



EXPLORATORY RESEARCH ON SCALABLE ENTERPRISE SYSTEMS

Program Solicitation

NSF 99-149

DIRECTORATE FOR ENGINEERING

DEADLINE DATE: DECEMBER 15, 1999, 5:00 PM (your local time)



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SUMMARY OF PROGRAM REQUIREMENTS

GENERAL INFORMATION

Program Name: EXPLORATORY RESEARCH ON SCALABLE ENTERPRISE SYSTEMS

Short Description/Synopsis of Program:

The Engineering Directorate of the National Science Foundation (NSF) announces a research initiative on Scalable Enterprise Systems. The primary objective of this initiative is to foster the development of a science base for enterprise-wide business automation. While the underlying concepts for this topic originated in the context of manufacturing systems, the application scope of the research is meant to address not only the manufacturing systems part of the enterprise but also in a coupled fashion the financial management, human resource management, sales and marketing aspects. Because the Internet looms large as a deployment environment, issues of scalability will be crucial in the development of this science base.

Program Points of Contact:

Lawrence M. Seiford, Program Director, Room 550, Engineering, Division of Design, Manufacture and Industrial Innovation, (703) 306-1395, e-mail: lseiford@nsf.gov

Ken P. Chong, Program Director, Room 545, Engineering, Division of Civil and Mechanical Systems, telephone (703) 306-1361, e-mail: kchong@nsf.gov

Kishan Baheti, Program Director, Room 675, Engineering, Division of Electrical and Communication Systems, (703) 306-1345, e-mail: rbaheti@nsf.gov

Maria K. Burka, Program Director, Room 525, Engineering, Division of Chemical and Transport Systems, 703 306-1371, e-mail: mburka@nsf.gov

Frederica Darema, Senior Science and Technology Advisor, Room 1160, Computer and Information Science and Engineering, Division of Experimental and Integrative Activities, (703) 306-1981, e-mail: fdarema@nsf.gov

Mariann Jelinek, Program Director, Room 910, Social, Behavioral and Economic Sciences, Division of Social and Economic Sciences, (703) 306-1757, e-mail: mjelinek@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) No.: 47.041 — Engineering Grants

ELIGIBILITY

- ◆ Limitation on the categories of organizations that are eligible to submit proposals:

Proposals may be submitted by U.S. academic institutions in support of individual investigators or small groups.

- ◆ PI eligibility limitations: **None**

- ◆ Limitation on the number of proposals that may be submitted by an organization:

Only one proposal may be submitted by a Principal Investigator.

AWARD INFORMATION

- ◆ Type of award anticipated: **Standard Grant**
- ◆ Number of awards anticipated in FY 2000: **approximately 20-25 awards**
- ◆ Amount of funds available: **\$3 million in FY 2000**
- ◆ Anticipated date of award: **May 2000**

PROPOSAL PREPARATION & SUBMISSION INSTRUCTIONS

- ◆ **Proposal Preparation Instructions**
 - Letter of Intent requirements: **None**
 - Preproposal requirements: **None**
 - Proposal preparation instructions: **Standard NSF Grant Proposal Guide instructions**
 - Supplemental proposal preparation instructions: **None**
 - Deviations from standard (GPG) proposal preparation instructions: **None**
- ◆ **Budgetary Information**
 - Cost sharing/matching requirements: **None**
 - Indirect cost (F&A) limitations: **None**
 - Other budgetary limitations: **Award amounts up to \$100,000 (or \$200,000 for essential collaborations) for proposals submitted in response to this announcement**
- ◆ **FastLane Requirements**
 - FastLane proposal preparation requirements: **FastLane use required**
 - FastLane point of contact: **Cheryl Albus, (703) 306-1302, calbus@nsf.gov**
- ◆ **Deadline/Target Dates**
 - Full Proposal Deadline **5:00 PM your local time, December 15, 1999 (FastLane)**

PROPOSAL REVIEW INFORMATION

- ◆ Merit Review Criteria: **Standard National Science Board approved criteria**

AWARD ADMINISTRATION INFORMATION

- ◆ Grant Award Conditions: **GC-1 or FDP III**
- ◆ Special grant conditions anticipated: **None anticipated**
- ◆ Special reporting requirements anticipated: **None**

INTRODUCTION

The Engineering Directorate of the National Science Foundation (NSF) announces a research initiative on Scalable Enterprise Systems. The primary objective of this initiative is to foster the development of a science base for enterprise-wide business automation. While the underlying concepts for this topic originated in the context of manufacturing systems, the application scope of the research is meant to address not only the manufacturing systems part of the enterprise but also in a coupled fashion the financial management, human resource management, sales and marketing aspects. Because the Internet looms large as a deployment environment, issues of scalability will be crucial in the development of this science base.

Background

From its inception, the commercial software market has been driven by the needs of automating business functions and information. In recent years the fastest growing part of the market has been ERP (enterprise resource planning) systems.

The concept of a consistent suite of interoperable application programs to serve all major functions of a business enterprise had its origin in manufacturing. However, those engaged in designing CIM (computer integrated manufacturing) systems soon realized that such systems could not function in isolation from other major enterprise functions, such as cost accounting, human resource management, sales and marketing, and purchasing. These considerations led to the development of concepts such as “MRP (materials requirements planning),” “enterprise level systems,” “supply and value chains,” and others which, in turn, gave rise to ERP systems. While individual pieces of these systems have separate theoretical traditions, the ensemble is untested because it is only recently that such systems have become technologically feasible. More than ever, a science base to underpin the entire field of enterprise-wide business automation is needed now.

A Science Base for Enterprise-Wide Business Automation

Current ERP products represent an evolutionary development in commercial data processing. There is little if any theoretical basis for this development. What theory exists lies in the database organization of such systems and in optimization methods for operational functions, such as resource planning and scheduling. We note that “theory” in the database context should be interpreted modestly. It is mainly a descriptive theory comprising concepts that simplify, clarify, and unify. Such a theory is valued for its semantic power to express and clarify, rather than its power to predict.

The promise of ERP is more than enterprise-wide interoperability and consistency. Its objectives should also include standardization of its principal functional modules to minimize customization and enhance reliability. This objective is far from being achieved. ERP implementations require a high degree of customization. Full implementation often takes years with many efforts never completed. What is needed is a theoretical foundation similar to the one provided to database systems by the relational model. Development of this science base has the potential of giving rise to a new research field.

Scalable Enterprise Systems

The term *scalability* refers to the behavior and performance as the size, complexity, and interdependence increases. Computer networks and the Internet, in particular, have become a universal medium for enterprise level software deployment. The network operating environment now greatly stretches **the range of scalability, from a few users to millions of simultaneous users**. This is true not only of consumer oriented retail operations on the Internet, but also business-to-business e-commerce and deployment of enterprise-wide systems. In this context, scalability should mean “no change in software and guaranteed quality of service” as the number of users increases indefinitely. While various quality measures might be applicable, the primary focus should be on robustness, reliability, flexibility, and the ability of the system to dynamically adapt to changing conditions.

PROGRAM DESCRIPTION

In order to identify basic research issues in this area, a workshop was held at NSF on April 26-27, 1999. Forty participants representing industry and academia along with four invited speakers shared their perspectives and identified a set of research issues deemed relevant to the development of a fundamental science base in this area. Details on this workshop can be found at www.eng.nsf.gov/programs/nsf99-149. Since a broad set of issues was identified, the consensus was that an initiative in this area should first consist of an exploratory stage followed by more in-depth investigation. The following program description has been developed with this in mind.

The initial phase will emphasize high risk/high return, exploratory studies of scalable enterprise systems. We anticipate funding 20-25 exploratory proposals, subject to quality considerations, at levels up to \$100,000 (\$200,000 for essential collaborations) each for one year. Emphasis will be placed on process modeling, system architecture issues, scalability, organizational design issues, collaborative decision-making, and supply chain issues as they relate specifically to scalable enterprise systems. We seek novel ideas which are NOT already widely researched and published.

In the process of defining a new field it is particularly important that the proposals be specific and highly focused. The research should lead to concrete advances in clearly defined contexts. The inclusion of practical examples and prototypes is strongly encouraged. All proposals should explicitly address *scalability* including the ability of the enterprise system to be deployed with increasing returns to scale and decreasing costs to scale.

Proposals are invited that either focus on and substantially contribute to one or more of the following basic research themes or consist of prototype development that incorporates several of these themes to illustrate the principles underlying scalable enterprise systems.

1. *Modeling* of enterprise-level processes including process specifications, linguistic support, granularity and levels of abstraction.
2. *System architecture* issues including modularization, interconnectivity, and integration platforms or frameworks. These issues also include standardization of application programs, automatic installation of modules, and verification.
3. *Organizational design* issues that would provide substantive insight and mechanisms for conceptualizing and analyzing the enterprise (people, organization, constraints) and the development of "laws of behavior" for scalable enterprises.
4. *Collaborative decision making* in scalable enterprise systems including the sharing of collaborative knowledge and protection of core knowledge (co-optition), and the incorporation of risk and uncertainty.
5. *Supply chain design* issues in the broader context of enterprise systems. These could include structures for the integration, coordination, and management of the complex variety of activities in this environment, design approaches that facilitate outsourcing or strategic alliances, and decentralized mechanisms or policies that cause desirable emergent behaviors of the enterprise system.

Proposals must include an impact statement expressing how the research will contribute to the improved understanding, development and/or operation of next-generation ERP systems.

ELIGIBILITY

Proposals may be submitted by U.S. academic institutions in support of individual investigators or small groups. Synergistic collaboration among researchers and collaboration or partnerships with industry or government laboratories is encouraged when appropriate. Only one proposal may be submitted by a Principal Investigator. Group and collaborative proposals involving more than one institution must be submitted as a single administrative package from one of the institutions involved. Due to the limited availability of funds, prospective applicants are encouraged to contact one of the program officers listed at the end of this document for guidance.

AWARD INFORMATION

We anticipate funding 20-25 exploratory proposals at levels up to \$ 100,000 (\$200,000 for essential collaborations) for one year. The number of awards will be subject to the availability of funds and the quality of the proposals. A subsequent Phase II competition is under consideration; if held, only successful awardees in the current competition will be eligible to submit proposals for Phase II awards. It is anticipated that these Phase II awards would be for \$500,000 - \$800,000 and three years duration.

PROPOSAL PREPARATION & SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions.

Proposals submitted in response to this program announcement should be prepared and submitted in accordance with the general guidelines contained in the *Grant Proposal Guide (GPG)*, NSF 99-2. The complete text of the GPG (including electronic forms) is available electronically on the NSF Web site at: <<http://www.nsf.gov/>>. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone 301.947.2722 or by e-mail from pubs@nsf.gov.

Proposers are reminded to identify the program announcement number (NSF 99-149) in the program announcement/solicitation block on the NSF Form 1207, "*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. Proposals must include an impact statement expressing how the research will contribute to the improved understanding, development and/or operation of next-generation ERP systems.

B. Proposal Due Dates.

All proposals **MUST** be submitted electronically via FastLane by 5:00 PM, your local time, December 15, 1999. Copies of the signed proposal cover sheet must be submitted in accordance with the instructions identified below.

Submission of Signed Cover Sheets. For proposals submitted electronically via FastLane, the signed proposal Cover Sheet (NSF Form 1207) should be forwarded to the following address and received by NSF by December 22, 1999:

National Science Foundation
DIS-FastLane Cover Sheet
4201 Wilson Blvd.
Arlington, VA 22230

A proposal may not be processed until the complete proposal (including signed Cover Sheet) has been received by NSF.

D. FastLane Requirements.

The NSF FastLane system is available for electronic preparation and submission of a proposal through the Web at the FastLane Web site at <<http://www.fastlane.nsf.gov/>>. The Sponsored Research Office (SRO or equivalent) must provide a FastLane Personal Identification Number (PIN) to each Principal Investigator (PI) to gain access to the FastLane "Proposal Preparation" application. PIs that have not submitted a proposal to NSF in the past must contact their SRO to be added to the NSF PI database. This should be done as soon as the decision to prepare a proposal is made.

In order to use NSF FastLane to prepare and submit a proposal, the following are required:

Browser (must support multiple buttons and file upload)

- Netscape 3.0 or greater
- Microsoft Internet Explorer 4.01 or greater

PDF Reader (needed to view/print forms)

- Adobe Reader 3.0 or greater

PDF Generator (needed to create project description)

- Adobe Acrobat 3.01 or greater
- Aladdin Ghostscript 5.10 or greater

A list of registered institutions and the FastLane registration form are located on the FastLane Web page.

PROPOSAL REVIEW INFORMATION

A. Merit Review Criteria.

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, adjacent disciplines to that principally addressed in the proposal, etc.

Proposals will be reviewed against the following general merit review criteria established by the National Science Board. Following each criterion are potential considerations that the reviewer may employ in the evaluation. These are suggestions and not all will apply to any given proposal. Each reviewer will be asked to address only those that are relevant to the proposal 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 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?

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 learner perspectives. PIs should address this issue in their proposal to provide reviewers with the information necessary to respond fully to both NSF merit review criteria. NSF staff will give it careful consideration in making funding decisions.

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 -- are 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. PIs should address this issue in their proposal to provide reviewers with the information necessary to respond fully to both NSF merit review criteria. NSF staff will give it careful consideration in making funding decisions.

B. Merit Review Process.

Most of the proposals submitted to NSF are reviewed by mail review, panel review, or some combination of mail and panel review. Proposals submitted in response to this announcement will be reviewed by panel review.

All proposals are carefully reviewed by at least three persons outside NSF who are experts in the particular field represented by the proposal. Reviewers will be asked to formulate a recommendation to either support or decline each proposal. A program officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation. In most cases, proposers will be contacted by the program officer after his or her recommendation to award or decline funding has been approved by his or her supervisor, the division director. This informal notification is not a guarantee of an eventual award. NSF will be able to tell applicants whether their proposals have been declined or recommended for funding within six months for 95 percent of proposals in this category. The time interval begins on the proposal deadline or target date or from the date of receipt, if deadlines or target dates are not used by the program. The interval ends when the division director accepts the program officer's recommendation.

In all cases, after final programmatic approval has been obtained, award recommendations are then 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 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 an 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 Officer does so at its own risk.

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 (DGA). 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.

B. Grant Award Conditions.

An NSF grant consists of: (1) the award letter, which includes any special provisions applicable to the grant 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 grant conditions, such as Grant General Conditions (NSF GC-1)* or Federal Demonstration Partnership Phase III (FDP) Terms and Conditions* and (5) any NSF brochure, program guide, announcement or other NSF issuance that may be incorporated by reference in the award letter. Electronic mail notification is the preferred way to transmit NSF grants 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 Web site at: <<http://www.nsf.gov/>>. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone 301.947.2722 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, (NSF 95-26) available electronically on the NSF Web site. The GPM also is available in paper copy by subscription from the Superintendent of Documents, Government Printing Office, Washington, DC 20402. The GPM may be ordered through the GPO Web site 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.

Within 90 days after expiration of a grant, the PI also is required to submit a final project report. Approximately 30 days before expiration, NSF will send a notice to remind the PI of the requirement to file the final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

NSF has implemented a new electronic project reporting system, available through FastLane, which 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. Reports will continue to be required annually and after the expiration of the grant, but PIs will not need to re-enter information previously provided, either with the proposal or in earlier updates using the electronic system.

Effective October 1, 1998, PIs are required to use the new reporting format for annual and final project reports. PIs are strongly encouraged to submit reports electronically via FastLane. For those PIs who cannot access FastLane, paper copies of the new report formats may be obtained from the NSF Clearinghouse as specified above. NSF expects to require electronic submission of all annual and final project reports via FastLane beginning in October, 1999.

D. New Awardee Information.

If the submitting organization has never received an NSF award, it is recommended that the organization's appropriate administrative officials become familiar with the policies and procedures in the NSF *Grant Policy Manual* which are applicable to most NSF awards. The "Prospective New Awardee Guide" (NSF 97-100) includes information on: Administration and Management Information; Accounting System Requirements and Auditing Information; and Payments to Organizations with Awards. This information will assist an organization in preparing documents that NSF requires to conduct administrative and financial reviews of an organization. The guide also serves as a means of highlighting the accountability requirements associated with Federal awards. This document is available electronically on NSF's Web site at: <<http://www.nsf.gov/cgi-bin/getpub?nsf97100>>.

CONTACTS FOR ADDITIONAL INFORMATION

General inquiries should be made to the **Exploratory Research on Scalable Enterprise Systems Program**. Contact persons are :

Dr. Lawrence M. Seiford, Program Director, Division of Design, Manufacture and Industrial Innovation, (703) 306-1395, e-mail: lseiford@nsf.gov

Dr. Kishan Baheti, Program Director, Division of Electrical and Communication Systems, (703) 306-1345, e-mail: rbaheti@nsf.gov

Dr. Ken P. Chong, Program Director, Division of Civil and Mechanical Systems, telephone (703) 306-1361, e-mail: kchong@nsf.gov

Dr. Maria K. Burka, Program Director, Division of Chemical and Transport Systems, 703 306-1371, e-mail: mburka@nsf.gov

Dr. Frederica Darema, Senior Science and Technology Advisor, Computer and Information Science and Engineering, Division of Experimental and Integrative Activities, (703) 306-1981, e-mail: fdarema@nsf.gov

Dr. Mariann Jelinek, Program Director, Social, Behavioral and Economic Sciences, Division of Social and Economic Sciences, (703) 306-1757, e-mail: mjelinek@nsf.gov

For questions related to use of FastLane, contact Cheryl Albus, (703) 306-1302, calbus@nsf.gov.

OTHER PROGRAMS OF INTEREST

The NSF Guide to Programs is a compilation of funding opportunities for research and education in science, mathematics, and engineering. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter. Beginning in fiscal year 1999, the NSF Guide to Programs only will be available electronically, at <http://www.nsf.gov/cgi-bin/getpub?gp>. Many NSF programs offer announcements concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices listed in Appendix A of the GPG.

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, available electronically on the NSF Web site at: <http://www.nsf.gov/home/ebulletin/>. Subscribers can also sign up for NSF's Custom News Service to find out what funding opportunities are available.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Grantees 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 (unless otherwise specified in the eligibility requirements for a particular program).

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 program announcement or contact the program coordinator at (703) 306-1636.

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 regarding NSF programs, employment, or general information. TDD may be accessed at (703) 306-0090 or through FIRS on 1-800-877-8339.

We want all of our communications to be clear and understandable. If you have suggestions on how we can improve this document or other NSF publications, please email us at <http://www.plainlanguage@nsf.gov>.

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 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.

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: Reports Clearance Officer; Information Dissemination Branch, DAS; National Science Foundation; Arlington, VA 22230.

YEAR 2000 REMINDER

In accordance with Important Notice No. 120 dated June 27, 1997, Subject: Year 2000 Computer Problem, NSF awardees are reminded of their responsibility to take appropriate actions to ensure that the NSF activity being supported is not adversely affected by the Year 2000 problem. Potentially affected items include: computer systems, databases, and equipment. The National Science Foundation should be notified if an awardee concludes that the

Year 2000 will have a significant impact on its ability to carry out an NSF funded activity. Information concerning Year 2000 activities can be found on the NSF web site at <http://www.nsf.gov/oirm/y2k/start.htm>.

The National Science Foundation is committed to making all of the information we publish easy to understand. If you have a suggestion about how to improve the clarity of this document or other NSF-published materials, please contact us at plainlanguage@nsf.gov.

Catalogue of Federal Domestic Assistance (CFDA) No.: 47.041 – Engineering Grants

OMB No.: 3145-0058

NSF 99-149