

International Collaboration in Chemistry between US Investigators and their Counterparts Abroad (ICC)

PROGRAM SOLICITATION

NSF 13-573

REPLACES DOCUMENT(S):

NSF 12-562



National Science Foundation

Directorate for Mathematical & Physical Sciences
Division of Chemistry

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

September 09, 2013

Preliminary proposal deadline

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

December 02, 2013

IMPORTANT INFORMATION AND REVISION NOTES

Important Notice: The November 12, 2013 full proposal submission date deadline has been revised to December 2, 2013.

Revision Summary

The Deutsche Forschungsgemeinschaft (DFG) is not listed as a partnering agency this year. US investigators who wish to collaborate with German Investigators may still do so by submitting an unsolicited proposal to the Division of Chemistry during the window for proposal submission to the Division. Collaborative proposals with German investigators will be reviewed in the same manner as ICC proposals. If an award is made, the NSF will fund the US and the DFG will fund the German part of the collaboration. Information about the German collaborator will be provided in a supplementary document to the unsolicited NSF proposal. The German collaborator should contact the DFG chemistry website for detailed information about the required supplementary document.

The Engineering and Physical Sciences Research Council (EPSRC) of the United Kingdom (UK) will not accept collaborative proposals with US Investigators this year. The Republic of Korea (NRF) has been added as a new ICC partner.

The ICC program will consider proposed projects in areas of interest to the Division of Chemistry, including the area of sustainable chemistry. Note that titles of these latter proposals should start with "SusChEM: International Collaboration in Chemistry:...." Examples of sustainable chemistry focus areas include: the replacement of rare, expensive, and/or toxic chemicals/materials with earth-abundant, inexpensive, and benign chemicals/materials; recycling of chemicals/materials that cannot be replaced; development of non-petroleum based sources of important raw materials; the elimination of waste products and enhancement in efficiencies of chemical reactions and processes; discovery of new separation science that will facilitate recycling and production of valuable chemical/materials.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

International Collaboration in Chemistry between US Investigators and their Counterparts Abroad (ICC)

Synopsis of Program:

NOTE: The ICC program will not offer a revised solicitation. Researchers interested in engaging in international collaborative research and education activities should visit the NSF website for information on available funding opportunities and/or contact a Program Director for additional guidance.

Partnering Foreign Agencies

The Fonds zur Förderung der wissenschaftlichen Forschung (Austrian Science Fund) of Austria (FWF)
The Fundação de Amparo à Pesquisa do Estado de São Paulo (Foundation for Research Support of the State of São Paulo), Brazil (FAPESP)
The Agence Nationale de la Recherche (National Agency for Research) of France (ANR)
U.S. - Israel Binational Science Foundation (BSF)

Japan Society for the Promotion of Science (JSPS)
National Research Foundation of Korea (NRF)
The Fonds National de la Recherche (National Research Fund) of Luxembourg (FNR)
Russian Foundation for Basic Research (RFBR)
Taiwan National Science Council (NSC)

Program Description

The National Science Foundation (NSF) seeks to enhance opportunities for collaborative activities between U.S. and foreign investigators. To realize this goal, the Division of Chemistry at NSF has partnered with the Fonds zur Förderung der wissenschaftlichen Forschung (Austrian Science Fund) of Austria (FWF), the Fundação de Amparo à Pesquisa do Estado de São Paulo (Foundation for Research Support of the State of São Paulo), Brazil (FAPESP), the Agence Nationale de la Recherche (National Agency for Research) of France (ANR), the U.S.-Israel Binational Science Foundation (BSF), Japan Society for the Promotion of Science (JSPS), the National Research Foundation of Korea (NFR), the Fonds National de la Recherche (National Research Fund) of Luxembourg (FNR), the Russian Foundation for Basic Research (RFBR), and the National Science Council of Taiwan (NSC). The NSF Division of Chemistry will accept collaborative research proposals in basic research in chemistry, written in English, which establish bilateral collaborations between US investigators and investigators from the countries listed above.

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.

- Timothy Patten, telephone: (703) 292-7196, email: tpatten@nsf.gov
- Ms. C. Renee Wilkerson, telephone: (703) 292-4948, email: cwilkers@nsf.gov

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

- 47.049 --- Mathematical and Physical Sciences

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 5 to 20

Anticipated Funding Amount: \$10,000,000 for all awards. Based on results from prior competitions we anticipate a funding rate of about 15% with an average award size of \$420,000 for three years (total cost). The exact number of awards and total funding depend on the quality of proposals and availability of funds.

Eligibility Information

Who May Submit Proposals:

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.

Who May Serve as PI:

US PIs may submit either an ICC or an unsolicited proposal to the Division of Chemistry for the FY2013/FY2014 submission year, but not both.

The ICC Program will not accept proposals from US investigators who already have an individual investigator award from the Division of Chemistry unless their ICC proposal is submitted as their renewal proposal. Division of Chemistry grantees who wish to add an international collaboration component to their currently funded projects are advised to contact the program officer who manages their award and inquire about supplemental funding to their existing award to enable the international collaboration.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-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 required
- **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 09, 2013
Preliminary proposal deadline
- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):
December 02, 2013

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: Standard NSF award conditions apply.

Reporting Requirements: Standard NSF reporting requirements apply.

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I. INTRODUCTION

Recognizing the importance of international collaborations in promoting scientific discoveries, the National Science Foundation (NSF) and its counterpart agencies abroad seek to enhance opportunities for collaborative activities in chemistry between US and foreign

investigators. The NSF Division of Chemistry will accept new **bilateral** collaborative research proposals, which are not currently funded by other sources, with each of the partnering agencies listed above. The proposals should establish partnerships between US researchers and researchers from one of the following countries: Austria, Brazil, France, Israel, Japan, Korea, Luxembourg, Russia, and Taiwan. The proposed projects must have clear relevance to areas supported by the Division of Chemistry at NSF and by the participating programs in the partnering countries.

In previous years, many preliminary proposals were discouraged since the proposed projects were suitable for other funding agencies rather than for NSF, or for other NSF divisions. Prospective PIs are strongly encouraged to contact appropriate program officers in the Division of Chemistry to discuss the suitability of their proposed research to the programs in the Division prior to preliminary proposal submission.

II. PROGRAM DESCRIPTION

The National Science Foundation (NSF) seeks to enhance opportunities for collaborative activities between U.S. and foreign investigators. To realize this goal, the Division of Chemistry at NSF has partnered with the Austrian Science Fund of Austria (FWF), the Foundation for Research Support of the State of São Paulo of Brazil (FAPESP), the National Agency for Research of France (ANR), the U.S.-Israel Binational Science Foundation (BSF), the Japan Society for the Promotion of Science (JSPS), the National Research Foundation of Korea (NFR), the National Research Fund of Luxembourg (FNR), the Russian Foundation for Basic Research (RFBR), and the National Science Council of Taiwan (NSC). The NSF Division of Chemistry will accept collaborative research proposals in basic research in chemistry, written in English, which establish bilateral collaborations between US investigators and investigators from the countries listed above.

The program seeks new and highly innovative 3-year collaborative projects that break new ground, make use of unique resources and capabilities in participating countries and demonstrate a high level of synergy between the collaborating investigators. Formation of new collaborations is strongly encouraged. The ICC program will not accept proposals from US investigators who already have individual investigator awards from the Division of Chemistry unless their ICC proposal is submitted in lieu of a renewal proposal. Current CHE grantees may submit a supplemental funding request to add an international collaboration component to their existing awards.

The ICC program will only accept basic research proposals that clearly fit the NSF Division of Chemistry programs in Chemical Synthesis; Chemical Catalysis; Chemical Theory, Models and Computational Methods; Chemical Measurement and Imaging; Chemical Structure, Dynamics and Mechanisms A or B; Macromolecular, Supramolecular and Nanochemistry; Environmental Chemical Sciences; or Chemistry of Life Processes. A detailed description of these programs can be found at: <http://www.nsf.gov/div/index.jsp?div=CHE>. In previous years, many preliminary proposals were discouraged since the proposed projects were suitable for other agencies or other NSF divisions. Prospective PIs are therefore strongly encouraged to contact program officers in the Division of Chemistry to discuss and confirm the suitability of their proposed research to a specific individual investigator program in the Division prior to preliminary proposal submission. The proposed projects must also be in areas that are supported by the participating programs in the partnering agencies. Titles for proposed projects in the area of sustainable chemistry should start with "SusChEM: International Collaboration in Chemistry:....." Examples of sustainable chemistry focus areas include: the replacement of rare, expensive, and/or toxic chemicals/materials with earth-abundant, inexpensive, and benign chemicals/materials; recycling of chemicals/materials that cannot be replaced; development of non-petroleum based sources of important raw materials; the elimination of waste products and enhancement in efficiencies of chemical reactions and processes; and discovery of new separation science that will facilitate recycling and production of valuable chemical/materials. Additional details about the SusChEM program can be found on the Division of Chemistry webpage <http://www.nsf.gov/div/index.jsp?div=CHE>

Investigators who have been collaborators 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 long-term on-going studies. The program will not accept proposals for projects that largely overlap with currently funded projects by NSF or other funding sources, or for projects that are an incremental extension of current projects.

The ICC program requires that US applicants will allocate significant financial resources in their proposed proposal budget to ensure meaningful participation of students, postdoctoral research associates and junior investigators, including those from underrepresented groups, in the proposed international research collaborations through research visits of 3-10 weeks in the collaborator's laboratory abroad. The program also encourages the development and use of cyber infrastructure to increase the level of synergy and interaction of the proposed projects.

III. AWARD INFORMATION

Anticipated Type of Award: Continuing Grant or Standard Grant

Estimated Number of Awards: 5 to 20

Anticipated Funding Amount: Based on results from prior competitions we anticipate a funding rate of about 15% with an average award size of \$420,000 for three years (total cost).

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

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

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.

Who May Serve as PI:

US PIs may submit either an ICC or an unsolicited proposal to the Division of Chemistry for the FY2013/FY2014 submission year, but not both.

The ICC Program will not accept proposals from US investigators who already have an individual investigator award from the Division of Chemistry unless their ICC proposal is submitted as their renewal proposal. Division of Chemistry grantees who wish to add an international collaboration component to their currently funded projects are advised to contact the program officer who manages their award and inquire about supplemental funding to their existing award to enable the international collaboration.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-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.

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.

Preliminary Proposal Submission Requirements

Preliminary proposals must be submitted to NSF by the US investigator. The same preliminary proposal must be submitted to the partnering funding agency by the foreign investigator unless specified otherwise in the foreign agency call for this program. Foreign investigators must follow the instructions for preliminary proposal, full proposal preparation, and submission that are given in the foreign agencies' separate calls for this collaborative program.

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. One preliminary proposal per project should be submitted to NSF.

Cover sheet - The title of the proposal to NSF should begin as: "International Collaboration in Chemistry:..." In addition, the US PI should check the box, "International Cooperative Activities" listed under Other Information and identify the appropriate country involved. The cover sheet should identify the Division of Chemistry program to consider the application and list the names and affiliations of the US investigators. The PI must select the option indicating that this is a preliminary proposal. For correct FastLane processing, enter \$2 as the requested amount.

Project Description, limited to 3 pages, should include the following sections:

Section 1 - List the name, affiliations and contact information (phone number and e-mail address) of the foreign investigator(s).

Section 2 - List the Division of Chemistry program to which the preliminary proposal is submitted, explain why the proposed project is appropriate to this NSF/CHE program.

Section 3 - Describe the proposed research problem, key preliminary results and an outline of the research plan (at least one page).

Section 4 - Describe the role and expertise of each collaborative investigator, the collaborative approach to be used and the expected synergy.

Section 5 - Describe a plan to facilitate meaningful involvement of students, postdoctoral researchers and junior investigators in the proposed project including international training experience.

References Cited may contain up to 10 leading references to provide context for the proposed research. The reference section will not count against the 3-page limit of the preliminary proposal project description.

For the US investigator, a Biographical Sketch should be submitted using the NSF standard format specified in the GPG. For the foreign investigator, the biographical sketch should be limited to 2 pages and submitted as a FastLane supplementary document.

For the US investigator, a Current and Pending Support statement should be submitted using the NSF standard format specified in the GPG. For the foreign investigator the information about current and pending support should be submitted as a FastLane supplementary document.

The remaining standard proposal sections (Project Summary, Budget, Budget Justification, Facilities and Equipment) are not permitted in this preliminary proposal. Other supporting documentation including preprints or reprints and letters of support or collaboration are also not permitted in this preliminary proposal.

Preliminary Proposal Review Procedure

The preliminary proposals will be reviewed by NSF and the partnering foreign agencies. At NSF, the preliminary proposals will be reviewed programmatically for their fit to the NSF Division of Chemistry in terms of scientific content. The Division of Chemistry at NSF will only accept preliminary proposals in areas that are supported by its programs in Chemical Synthesis; Chemical Catalysis; Chemical Theory, Models and Computational Methods; Chemical Imaging and Measurement; Chemical Structure, Dynamics and Mechanisms A or B; Macromolecular, Supramolecular, and Nanochemistry; Environmental Chemical Sciences; or Chemistry of Life Processes. A detailed description of these programs can be found at:

The preliminary proposals will also be reviewed to ensure that the proposed projects do not significantly overlap with projects that are already funded by NSF or other US funding agencies. The programs will discourage submission of full proposals if the proposed research is considered an incremental advance over currently funded research in the US PI's lab. US PIs of previously declined ICC proposals should confirm with their foreign collaborators that the foreign agency is willing to accept a revised submission of the proposal. If allowed by the foreign agency, preliminary proposals of previously declined projects should provide a summary of changes made to the proposal in response to reviewer comments. A declined project must be significantly modified to be considered for full proposal submission. Preliminary proposals of renewal ICC projects should provide a summary of previous accomplishments including a list of collaborative publications and provide a rationale for the renewal of the collaborative project. Upon completion of the review of the preliminary proposals, NSF and the appropriate partnering agency will make a joint decision whether to encourage or discourage submission of full proposals to the program. 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.

Important Proposal Preparation Information: FastLane will check for required sections of the full proposal, in accordance with *Grant Proposal Guide* (GPG) instructions described in Chapter II.C.2. The GPG requires submission of: Project Summary; Project Description; References Cited; Biographical Sketch(es); Budget; Budget Justification; Current and Pending Support; Facilities, Equipment & Other Resources; Data Management Plan; and Postdoctoral Mentoring Plan, if applicable. If a required section is missing, **FastLane will not accept the proposal.**

Please note that the proposal preparation instructions provided in this program solicitation may deviate from the GPG instructions. If the solicitation instructions do not require a GPG-required section to be included in the proposal, insert text or upload a document in that section of the proposal that states, "Not Applicable for this Program Solicitation." Doing so will enable FastLane to accept your proposal.

Full proposals will be submitted by the US organizations through Fastlane or Grants.gov. The following guidelines, in addition to those in the GPG or NSF Grants.gov Application Guide, should be followed when preparing the proposal to NSF:

- In the proposal cover sheet, the title of the proposal to NSF should begin as: "International Collaboration in Chemistry..." In addition, the US PI should check the box, "International Cooperative Activities" listed under "Other Information" and identify the appropriate country involved.
- The duration of the project would typically be 3 years for the US and foreign side of the collaboration.
- The Project Summary, which is limited to 1 page, consists of an overview, a statement on the intellectual merit of the proposed activity, a statement on the broader impacts of the proposed activity, and must include the value added by the proposed international collaboration.
- The Project Description may not exceed 15 pages. In addition to the requirements specified in the NSF Grant Proposal Guide, the following information must be provided. A separate section that lists the names, affiliations and contact information (phone number and e-mail address) of the foreign investigator(s) should be included on the first page of the Project Description. The Project Description should clearly state the need and anticipated scientific benefits of the proposed international collaboration and clearly describe the intellectual contribution of each collaborator to the proposed project along with a timeline of their proposed research work. In addition, the Project Description must address the ICC solicitation requirement to meaningfully involve students, postdoctoral research associates and junior investigators, including those from underrepresented groups, in the proposed research collaborations through extended research visits in the collaborator's laboratory abroad.
- Information pertinent to the foreign investigator will be submitted as a single supplementary document through NSF FastLane or Grants.gov. This supplementary document must contain the foreign investigator's budget request from the partnering agency, a current and pending support list, a list of resources (equipment and facilities) available for this collaborative project, and a 2-page biographical sketch, which includes a list of collaborators, doctoral and postdoctoral advisors, and current and former students and postdoctoral fellows. Some partnering agencies require that the supplementary document will contain additional information. For example, the NSF supplementary document of NSF-JSPS proposals will be the entire JSPS proposal submission. US applicants are therefore advised that their foreign collaborators must follow the guidelines of their agencies, as listed in their ICC solicitation, when preparing their supplementary document.
- US PIs must provide a postdoctoral mentoring plan as a supplementary document if funds for postdoctoral researchers are requested in the proposal budget and a data management plan in accordance with the NSF Grant Proposal Guidelines (GPG).
- US PIs are advised to make sure that their foreign collaborators consult their agencies' corresponding solicitations to find out whether they are eligible to submit a proposal to the ICC program, whether a separate submission of the proposal to their agency is required and what the submission requirements are. The proposal will be returned without review if the foreign collaborator is not eligible to participate in the ICC program or if s/he fails to follow the guidelines of his/her funding agency.

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 09, 2013

Preliminary proposal deadline

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

December 02, 2013

NOTE: The ICC program will not offer a revised solicitation. Researchers interested in engaging in international collaborative research and education activities should visit the NSF website for information on available funding opportunities and/or contact a Program Director for additional guidance.

D. FastLane/Grants.gov Requirements

For Proposals Submitted Via FastLane:

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

For Proposals Submitted Via Grants.gov:

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

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

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

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

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

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

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in [Empowering the Nation Through Discovery and Innovation: NSF Strategic Plan for Fiscal Years \(FY\) 2011-2016](#). 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 core strategies 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 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 variety of learning perspectives.

Another core strategy in support of NSF's mission is broadening 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

In addition to the two NSB-approved merit review criteria, the reviewers will be asked to specifically comment on whether the researchers demonstrated a clear need for international collaboration, the synergy between the collaborating groups, the collaboration plan between the investigators, and whether the proposed project provides meaningful international training experience to students and junior researchers. Foreign investigators will need to address the review criteria of their partnering agency. For SusChEM-related proposals, be sure to address specific aspects of sustainability, as indicated in the SusChEM Dear Colleague

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 be completed and submitted by each reviewer. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, Program Officers in charge from NSF and the partnering agency recommend to the cognizant NSF Division Director and the decision making bodies of the partnering agency 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 date of receipt. The interval ends when the NSF Division Director and the decision making bodies of the partnering agency accept the Program Officers' recommendation. A proposal can only be funded if both NSF and the foreign partnering agency agree to fund it.

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 US Principal Investigator/Project Director by the NSF Program Officer. In addition, the investigators 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 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.

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 prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). Within 90 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

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

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

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

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:

- Timothy Patten, telephone: (703) 292-7196, email: tpatten@nsf.gov
- Ms. C. Renee Wilkerson, telephone: (703) 292-4948, email: cwilkers@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.

Contacts and Web links to the ICC Program Announcement at International Partnering Agencies

Austria (FWF)

Dr. Bettina M. Löscher
Scientific Administrator for Chemistry and Nano-Sciences
Fonds zur Förderung der wissenschaftlichen Forschung (FWF, Austrian Science Fund)
Sensengasse 1 A-1090 Wien
Phone: +43 1 505 67 39 8405
e-mail: loescher@fwf.ac.at

FWF ICC Program Announcement

http://www.fwf.ac.at/de/internationales/pdf/ICC-FWF_Information_for_Applicants_2013.pdf

Brazil (FAPESP)

Alexandre Roccatto
Special assistant - Research Collaborations
FAPESP - State of São Paulo Research Foundation
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Tel: (+55) 11 3838-4347
e-mail: aroccatto@fapesp.br

FAPESP ICC Program Announcement

<http://www.fapesp.br/en/8029>

France (ANR)

212, rue de Bercy F-75012 Paris, France
L'Agence Nationale de la Recherche (ANR)
e-mail: international@agencerecherche.fr

ANR ICC Program Announcement

(to be announced)

Israel (BSF)

Dr. Yair Rotstein
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Fax: 972-2-5828306
e-mail: yair@bsf.org.il

BSF ICC Program Announcement

<http://www.bsf.org.il/ElectronicSubmission/GatewayFormsAndGuidelines.aspx?Pageld=7&innerTextID=0>

Japan (JSPS)

Mr. Kiyoshi Saito
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Fax: +81 (0)3 3234 3700
e-mail: bottom-up@jps.go.jp

JSPS ICC Program Announcement

http://www.jps.go.jp/english/e-bottom/01_a_outline.html

Korea (NRF)

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International Program Department
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e-mail: cpark@nrf.re.kr

NRF ICC Program Announcement

<http://www.nrf.re.kr>
<http://www.kusco.org>

Luxembourg (FNR)

Ms. Christiane Kaell
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FNR ICC Program Announcement

<http://www.fnr.lu/inter>

Russia (RFBR)

Ms. Maria Baktysheva
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e-mail: Prokhor@rfbr.ru

RFBR ICC Program Announcement

http://www.rfbr.ru/rffi/ru/international_announcement/o_1892513

Taiwan (NSC)

Prof. Willis T. Lin
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Department of International Cooperation
National Science Council
tel 886-2-2737-7558
Email: linwt@nsc.gov.tw

and/or

Ms. Jennifer Hu
Program Director
tel: 886-2-2737-7560
Email: jenhu@nsc.gov.tw

NSC ICC Program Announcement

<http://www.nsc.gov.tw/int/ct.asp?xItem=20086&ctNode=1212>

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 at https://public.govdelivery.com/accounts/USNSF/subscriber/new?topic_id=USNSF_179.

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
Office of the General Counsel
National Science Foundation
Arlington, VA 22230