Research Networks in the Mathematical Sciences (RNMS)

PROGRAM SOLICITATION
NSF 10-584

National Science Foundation

Directorate for Mathematical & Physical Sciences
Division of Mathematical Sciences

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

November 09, 2010

and the second Tuesday in July in the years 2012 and 2015:

July 10, 2012

July 14, 2015

IMPORTANT INFORMATION AND REVISION NOTES

A revised version of the ***NSF Proposal & Award Policies & Procedures Guide*** (PAPPG), NSF 13-1, was issued on October 4, 2012 and is effective for proposals submitted, or due, on or after January 14, 2013. Please be advised that the guidelines contained in NSF 13-1 apply to proposals submitted in response to this funding opportunity.

Please be aware that significant changes have been made to the PAPPG to implement revised merit review criteria based on the National Science Board (NSB) report, National Science Foundation's Merit Review Criteria: Review and Revisions. While the two merit review criteria remain unchanged (Intellectual Merit and Broader Impacts), guidance has been provided to clarify and improve the function of the criteria. Changes will affect the project summary and project description sections of proposals. Annual and final reports also will be affected.

A by-chapter summary of this and other significant changes is provided at the beginning of both the *Grant Proposal Guide* and the *Award & Administration Guide*.

Please note that this program solicitation may contain supplemental proposal preparation guidance and/or guidance that deviates from the guidelines established in the Grant Proposal Guide.

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

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

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

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

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Research Networks in the Mathematical Sciences (RNMS)

Synopsis of Program:

The Research Networks in the Mathematical Sciences (RNMS) Program creates an award mechanism that supports researchers in ways that are intermediate in scale, scope, and duration to existing individual investigator awards and research institute awards. The RNMS Program recognizes that, over the past quarter century, mathematical research has become increasingly collaborative and interactive, because effectively overcoming core scientific challenges frequently requires the sharing of ideas and expertise. A Research Network is not a substitute for existing funding mechanisms. In particular, it is intended to complement (rather than replace) individual investigator awards by providing additional layers of interaction. Through the involvement of postdoctoral researchers and students and the promotion of international collaborations, the RNMS will not only focus on problems at the frontier of the mathematical sciences but also lead to robust and diverse training of the next generation of mathematicians and statisticians.

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.

- Tomek Bartoszynski, 1025 N, telephone: (703) 292-4885, fax: (703) 292-9032, email: tbartosz@nsf.gov
- Ricardo Castano-Bernard, 1025 N, telephone: (703) 292-4852, email: rcastano@nsf.gov
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Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.049 --- Mathematical and Physical Sciences

Award Information

Anticipated Type of Award: Continuing Grant

Estimated Number of Awards: 2 to 8 grants will be awarded in each of the three competitions, each grant for a maximum of $1,000,000 per year for up to 5 years.

Anticipated Funding Amount: $15,000,000 in each of the three competitions, pending the availability of funds.

Eligibility Information

Organization Limit:

Proposals may only be submitted by the following:

- Universities and Colleges -- Universities and four-year colleges accredited in and having a campus located in the US, acting on behalf of their faculty members.

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

None Specified

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

None Specified

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- Letters of Intent: Not Applicable
- Preliminary Proposal Submission: Not Applicable
- Full Proposals:
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
  - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)

B. Budgetary Information

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

C. Due Dates

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

November 09, 2010

and the second Tuesday in July in the years 2012 and 2015:

July 10, 2012

July 14, 2015

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

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I. INTRODUCTION

The steady increase in research productivity of mathematicians, statisticians, scientists, and engineers over the last several decades has created an explosion of knowledge and innovation. This accelerating trend is exciting, but it poses a fundamental challenge to the research community: individual researchers often can no longer master all the methods, ideas, and techniques required for discovery at the frontiers of research. Research has necessarily become more collaborative and more interactive than in the past. Accordingly, there is an increased need to support networks that link together researchers working on complex problems at the frontiers of the mathematical sciences.

Two existing award mechanisms for the NSF's Division of Mathematical Sciences (DMS) - individual investigator awards and research institute awards - provide funding for basic research in important but complementary ways. The former distributes support widely within the research community, while the latter concentrates support in a few projects that provide critical national infrastructure in the mathematical sciences. Individual investigator awards have short time scales, and they support single investigator or small group efforts to attain well-defined, near- term research goals. Institute awards have long time scales, and they support collaborative activities that sequentially identify new research frontiers and convene communities of researchers to participate in focused programs of research activities at those frontiers. The portfolio of all individual investigator awards provides broad, deep, and sustained support for research across the mathematical sciences, whereas the portfolio of all institutes provides targeted and topical support at newly emerging intra- and interdisciplinary points of contact.

Research Networks in the Mathematical Sciences (RNMS) is a new award mechanism that supports networks of researchers in ways that are intermediate in scale, scope, and duration to the existing individual investigator and research institute award mechanisms. The RNMS program will provide new platforms to address complex problems over five-to-ten-year periods by creating research collaborations that will cross intellectual, institutional, national, or other boundaries. The goals of the RNMS program are (1) to support coordinated research and training collaborations that link together researchers addressing significant challenges in the

mathematical sciences and (2) to broaden participation in the mathematical sciences by creating new opportunities for research involvement and support.

Although making progress on complex problems and core scientific questions is the major motivation for Research Networks, the program will also have positive secondary effects on the U.S. scientific and technical workforce. A portfolio of Research Networks will enhance U.S. engagement in critical fundamental and multidisciplinary research, broaden the personnel education pyramid to include training in a diverse set of U.S. and international research organizations, and reduce the length of research-implementation cycles both in the mathematical sciences and in a broad range of science and engineering disciplines critical to U.S. competitiveness. In addition, by providing the U.S. community with access to international institutions and organizations, it will enable U.S. researchers to leverage expertise that exists abroad.

A Research Networks Workshop was held in April 2009. Potential PIs may find it useful and informative to consult the report of that workshop, which can be found at the following website:

http://www.nsf.gov/mps/dms/documents/ResearchNetworksWorkshopReport.pdf

II. PROGRAM DESCRIPTION

A program of Research Networks in the Mathematical Sciences will provide a new mechanism to support research collaborations that address complex problems on the frontiers of the mathematical sciences by creating networks that link researchers across intellectual, disciplinary, professional, institutional, organizational, geographical, or other boundaries. It will complement existing research award mechanisms to promote disciplinary progress in mathematics and statistics and to promote progress on multidisciplinary research agendas. It will create a new class of rich and stimulating environments for recruiting, educating, and training the next generation of mathematicians and statisticians; and it will help to form effective connections among academic researchers and researchers in government, industry, and international institutions.

A network consists of *nodes* and *edges*. By connecting nodes, edges cross boundaries and thereby create a *network*. A *node* is a locus of expertise. Examples include, but are not limited to, single individuals or groups at universities and colleges; in business, industry, or government laboratories; or at existing centers, institutes, facilities, organizations, or institutions. A node may be in the United States or at an international location. An *edge* is a significant connection or exchange between two nodes. Examples include, but are not limited to, travel and subsistence for exchange of researchers and experts; exchange of graduate students or postdoctoral researchers; joint supervision of postdoctoral fellows; conferences, workshops, and "summer/winter schools"; regular web-based seminars; team-taught or distance-learning courses; and shared access to facilities, equipment, instrumentation, or cyberinfrastructure. Edge activities that take advantage of the rapid advances in communication technology, such as videoconferencing, internet collaborations, and virtual organizations, are welcome and encouraged. Although some networks will have edges linking mathematical sites to nodes in other disciplines, this is not a requirement of a network: Research Networks residing totally within the confines of traditional core areas of the mathematical sciences are perfectly acceptable. A Research Network, in the sense of the current document, will consist of three major nodes, designated the "hubs" of the network, and as many additional nodes as the network's management team deems appropriate for the mission of the network.

A Research Network will address scientific challenges that appear to be of lasting and significant importance, described against the backdrop of current national and international scientific activity. It should (a) configure the aggregate assets of the nodes to have broader range, greater capacity, and higher impact than can be achieved by any subset of nodes; (b) achieve scientific productivity that exceeds that of the nodes considered in isolation; and (c) create unique education and training opportunities for junior personnel, present unique growth and retraining opportunities for senior personnel, and provide unique opportunities for the involvement of active researchers who enjoy little or no federal support. It is important to note that RNMS funding is not intended to replace or supplement research support at any node. Instead, the focus is on the interactions between nodes. The fundamental question that a successful RNMS proposal will have to address is the following: How will collaborative efforts within the network provide outcomes beyond what individual participants, or subsets of them, could achieve without the network or, stated differently, how will the network as a whole be greater than the sum of its parts?

While a Research Network may have a significant impact on the mathematical landscape, it is not expected to become a permanent feature of that landscape, at least not one with sustaining NSF funding. NSF will provide support for a network for at most ten years. A typical scenario for a successful network might be a five-year award, followed by a five-year renewal. Any RNMS proposal to extend support for a given network beyond the ten-year span by creating a new, related network must involve substantial changes in both the mission of the network and its nodal structure.

As scientific progress and achievement accumulate over the five-to-ten-year lifetime of a project, a Research Network will explore and cross boundaries, adapt to the changing landscape of the mathematical sciences, and evolve *dynamically* to track the frontiers of discovery. Accordingly, a Research Network will be *modular*, in the sense that nodes and edges can be added or deleted as need and opportunity arise. To broaden participation in the mathematical sciences, a Research Network will be *inclusive*, in the sense that, for example, it will provide entry points for new researchers or researchers new to the network's research agenda; involve significant numbers of active but undersupported researchers; develop the potential of researchers at otherwise isolated institutions; and increase diversity - of ideas, of people, of institutions, and of geography - in significant new ways.

Each Research Network proposal must:

- describe the participating community of researchers and the research agenda that unites them
- identify three hubs and as many additional nodes as deemed appropriate for the network's mission, and describe the edges (i.e., describe the modes of interaction between the different nodes)
- indicate the potential scientific impact of the network's activity on the mathematical sciences and on other fields of science, technology, and engineering, as appropriate
- include a detailed and comprehensive management plan that describes how the network will achieve its objectives of being dynamic, modular, educational, and inclusive

A successful Research Network should lead to potentially transformative outcomes by enabling the creation of new ideas, novel collaborations, and unique interactions leading to discoveries that would be difficult or impossible to achieve under existing funding mechanisms. Its effects should significantly enhance the productivity and impact of its component parts. In addition, it should empower participating researchers to "think big" by allowing them to increase the scope and range of scientific questions they address, widen the variety of possible collaborations, and leverage complementary funding sources. However, a Research Network should not be looked at as a substitute for a collection of individual research grants. Finally, a Research Network should not be so large that effective management of it could present serious problems.

III. AWARD INFORMATION

Anticipated Type of Award: Continuing Grant

Estimated Number of Awards: 2 to 8 grants will be awarded in each of the three competitions, each grant for a maximum of $1,000,000 per year for up to 5 years.

Anticipated Funding Amount: $15,000,000 in each of the three competitions, pending the availability of funds.

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

IV. ELIGIBILITY INFORMATION

Organization Limit:

Proposals may only be submitted by the following:

- Universities and Colleges -- Universities and four-year colleges accredited in and having a campus located in the US, acting on behalf of their faculty members.

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

None Specified

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

None Specified

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

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

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

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

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

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.4 of the Grant Proposal Guide provides additional information on collaborative proposals.

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.

The following exceptions and additions apply to proposals submitted to this solicitation:

Cover Page: FastLane Users: Select this program solicitation from the pull down list. The RNMS program will automatically be selected. Grants.gov Users: The program solicitation number will be pre-populated by Grants.gov on the NSF Grant Application Cover Page.

An informative title for the proposed project that begins with "RNMS" must be provided. Entries on the cover page are limited to the principal investigator and a maximum of four co-principal investigators. Additional co-principal investigators should be listed on the Project Summary page and entered as Senior Investigators (the latter provision permits their biographical sketches to be included in the proposal). For additional FastLane/Grants.gov instructions, please see Section D below.

Principal Investigator (PI): While Research Networks are expected to involve participants from multiple sites, each RNMS proposal should be submitted as a three-component collaborative project, with the institution of the lead proposal serving as the primary hub of the network and the institutions of the other two components serving as auxiliary hubs. The PI of the lead proposal is the designated contact for the network and is expected to provide leadership in coordinating its activities.

Project Summary (maximum 1 page): Must consist of three parts: (1) a list of core participants (i.e., the three hubs plus any additional nodes) and their home institutions; (2) a succinct summary of the intellectual merit of the proposed project including the goal of the proposed network, major planned activities of the network, and mechanisms for promoting participation for all interested parties; and (3) the broader impacts of the project. Proposals that do not separately address both intellectual merit and broader impacts will be returned without review.

Project Description (maximum 20 pages): The following exceptions and additional items should be noted:

1. "Results from Prior Support" need not be included unless the proposed activity is clearly a logical extension of an NSF-supported activity (see the Special Information and Supplementary Documentation section below).

2. The following must be addressed in the project description:

a. *Intellectual Focus:* Describe the intellectual focus of the proposed network, the rationale for its creation, its mission and goals, and its expected impact on the mathematical sciences and on other fields of science, technology, and engineering, as appropriate.

b. *Scientific Activities:* Describe the proposed scientific activities of the network during the duration of the project, including a "ramp-up" period if needed.

c. *Governance and Management:* Provide a detailed and comprehensive plan for the governance and management of the proposed network. Also describe plans and processes for the development of the proposed activity. Include formal mechanisms to ensure allocation of group resources commensurate with the nature and level of the activities. In particular, the proposal must include the following:

- A description of the management positions, indicating duties, reporting responsibilities, and effort allotment (the involvement of professional administrator(s) and/or administrative support is permitted)
- If there is a provision for an external advisory body, a description of the role of this body vis-à-vis the operational management
- A description of the process to be used for the selection of core group members together with plans for maintaining the appropriate degree of openness and for encouraging the involvement of additional parties
- Provisions for flexibility to allow the structure of the network to change over time as the membership and the foci of the network evolve, identifying the individual(s) or committees responsible for decisions concerning addition and deletion of nodes and the methods whereby such decisions would be made
- If the project is to involve partnering with other organizations (e.g., government laboratories/research institutions, industrial partners, international partners) or networks, documentation of such arrangements, any plans for expanding these arrangements, and plans (including personnel involved) for managing these linkages
- Plans for tracking, over the life of the network, the career-paths of graduate students and postdocs who receive significant funding from the network
- Mechanisms for collecting and organizing data and other information to accomplish the assessment plans
- Mechanisms for managing mentoring activities
- A plan for maintaining, and coordinating among network sites, IT equipment essential for the network

d. *Broadening Participation Plan:* Describe the proposed network's approach to increasing diversity, broadening participation, and encouraging the involvement of members of under-represented groups and participants at a diverse range of institutions. Also include a description of how this plan will be implemented and how this is *integrated* with the overall project plan.

e. *Human Resource Development Plan:* Include plans for the selection and mentoring of students and postdoctoral fellows and for the selection and involvement of researchers at all career levels, particularly new researchers and those with no other federal support.

f. *Evaluation Plan:* Describe plans for the assessment of the proposed activity, including self-evaluation of progress toward the goals of the network. In this regard, the following information might prove helpful.

Each node in the network will be required to maintain accurate and complete records and data, in a standard template to be provided by DMS, in order to monitor overall network performance as well as individual node performance as part of the network.

The DMS RNMS Management Team also encourages network managers to find innovative ways to measure the success of their networks both in scientific progress and in training activities. For example, each network manager will be responsible for evaluating the success of the network's recruitment of student and postdoctoral researchers whose involvement contributes to the broadening participation element of the network goals.

Each network manager will be required to provide an annual report to DMS that includes hard data on network activities, with emphasis on the level of internodal movement and the network-related productivity of individual researchers. In order to write the annual report, the network manager or lead PI will collect and synthesize scientific and personnel data from each node, ensuring that records are complete and accurate. The annual report should also describe the network-specific opportunities for education, training, or retraining of junior and senior personnel and the scope of network support to researchers who enjoy little or no other federal support. The annual report should include evidence to address the question of whether network assets were configured in such a way as to achieve scientific and training capacities that exceed those of the individual nodes considered in isolation. The annual report must include the following items:

- A Participant List in a standardized and mutually agreed upon format
- A Financial Support List in a standardized and mutually agreed upon format
- An Income and Expenditure Report: a summary in spreadsheet form of the budget expenditures by activity and funding source for the reporting period

A Participant Summary Table providing the total number of participants and subtotals for the number of participants who are women, U.S. citizens and permanent residents, and members of underrepresented groups

g. *Dissemination Plan:* Describe plans for disseminating the results and outcomes of the network.

Biographical Sketches: These should be provided for the PI, co-PIs (if any), and all Senior Personnel; the format should comply with the requirements stated in the NSF Grant Proposal Guide.

Budget: The proposal must provide yearly budgets for the duration of the project. A Research Network is a dynamic entity that has the ability to evolve in time, so the budget structure needs to be designed to facilitate such evolution. For this reason, a typical network proposal is expected to dedicate roughly one-quarter of its budget to subawards, which will be used to support selected non-hub nodes at the outset of the project and possible additional nodes later. (As noted earlier, it is not necessary for a node to be a subawardee in order to belong to a Research Network.) Whereas the primary and auxiliary network hubs will be funded for the entire duration of the award, subawards will be of shorter duration, specifically, of length at most three years, but renewable. There is no limit to the number of subawards, but all subawards are subject to NSF approval. Organizations that are not eligible to submit to the RNMS solicitation may not receive subawards. In particular, any node of a network that lies outside the U.S. (or its territories) is ineligible to serve as a hub of the network, nor can such a node be the recipient of a subaward. A federally funded institute, center, or laboratory may agree to be included among the nodes of a Research Network, but for reasons of mission overlap and carrying capacity no such organization should either be a hub of a network or receive a subaward.

A Budget justification of up to three pages is required. Allowable costs for international collaborations are described below.

Funds may be requested to support collaborative activities, such as short visits among members of the network, exchange visits of students and postdocs, sharing of facilities, establishment of a public website, network meetings and retreats, partial support of workshops, conferences, and summer/winter schools tied to the network activities, etc. Any well-justified activity that fulfills the goals of the network will be considered. Innovative ideas for implementing networking strategies (including cyber-enabled communication) to promote research collaborations and new research directions or advancement of a field are especially encouraged. In particular, funds may be used to provide stipend, travel, and subsistence support for graduate students and postdoctoral researchers involved in extended (e.g., semester-long, year-long) internodal exchanges. Funds devoted to any of the aforementioned purposes, which should constitute at least one-half of the funding request in each the three components (*i.e.,* hubs) of the collaborative proposal, are to be listed on budget Line F (FastLane users) or Field E (Grants.gov users) ("Participant Support"). Under this solicitation, indirect costs are not allowed on participant support funding. Funds that will be used for network-related travel by a tenured or tenure-track faculty member of a hub or a subawardee node should be entered, as usual, on Line E (FastLane users) or Field D (Grants.gov users) ("Travel") of the respective budget.

Approximately ninety percent of the direct costs of an RNS award should be reserved for the exclusive use of the network by its member nodes. Thus, for instance, network funds are not intended to support general travel to sites outside the network. However, roughly ten percent of the direct costs can be used for outreach to the broader, extra-network community through the organization of and support for conferences, workshops, summer or winter schools, and other such events that focus on the research area of the network.

Funds may be requested for staff and administrative support at the primary and auxiliary hubs. Faculty salary may be requested by the PIs at the hubs, but only to furnish support for effort spent on the administration of the network and not for research purposes. Subaward budgets cannot contain faculty salary. In keeping with the intention that Research Networks be designed primarily to promote activity along their edges, network funds may not be used to support graduate students or postdocs during periods when they are in residence at their home institutions.

The mathematical sciences community is global in character and it is anticipated that many proposed networks may include international participation. For those networks with an international scope, NSF funds *may* be used to cover:

- network-related expenses for U.S. participants, particularly students and junior researchers, to conduct network activities at an international partner node
- limited network-related expenses for international partners to participate in network activities in the U.S.

The flow of funds from the hubs to other nodes in support of network activities will be under the control of a network management team. In certain cases that team may decide to effect the transfer of funds from a hub to a node by making a subaward. On the other hand, not every node in the network need be the recipient of a subaward.

NSF funds may *not* be used to support the expenses of the international scientists and students at their home organizations. However, the NSF considers these to be important activities and encourages the international partners to secure support for their efforts from their own national programs.

Funds from this program may *not* support independent, individual research projects of the participants, nor are they to be used as a mechanism for a mini-grant awards program.

The principal investigators of these awards will be asked to attend meetings of the network (coordinators) managers or principal investigators to be held at the NSF every two years beginning at dates to be announced. Include the necessary travel costs for attendance at these meetings in the proposed budget.

NSF plans to conduct a "reverse site visit" in the third year of each RNMS award. It will involve key network personnel and external evaluators. Funding for the final two years of the award will be contingent upon a positive outcome of this third-year review.

At the conclusion of an RNMS award, the PIs will deliver to DMS a network accomplishments report, possibly developed with the assistance of an outside expert evaluator. This report should provide an evaluation of progress made by the network as whole and by the individual network nodes toward their research and training goals.

Supplementary Documentation

The following items are the only items permitted as supplementary documentation or appendices. Supplementary documentation should be saved and uploaded as a single Portable Document Format (PDF) file.

- A description of the mentoring activities for any postdoctoral researchers that will be involved in the Research Network must be provided.
- Documentation of collaborative arrangements of significance to the proposal through letters of commitment may be included. Only letters of commitment will be permitted; "endorsement" letters are *not* acceptable. These documents may be submitted directly as PDF files.
- Current Activities: The PI and core participants listed in the project summary must provide a single-page (per investigator) description of the relationship between the proposed network and their current research activities. This replaces the "Results

of Prior Support" section normally found in NSF proposals.

Single Copy Documents: In addition to the single copy documents required by the NSF Grant Proposal Guide, the following document should be included:

- Conflicts of Interest List: Provide a list, in a single alphabetized table, with the full names of all individuals with conflicts of interest for all senior personnel (PI and co-PIs if any) and any named personnel for whom salary is requested in the project budget. Conflicts to be identified are: (1) doctoral thesis advisors or advisees, (2) collaborators or co-authors, including postdocs, for the past 48 months, and (3) any other individuals or organizations with which the investigator has financial ties (please specify type).

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

C. Due Dates

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

  November 09, 2010

  and the second Tuesday in July in the years 2012 and 2015:

  July 10, 2012

  July 14, 2015

Opportunities for submission of proposals are scheduled in 2010, 2012, and 2015; no competitions are planned in other years.

D. FastLane / Grants.gov Requirements

- For Proposals Submitted Via FastLane:

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

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

- For Proposals Submitted Via Grants.gov:

  Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www07.grants.gov/applicants/app_help_reso.jsp. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

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

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program 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

- The overall impact of the proposed scientific activities on the mathematical sciences and on other fields of science, technology, and engineering, as appropriate
- The quality of the stated missions and goals of the network, its likely effectiveness in meeting these missions and goals and the extent to which there is added value provided by the network that goes beyond its separate components
- The capabilities of the network leadership, including management and organizational ability of the proposed organizer(s), and the commitment of the proposed leadership team
- The design, structure, and management of the operation of the network, including the quality and effectiveness of the management plan, including plans for interaction among the nodes of the network, the adaptivity and evolution of the network (i.e., the method of selection of new nodes, modification of existing nodes and inclusion of new topics), the method of selection of activities, and the method of selection of participants
- The level of the commitment to promoting diversity with respect to members of under-represented groups and institutions and the quality of the diversity implementation plan
- The quality and appropriateness of the network's education and training components, especially plans to attract, involve, and mentor researchers early in their career paths
- The extent, where appropriate, to which communication and interaction with other areas of science and engineering are fostered
- The extent, where appropriate, to which linkages and partnerships with other university research groups, industry, national laboratories, nonprofit organizations, and international institutions is fostered
- The quality of the evaluation plan
- The reasonableness and appropriateness of the budget
- The quality and likely effectiveness of plans for future network growth
- The quality and appropriateness of the infrastructure support for the network (including, but not limited to, cyberinfrastructure, communications infrastructure, computing environment, and meeting space)

B. Review and Selection Process

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

Subsequent to the panel meeting and before funding recommendations are decided upon, the RNMS Management Team will conduct teleconferences with the principal investigators of the most highly ranked projects in order to discuss concerns that were identified either by the panel or by the Management Team.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

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

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

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

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the

award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); * or Research Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

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

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

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.

See section V.A.2(f) of the solicitation for details about special reporting requirements.

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:

- Tomek Bartoszynski, 1025 N, telephone: (703) 292-4885, fax: (703) 292-9032, email: tbartosz@nsf.gov
- Ricardo Castano-Bernard, 1025 N, telephone: (703) 292-4852, email: rcastano@nsf.gov
- Xiaoming Huo, 1025 N, telephone: (703) 292-4876, email: xhuo@nsf.gov

For questions related to the use of FastLane, contact:

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

For questions relating to Grants.gov contact:

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

IX. OTHER INFORMATION

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "My NSF" 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. "My NSF" also is available on NSF's website at http://www.nsf.gov/mynsf/.

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

The National Science Foundation, 4201 Wilson Boulevard, Arlington, Virginia 22230, USA
Tel: (703) 292-5111, FIRS: (800) 877-8339 | TDD: (800) 281-8749

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