

Experimental Infrastructure Network (EIN)

Program Solicitation

NSF 03-539



National Science Foundation

Division of Advanced Networking Infrastructure and Research

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

May 08, 2003

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Experimental Infrastructure Network (EIN)

Synopsis of Program:

The purpose of the NSF Experimental Infrastructure Networks (EIN) is to establish, address, explore, and experiment with next generation network infrastructure technologies to meet the rapidly emerging requirements of e-Science and other advanced applications which are not being addressed by today's research networks (e.g., Abilene or vBNS) or the Internet. The EIN will be driven by applications which push the leading edges of network technologies and capabilities, such as higher bandwidth, alternate protocols, performance, latency, and guaranteed levels of service. The EIN program blurs the traditional demarcation points normally associated with computing, networking, and storage technologies, as one of the goals of the EIN program is to meet the needs of next generation applications without being constrained by existing infrastructure deployments, capabilities or approaches.

The purpose of this announcement is to enable members of the advanced network community (universities, government agencies, non-profit organizations and industrial units) to collaborate in establishing, developing, exploring and experimenting with new types of networking infrastructure to support novel high performance applications. The Experimental Infrastructure Networks must be robust enough to support application-driven development of software application toolkits, middleware, computing and networking. EIN projects must also provide enough "persistence" to be useful to the application scientists and engineers, and yet be able to accommodate and encourage experimentation with innovative and novel approaches to networking architectures and technologies. EIN proposals are expected to directly address how application scientists will accommodate network experimentation and network service.

The EIN Program encourages collaboration between application scientists and engineers, and the networking

community, and will involve a variety of disciplines and geographic locations, depending on application requirements. Features of the EIN include:

- one or more applications which require network capabilities not available on today's production network
- end-to-end support to the application(s)
- creative and innovative network infrastructure projects involving a combination of academic, government, and industry partners

ANIR has a companion program announcement called the Network Research Testbed (NRT) which will emphasize cutting-edge research and will contribute in a significant way to expand the frontiers of networking. Since the EIN and the NRT programs cover a wide, continuous problem space from experimental infrastructure to advanced networking research, the programs are being announced at the same time. Proposers will be expected to direct their proposal to either EIN or NRT, as the same proposal will not be reviewed by both programs. Proposers can, however, submit a proposal to each program if they are substantially different from each other and address the goals and objectives of the program announcement.

Proposers are encouraged to contact the appropriate Program Director if they are unsure which program they should submit to or if they have any questions.

Cognizant Program Officer(s):

- Alan R. Blatecky, Program Director, Directorate for Computer & Information Science & Engineering, Division of Advanced Networking Infrastructure and Research, 1175 N, telephone: (703) 292-8948, fax: (703) 292-9010, email: ablateck@nsf.gov
- Kevin L. Thompson, Special Projects Program Director, Directorate for Computer & Information Science & Engineering, Division of Advanced Networking Infrastructure and Research, 1175 N, telephone: (703) 292-8948, fax: (703) 292-9010, email: kthomps@nsf.gov

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

- 47.070 --- Computer and Information Science and Engineering

Eligibility Information

- **Organization Limit:** None Specified.
- **PI Eligibility Limit:** None Specified.
- **Limit on Number of Proposals:** None Specified.

Award Information

- **Anticipated Type of Award:** Standard or Continuing Grant or Cooperative Agreement
- **Estimated Number of Awards:** 3 to 5
- **Anticipated Funding Amount:** \$10,000,000 In FY 2003 pending availability of funds.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Full Proposal Preparation Instructions:** Standard GPG Guidelines apply.

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required.

- **Indirect Cost (F&A) Limitations:** Not Applicable.
- **Other Budgetary Limitations:** Not Applicable.

C. Due Dates

- **Full Proposal Deadline Date(s)** (due by 5 p.m proposer's local time):
May 08, 2003

Proposal Review Information

- **Merit Review Criteria:** National Science Board approved criteria apply.

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.

TABLE OF CONTENTS

Summary of Program Requirements

- I. **Introduction**
- II. **Program Description**
- III. **Eligibility Information**
- IV. **Award Information**
- V. **Proposal Preparation and Submission Instructions**
 - A. Proposal Preparation Instructions
 - B. Budgetary Information
 - C. Due Dates
 - D. FastLane Requirements
- VI. **Proposal Review Information**
 - A. NSF Proposal Review Process
 - B. Review Protocol and Associated Customer Service Standard
- VII. **Award Administration Information**
 - A. Notification of the Award
 - B. Award Conditions
 - C. Reporting Requirements
- VIII. **Contacts for Additional Information**
- IX. **Other Programs of Interest**

I. INTRODUCTION

The NSF Division of Advanced Networking Infrastructure and Research (ANIR) is continuing a major theme and emphasis that began with the establishment of NSFnet and advanced networking research activities such as the vBNS program. These programs were designed to support the research community with networking infrastructure resources which were not commercially available. And, because of their success, they became the foundation of the commercial Internet and these networking technologies are now being used by people and institutions around the world.

The NSF Experimental Infrastructure Network addresses a similar problem space; namely, support of science and engineering research applications that can not be supported by existing production networks such as the commodity internet or advanced networks such as Abilene. The EIN will be driven by new applications which push the leading edges of network technologies and capabilities not being supported today.

This announcement seeks proposals to develop innovative experimental infrastructure networks to support next generation applications such as e-Science, remote visualization, real-time steering and control, sensor networks and so forth. Since the experimental infrastructure will be driven by applications, explicit collaboration between applications domain scientists and engineers, network scientists and technical support staff is expected. The scope of an EIN project can be multi-campus, regional, national or even international, depending on the driving application and the mix of technologies, partners and collaboration.

II. PROGRAM DESCRIPTION

Experimental Infrastructure Network projects will use advanced applications to explore and experiment with next generation networking architectures and technologies which are not supported by the Internet or existing production networks. EIN projects will focus on end-to-end connections and services of leading-edge sites with supportive facilities, including software and middleware development, laboratory instruments, data archives, computational clusters and so forth. The experimental infrastructure must also provide enough persistence and professional staff to support advanced e-Science applications.

A common characteristic of EIN projects is that the project will be able to control or effectively manage the experimental infrastructure from end-to-end. This means that if the application and experiment encounters a bottleneck or problem in some section of the infrastructure, the project has the resources and capabilities to resolve the problem. In some cases, the EIN facilities will be able to be reconfigured to meet the needs of the driving applications. In other cases, infrastructure variables may need to be controlled so that experimental results can be duplicated. In still other cases, facilities may have to be scheduled to ensure effective utilization, sharing and collaboration across disciplines, geography or time zones. The project must have enough control of the experimental infrastructure and technical capabilities to facilitate an experiment from end-to-end and from start to finish.

Another common characteristic will be that the projects will have a focus on applications and pre-market technologies. This might include hardware or software which is considered experimental in industry (e.g., prototypes, perhaps Alpha releases rather than Beta products), experimental test approaches being explored by research labs, or even technologies coming out of what has often been called "skunk-works" activities. As with the pre-market focus of the NSFnet, the focus will include an emphasis upon making the knowledge and innovative successes available so that they can become part of existing, emerging, or new production networks and services.

Since the application will define the requirements of infrastructure experiment(s) to be conducted and its functionalities, all aspects and types of new and different networking infrastructure will be considered. Thus, supported experimental infrastructure includes, but is not limited to, wireless deployments, hybrid technologies, alternate protocols, sensor networks, lambda configurations, optical networks and so forth. The key is not necessarily specific technology implementations, but integration of the technologies and related infrastructure to support the application. This includes some focus on vertical integration (e.g., from hardware to application to user interface and social factors) as well as horizontal integration (e.g., other geographic sites, applicability to other disciplines).

It should be noted again, that the e-Science applications must require network infrastructure capabilities which are

not being addressed by today's production networks.

Possible features, characteristics or components of an Experimental Infrastructure Network project might include:

- a small to moderate number of sites or nodes for each project,
- a small number of focused applications at the outset per project,
- access and/or connections to unique resources, such as computational clusters, large dynamic datasets, scientific instruments
- each project footprint will extend beyond a single metro area, but may include a range that can extend from regional to national.
- and, while a single project may not have a national footprint, a set of projects taken together very likely will have a national scope.

The entire set of projects will address a variety of infrastructure & technologies. Individual projects may also include the involvement and/or collaboration with international colleagues or partners, depending on the application requirements, required resources and network configuration.

The Experimental Infrastructure Program encourages opportunistic partnerships as the intent is to experiment with next generation technologies and software to enable applications which are not being supported today. The EIN also encourages the development of these new approaches into deployment, persistent infrastructure and commercialization as appropriate. This in turn means that the program expects to see significant collaboration at both the infrastructure and application level in proposed projects, as well as with other project partners. The program also encourages projects to involve significant collaboration with organizations and entities from other geographic areas to broaden the base of researchers and facilities and to create a more extensive infrastructure. In addition, the program will leverage the installed base of facilities and expertise from academic, government, industry and international communities, to conduct the experiments and expedite development.

Experimental Infrastructure projects have also proven to be an invaluable educational vehicle for training a new generation of scientists, engineers and application developers and, most importantly, for exposing undergraduate and graduate students to the multi-disciplinary approaches needed to develop and deploy advanced technologies.

The EIN program also encourages the development of educational opportunities for undergraduate and graduate students to participate in EIN projects. These opportunities could include a range of activities such as learning workshops and seminars, involvement in the development of EIN applications, participation in experiments and deployments of infrastructure, internships and so forth.

For additional background information on the Experimental Infrastructure Network, see the final reports from two NSF workshops:

"NSF CISE Grand Challenges in e-Science" December 5-6, 2001

URL: www.evl.uic.edu/activity/NSF/index.html

"NSF ANIR Workshop on Experimental Infostructure Networks" May 20-21, 2002

URL: www.calit2.net/events/2002/nsf/index.html

III. ELIGIBILITY INFORMATION

The categories of proposers identified in the [Grant Proposal Guide](#) are eligible to submit proposals under this program announcement/solicitation.

IV. AWARD INFORMATION

The anticipated program funding is \$10,000,000 in FY 2003 as standard or continuing grants or cooperative agreements. The final program budget, number of awards and average award size or duration are subject to the availability of funds. Estimated award size may be \$1,400,000 per year for 3-5 years.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Instructions:

Proposals submitted in response to this program announcement/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/cgi-bin/getpub?gpg>. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

Proposers are reminded to identify the program announcement/solicitation number (03-539) in the program announcement/solicitation block on the NSF *Cover Sheet For Proposal to the National Science Foundation*. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

B. Budgetary Information

Cost Sharing:

Cost sharing is not required in proposals submitted under this Program Solicitation.

C. Due Dates

Proposals must be submitted by the following date(s):

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

May 08, 2003

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this announcement/solicitation through the FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at: <http://www.fastlane.nsf.gov/a1/newstan.htm>. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program announcement/solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this announcement/solicitation.

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. Proposers are no longer required to provide a paper copy of the signed Proposal Cover Sheet to NSF. Further instructions regarding this process are available on the FastLane Website at: <http://www.fastlane.nsf.gov>

VI. PROPOSAL REVIEW INFORMATION

A. NSF Proposal Review Process

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

The National Science Board approved revised criteria for evaluating proposals at its meeting on March 28, 1997 (NSB 97-72). All NSF proposals are evaluated through use of the two merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

On July 8, 2002, the NSF Director issued Important Notice 127, Implementation of new Grant Proposal Guide Requirements Related to the Broader Impacts Criterion. This Important Notice reinforces the importance of addressing both criteria in the preparation and review of all proposals submitted to NSF. NSF continues to strengthen its internal processes to ensure that both of the merit review criteria are addressed when making funding decisions.

In an effort to increase compliance with these requirements, the January 2002 issuance of the GPG incorporated revised proposal preparation guidelines relating to the development of the Project Summary and Project Description. Chapter II of the GPG specifies that Principal Investigators (PIs) must address both merit review criteria in separate statements within the one-page Project Summary. This chapter also reiterates that broader impacts resulting from the proposed project must be addressed in the Project Description and described as an integral part of the narrative.

Effective October 1, 2002, NSF will return without review proposals that do not separately address both merit review criteria within the Project Summary. It is believed that these changes to NSF proposal preparation and processing guidelines will more clearly articulate the importance of broader impacts to NSF-funded projects.

The two National Science Board approved merit review criteria are listed below (see the [Grant Proposal Guide](#) Chapter III.A for further information). The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which he/she is qualified to make judgments.

What is the intellectual merit of the proposed activity?

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

What are the broader impacts of the proposed activity?

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

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

Integration of Research and Education

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

Integrating Diversity into NSF Programs, Projects, and Activities

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

B. Review Protocol and Associated Customer Service Standard

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by Ad Hoc and/or panel review.

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

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 Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.

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 Division Director accepts the Program Officer's recommendation.

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 Division 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.A. 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 (NSF-GC-1); * or Federal Demonstration Partnership (FDP) Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreement awards also are administered in accordance with NSF Cooperative Agreement Terms and Conditions (CA-1). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/home/grants/grants_gac.htm. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at <http://www.nsf.gov/cgi-bin/getpub?gpm>. The GPM is also for sale through the Superintendent of Documents, Government Printing Office (GPO), Washington, DC 20402. The telephone number at GPO for subscription information is (202) 512-1800. The GPM may be ordered through the GPO Website at <http://www.gpo.gov>.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Project reviews will take place several times a year in the form of PI meetings and site-visits.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for the PI and all Co-PIs. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project reporting system, available through FastLane, for preparation and submission of annual and final project reports. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system.

VIII. CONTACTS FOR ADDITIONAL INFORMATION

General inquiries regarding this program should be made to:

- Alan R. Blatecky, Program Director, Directorate for Computer & Information Science & Engineering, Division of Advanced Networking Infrastructure and Research, 1175 N, telephone: (703) 292-8948, fax: (703) 292-9010, email: ablateck@nsf.gov
- Kevin L. Thompson, Special Projects Program Director, Directorate for Computer & Information Science & Engineering, Division of Advanced Networking Infrastructure and Research, 1175 N, telephone: (703) 292-8948, fax: (703) 292-9010, email: kthomps@nsf.gov

Fastlane Contacts

Priscilla Bezdek, CISE, ANIR, telephone 703 292 8949; pbezdek@nsf.gov

For questions related to the use of FastLane, contact:

- None Specified.

IX. OTHER PROGRAMS OF INTEREST

The NSF *Guide to Programs* is a compilation of funding for research and education in science, mathematics, and engineering. The NSF *Guide to Programs* is available electronically at <http://www.nsf.gov/cgi-bin/getpub?gp>. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the *Guide to Programs* will be announced in the NSF *E-Bulletin*, which is updated daily on the NSF Website at <http://www.nsf.gov/home/ebulletin>, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's *Custom News Service* (<http://www.nsf.gov/home/cns/start.htm>) to be notified of new funding opportunities that become available.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF, although some programs may have special requirements that limit eligibility.

Facilitation Awards for Scientists and Engineers with Disabilities (FASSED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the GPG Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

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 or (800) 281-8749

- **To Order Publications or Forms:**

Send an e-mail to: pubs@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; 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 applicant 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 needing information as part of the review process or in order to coordinate programs; 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," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). 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 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 this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton, Reports Clearance Officer, Division of Administrative Services, National Science Foundation, Arlington, VA 22230.

OMB control number: 3145-0058.

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