letter. The host should be the person who will actually collaborate with the applicant. Evidence of real collaboration is critical.
7. **NSF Budget Data** - You provide the total requested amount when asked within the FastLane application process. The FastLane system will create an actual budget form with this amount entered for you.
8. **Budget Breakdown** - Under Supplementary Documents, use one or more additional page(s) for an actual budget breakdown. List each budget item per Allowable Expenses in Section B below. (For example - applicant's airfare = \$2,000, dependent's airfare = \$2,000, dependent's allowance - \$150 X 12 months = \$1,800, etc.) Be as specific as possible for elements such as materials and equipment. For any equipment, please indicate its disposition following completion of the fellowship. Reviewers must see that you will have what you need to accomplish what you propose. For any items where justification is needed (materials, in-country travel, etc.) write one or two sentences after the entry. (See section on Budgetary Information below.) Note: If recommended for an award, a detailed, final budget will be worked out through discussion with NSF, based on funds available and per diem rates in effect at that time.
9. **Timeline of Project** (submit as a Supplementary Document).
10. **Two Letters of Reference (which include rating sheets in the FastLane reference module)** - You do not enter these letters. Your reference letter writers use FastLane to directly enter and submit them after you have listed their names within the "Add/Delete Letter of Reference Writers" section in your FastLane application. You must list their names before your references can submit their letters. The references must be two senior researchers familiar with your work. One reference **must** be from your Ph.D advisor. Do not request references from proposed foreign hosts or host institutions. You are responsible for assuring that your references use FastLane to submit their letters **by the application deadline**. No proposals will be reviewed until both letters have been received.
11. **Application Form** - Basic information such as name, address, etc.
12. **Application Form B** - Foreign language skills (Please do not list English), dependent information, and international experience.

The following are **NOT** included in the seven- page limit: Project Summary, References Cited, Applicant's Biographical Sketch/CV/Resume, Host Scientist's Invitation/Sponsoring Scientist Statement, NSF Budget Data, Budget Breakdown, Timeline, Two Letters of Reference, and any graphics, forms, or images. **The seven- page limit applies only to the Project Description.**

Proposers are reminded to identify the NSF publication number (located on the first page of this document) 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.

B. Budgetary Information

Cost Sharing:

Cost sharing is not required under this solicitation.

Indirect Cost (F&A) Limitations:

No indirect costs are allowed.

Other Budgetary Limitations:

Allowable Expenses for IRFP

- **Round trip economy airfare and necessary ground transportation** from the awardee's permanent residence or the place where the application was made to the host institution. Air travel must be performed on a U.S. flag carrier if such service is available (see para. 761.2 and 761.3 of the Grant Policy Manual at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpm).
- **Up to \$300 of excess baggage** allowance
- **In-country travel.** Travel between countries and within the host country to reach sites, meet with experts not at host site, etc. may be included if justified in the proposal .
- **Up to \$2,500 a year relocation allowance.** To be used for any expenses incurred in moving back and forth to foreign site and back - security deposits, storage fees, etc.
- **Living allowance** of \$2,500 to maximum of \$5,000 per month calculated using of U.S. Government per diem rates for host locality. Per diem rates can be viewed at http://aoprals.state.gov/web920/per_diem.asp. Use the Maximum Per Diem Rate. If your host city is not listed, use the rate listed under Other. The first 30 days are calculated at the full per diem rate. The rate is reduced to 50% for all days thereafter. (Calculate as follows: Per diem rate multiplied by 30 days, divided by 2, times number of remaining months, plus first month figure, divided by total tenure months. Example: 12 months in host city at per diem rate of \$100 would be figured: \$100 X 30 days = \$3,000 (first month rate) divided by 2 = \$1,500 X 11 months = \$16,500 plus \$3,000 (first month rate) = \$19,500 divided by 12 months (total duration) = a monthly stipend of \$1,625.) For any re-entry component, \$3,750 per month will be provided for living allowance, regardless of location.
- **Health insurance allowance** of \$150 per month.
- **Support for field/lab expenses, materials, supplies and equipment** - must be justified by the proposed research. Provide detailed explanation in the budget breakdown.
- **Partial support for language training**, for applicant, if justified, with the amount determined on a case-by-case basis.

- **Up to \$3,000 per award for a return professional visit(s).** May be used for presentation of results at conferences, consultation with colleagues, job interviews, or attendance at professional conferences.
- **Dependent Support:** For the foreign component only, each dependent accompanying the awardee for six months or more: Round trip economy airfare (to host site from home base and return only) (see U.S. flag carrier requirements above), excess baggage allowance of \$300, health insurance allowance of \$50 per month, and a supplementary living allowance of \$150 per month. For any re-entry component, the dependents may request a continuation of the health insurance allowance.
- **Institutional allowance** - may be requested to help defray research costs incurred by host institution in support of the fellow. Expenses must be documented at time of award (maximum of \$500 per month). NOTE: NSF funds no indirect costs for these fellowships.

C. Due Dates

- **Full Proposal Target Date(s):**

October 03, 2006

September 11, 2007

Second Tuesday in September, Annually Thereafter

September 09, 2008

Second Tuesday in September, Annually Thereafter

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this program solicitation through use of the NSF FastLane system. Detailed instructions regarding the technical aspects of proposal preparation and submission via FastLane are available at: <http://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>.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

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

A comprehensive description of the Foundation's merit review process is available on the NSF website at: http://www.nsf.gov/bfa/dias/policy/merit_review/.

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

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

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

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

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

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

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

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

2. Merit Review Criteria

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

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

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

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
 - a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
 - b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

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

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

Additional Solicitation Specific Review Criteria

Reviewers are asked to consider the following additional criteria:

Benefits to the applicant, the research discipline, and the United States;

Qualifications of proposed host and host institution, and complementarity;

Qualifications of applicant, including applicant's potential for continued growth;

Merit of the proposed international collaboration; and

Expected mutual benefits to be derived from the proposed collaboration of the scientists and engineers in each country.

Priority will be given to those applicants who have not yet secured a tenure-track position and have no previous international research experience. IRFP aims to provide an international experience to those individuals who have never had one previously. Applicants who received their Ph.D. at a foreign institution will be given lower priority. Any potential applicants who have international experience or are already at the host site, must contact the Program Manager before submitting an application to verify suitability.

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

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

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

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

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

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. 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:

NSF claims no rights to any inventions or writings that may result from its fellowship awards. However, Fellows should be aware that NSF, other Federal agencies, or private parties may acquire such rights through other grant support. Applicants are encouraged to discuss institutional policies on intellectual property rights with the host institution before submitting an application, as well as the policies of the sponsoring scientist regarding what materials and projects must remain with the host institution, and which can be released to the Fellow at the end of the fellowship. Fellows at foreign institutions should be aware that specific provisions regarding allocations of intellectual property rights apply to particular countries, and Fellows should be cognizant of any such provisions before commencing work.

Fellows are obligated to include an acknowledgment of NSF support and a disclaimer in any publication arising from the fellowship-supported research.

Fellows are expected to agree to complete and open sharing of data and material in an expeditious manner. By submitting an application, it is understood that all participants agree to NSF guidelines on sharing of findings, data, and other research products. For further information, see the current issuance of the NSF Grant Proposal Guide (GPG), at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.

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 no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

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

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

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

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:

- Cassidy Burke, Program Analyst, 1155 II, telephone: (703) 292-2464, email: cburke@nsf.gov
- Thomasina P. Edwards, 1155 II, telephone: (703) 292-7244, email: tedwards@nsf.gov

For questions related to the use of FastLane, contact:

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

IMPORTANT NOTICE: International Science and Engineering (ISE) has realigned the way it provides funding for international postdoctoral research fellowships. **Proposals will no longer be received by ISE's International Research Fellowship Program (IRFP).**

Instead, ISE will provide postdoctoral fellowship support for international research and education activities in partnership with NSF's directorate postdoctoral fellowship programs. **Applications should be submitted directly to one of those fellowship programs** (see [NSF FastLane list of postdoctoral research fellowship programs](#)). ISE will work with each program to support international dimensions of postdoctoral fellowships. For additional information, check this page - <http://www.nsf.gov/od/ia/ise/iprffapp.jsp>.

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

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

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 3145-0023. Public reporting burden for this collection of information is estimated to average 12 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

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

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