Postdoctoral Research Fellowships in Interdisciplinary Informatics

Program Announcement

NSF 98-162

DIRECTORATE FOR BIOLOGICAL SCIENCES

Deadline Dates: November 4, 2002



Revisions and Updates for FY 2003

Postdoctoral Research Fellowships in Biological Informatics Program Announcement (NSF 98-162, revised 8/02)

Effective August 16, 2002, the following changes are made to this program announcement:

1. The fellowships are jointly sponsored by the Directorate for Mathematical and Physical

- Sciences (MPS) and the Directorate for Biological Sciences (BIO) and are renamed accordingly.
- 2. Introduction: Changed to add joint sponsorship and to increase the number of fellowships offered.
- 3. Program Description: Updated to reflect recent growth and expansion of informatics as a scientific endeavor and broadened as a result of the new joint sponsorship.
- 4. Examples of areas appropriate for the program: Deleted as recent growth of the field makes the earlier examples obsolete.
- 5. Eligibility: General language replaced with specific dates.
- 6. New procedures for submitting proposals in Fastlane are outlined.

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I. INTRODUCTION

The Directorate for Mathematical and Physical Sciences (MPS) and the Directorate for Biological Sciences (BIO) have established a formal partnership for the support of research that crosses the disciplinary boundaries between the mathematical and physical sciences and biology. As part of this partnership, MPS and BIO are announcing joint sponsorship and expansion of the Postdoctoral Fellowships in Biological Informatics, now renamed Postdoctoral Research Fellowships in Interdisciplinary Informatics. These fellowships provide opportunities for interdisciplinary research and educational activities in biology and informatics to a wide range of recent doctoral recipients. The program is being expanded to include chemists, physicists, mathematicians, statisticians, computer scientists, and others who seek to conduct research on biological questions using informatics tools and methods.

BIO offers postdoctoral research fellowships in selected areas of biology to provide opportunities for recent doctoral scientists to obtain additional training, to gain research experience under the sponsorship of established scientists, to teach, and to broaden their scientific horizons beyond their research experiences during their undergraduate or graduate training. Fellowships are further designed to assist new scientists to direct their research efforts across traditional disciplinary lines and to avail themselves of unique research resources, sites, and facilities, including foreign locations. NSF postdoctoral fellowships are awards to individuals, and applications are submitted directly by the applicant to the NSF. Fellows must affiliate with an appropriate research institution and are expected to devote themselves full time to the fellowship activities for the duration of the fellowship. At the conclusion of the fellowship, a Fellow who accepts a tenure-track appointment at a U.S. institution eligible to receive NSF funds may apply for a research starter grant.

For the past 4 years, BIO has made approximately 20 Postdoctoral Research Fellowships in Biological Informatics annually. The total fellowship amount is \$50,000 per year for 2 or 3 years. In this expanded joint MPS-BIO program, the number of new fellowship awards will be increased to 35 for fiscal year 2003.

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II. Program Description

Biological informatics involves making innovative use of existing quantitative tools to synthesize and integrate existing, often heterogeneous, types of data to answer emerging and historically challenging questions in biology. NSF seeks to further expand postdoctoral training in informatics at the intersection of biology and the mathematical, chemical, and physical sciences to young scientists and mathematicians who will integrate research and education in their future careers. It is expected that the Fellows trained through these fellowships will play an important role in training the future workforce. Postdoctoral training in informatics will permit junior scientists trained in biology, mathematical, chemical, and physical sciences to play key roles in developing new quantitative tools and methods that will advance informatics in biology and other fields. Cross-disciplinary postdoctoral training will assist the Fellows to establish careers in informatics and biology. It is anticipated that expanding the program to scientists from a broader range of fields will stimulate the development of new tools to be used in research in biology and informatics.

Applicants for the fellowships must propose leading-edge research in biology, include a strong linkage between information/computational science and biology, and develop and/or apply leading-edge informatics/computational tools or approaches to the stated biological problem. Applications are expected to address how the research will advance the field and to be characterized by one or more of the following:

• Integrate or synthesize disciplines from biology (broadly defined) and information (computer

sciences, mathematics, statistics) sciences.

- Make innovative use of existing technology and/or mathematical/statistical techniques.
- Involve large quantities of data.
- Be based on empirical data, usually already available. If additional data are needed, it is clearly explained why and how they would be collected.
- Define and leverage existing methods and tools, or identify the needed expertise when method or tool development is proposed.

Applications that do not fall within this guidance will be returned without review.

Applicants are reminded that NSF does not support research with disease-related goals, including the etiology, diagnosis, or treatment of physical or mental disease, abnormality, or malfunction in humans or animals. Animal models of such conditions or the development or testing of drugs or other procedures for their treatment also are not eligible for support. Applications with a biomedical focus are returned without review.

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A. Location of Work

Research and educational activities supported by these fellowships may be conducted at any appropriate nonprofit U.S. or foreign host institution. Appropriate institutions include colleges and universities, government and national laboratories and facilities, and private nonprofit institutes and museums. Private and public for-profit organizations (i.e. industry) may be suitable if they provide an institutional contribution to cover the institutional and special allowances (see below). This fellowship is one of the mechanisms through which BIO and MPS offer support for Grant Opportunities for Academic Liaison with Industry (GOALI), NSF 98-142. Because the objectives of the fellowships include broadening the perspectives and experiences of the Fellows and promoting interdisciplinary research careers, careful consideration should be given to the selection of the sponsoring scientists and host institutions.

The NSF encourages Fellows to gain international experience by selecting foreign hosts for at least part of the tenure of the fellowship. Applicants who plan to spend one year or more of the fellowship in a sponsoring laboratory overseas may request a 3-year fellowship that includes the final year at a U.S. laboratory after the foreign tenure. Both the foreign and U.S. locations must be identified in the application. Preference will be given to applicants who choose foreign locations or those moving to new institutions and research environments with which they have had no prior affiliation.

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B. The Sponsoring Scientist(s)

The Fellow must affiliate with a host institution during the entire tenure of the fellowship. The applicant is responsible for making prior arrangements with the host institution and sponsoring scientist(s). Regardless of the number of sponsors or locations, the fellowship application requires a single sponsoring scientist statement. If more than one sponsor is proposed, one must be named lead sponsor and information from all must be integrated into a single statement. Likewise, if more than one site is proposed, the sponsoring scientist statement must integrate all sponsors and locations in a single statement. Because of the multidisciplinary focus of the fellowships, it is expected that dual sponsorship will be common. An important basis for judging the suitability of the host institution is the degree to which the sponsoring scientist statement describes and offers a research environment and mentoring opportunity that could not be obtained without fellowship support.

If a fellowship is offered, the applicant may be requested to provide documentation from the host institution that the terms and conditions of the fellowship are acceptable and that the Fellow will be provided adequate space, basic services, needed resources, and supplies.

Changes in location or sponsorship may be made during the fellowship but must be approved in advance in writing by the fellowship program officer.

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III. Eligibility

You are eligible to apply for this Postdoctoral Research Fellowship if you meet all of the following eligibility criteria:

- 1. You are a citizen, national, or lawfully admitted permanent resident alien of the United States.
- 2. You have earned the doctoral degree no earlier than November 4, 2000, or will earn this degree by December 31, 2003.
- 3. You are proposing a research project to address a biological question using informatics and an educational plan that may include training for you as well as teaching/mentoring activities.
- 4. You have not been, and are not at the time of your application, a principal investigator or coprincipal investigator on a Federal research grant of more than \$20,000, not including pre- or postdoctoral fellowships.
- 5. You are proposing a host institution(s) different from your doctoral institution and a sponsoring scientist(s) different from your thesis advisor.
- 6. If you are seeking support for an ongoing project, you were not engaged in this research before June 1, 2002.
- 7. The research you propose for the fellowship is not duplicated in another submission to NSF and, while your fellowship application is pending, you may not submit the same research to NSF regardless of who is named principal investigator. If, in the program staff's judgment, the submitted research is substantially identical to the research in another application to NSF, including research proposals, the fellowship application will be returned without review.

IV. Award Information

NSF expects to award approximately 35 fellowships, depending on the quality of the submissions and the availability of funds, for \$3.5 million. Approximately 15 research starter grants may be made in fiscal year 2003 for \$.75 million.

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A. Duration and Tenure

The fellowship tenure is for 24 continuous months except when the Fellow spends more than 12 months abroad. In this case, the original application may request a 36-month tenure where the last 12 months may be spent in a U.S. laboratory. Tenure begins on the first of the month only and may commence at the Fellow's request between July 2003 and January 2004. Interruptions in tenure or extensions without additional cost to NSF are permitted only for extenuating circumstances beyond the control of the Fellow. Fellowships are not renewable.

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B. Stipend and Allowances

The total fellowship amount is \$50,000 per year and consists of three types of payments. A monthly stipend of \$3,000 is paid directly to the Fellow as an electronic funds transfer into a personal account at a financial institution. A research allowance of \$9,000 per year is paid as a lump sum to the Fellow in the same manner for expenses directly related to the conduct of the research, such as materials and supplies, subscription fees and recovery costs for databases, travel, and publication expenses. An institutional allowance of \$5,000 per year is paid to the host institution for fringe benefits, including health insurance for the Fellow, and for expenses incurred in support of the Fellow, such as space, equipment, and general-purpose supplies.

The fellowship amount can be increased to include a Facilitation Award for Scientists and Engineers with Disabilities (FASED) but otherwise cannot be increased or supplemented. For more information on FASED contact the BIO Postdoctoral Fellowship Coordinator.

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C. Cost Sharing is not required for fellowships submitted under this Program Announcement;

2:1 (employing institution to NSF) matching funds are required for research starter grants.

Indirect Cost (F&A) Limitations: Fellowships have an institutional allowance in lieu of indirect costs. Research starter grants allow no indirect costs.

Other Budgetary Limitations: The fellowship award amount is usually \$100,000 for two years or \$150,000 for 3 years. For research starter grants, NSF provides up to \$50,000 depending on the amount of start-up funds provided by the employing institution to the former Fellow.

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V. Application Preparation and Submission Instructions

All page limits include pictures, figures, tables, graphics, etc. but not bibliographic references. Font size must be no smaller than Courier New 10 and margins must be at least 2.5 cm. Proposals that don't conform to these requirements and all page limitations are returned without review. Proposals must be submitted electronically via NSF FastLane. Only complete and timely applications will be accepted.

Use of NSF FastLane to prepare and submit the application requires specific software. Applicants, sponsoring scientists, and reference writers should consult www.fastlane.nsf.gov/a1/pdfcreat.htm for current requirements.

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A. Fellowships

The deadline for submitting applications is 5:00 p.m., submitter's local time, on November 4, 2002. Only one application is permitted per person. There is no limit to the number of applicants an institution may host.

A complete proposal requires input from the applicant, the sponsoring scientist(s) statement, and 2 references (one from the doctoral thesis advisor). Applicants are advised to begin the application well in advance of the deadline and to submit the application as soon as possible. FastLane allows applicants, sponsors, and references to work on parts of the application and to save them for future completion and submission.

To apply, go to the NSF Web site http://www.nsf.gov/ and select "FastLane" or directly to the FastLane home page http://www.fastlane.nsf.gov/. Click on "Postdoctoral Fellowships." Click on applicant, sponsor, or reference as appropriate, then select Postdoctoral Research Fellowships in Interdisciplinary Informatics.

As an applicant, you begin by registering as an individual researcher, then complete the following:

- 1. cover sheet:
- 2. application form
- 3. applicant's Curriculum Vitae (CV) limited to 2 pages;
- 4. an abstract of the proposed research (limited to one page);
- 5. research and educational activities plan (limited to 5 pages, including all figures, tables, etc.) with its own bibliography (no page limit); and
- 6. abstract of the dissertation research (limited to one page).

The research and educational activities plan addresses what you hope to accomplish during the fellowship period and how it relates to your career goals. It is uploaded into FastLane. When printed out, it must not exceed 5 pages plus the bibliography. All figures, tables, pictures, etc. are included in the 5-page limit and the plan must have margins no smaller than 2.5-cm and a font no smaller than Courier New 10. Applications must strictly adhere to page limitations, font size, and margins. Non-conforming proposals are not accepted. Include in the research and educational activities plan: 1) an introduction or background section; 2) a statement of research objectives, methods, and significance; 3) educational objectives (these may include scientific as well as other career preparation activities); 4) an explanation of how the fellowship activities will enhance your career development; and 5) a justification of the choice of sponsoring scientist(s) and host institution(s). You may propose to continue current research and training activities under the fellowship only if you began these activities after June 1, 2002.

Some applications may require other documentation before the final decision can be made, e.g., animal care certificates, government permits, letters of collaboration, and commitments from private sources. The research and training plan should provide general information on these matters and address the availability of these documents. They should not be included in the application but may be requested later.

The sponsoring scientist(s) statement is meant to show how the proposed host(s) and host institution(s) provide the best environment for your proposed research and educational activities plan and the basis for a future independent research and teaching career. If there are multiple sponsors, one integrated statement must be developed.

A complete sponsoring scientist statement consists of 2 parts, a single discussion of the following 5 items and a CV of no more than 2 pages for each sponsor:

- A brief description of the research projects in the host research group(s).
- A statement of current and pending research support, both private and public, for each sponsor. If any sponsor has submitted similar research for funding, what is the degree of overlap?
- An explanation of how the research and educational activities plan of the applicant would fit into ongoing research and what role the sponsor(s) will play in the proposed research and

- education.
- How the sponsor(s) plan to foster the development of the applicant's future independent research career.
- Personnel with whom the Fellow would work.

The applicant uploads the sponsoring scientist statement into the application.

A complete application also includes 2 references that are completed in FastLane. You give your FastLane-assigned temporary proposal number and a password to the writers of the references who in turn complete a form in FastLane, upload a recommendation letter, and then submit the reference.

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B. Research starter grants

Unlike fellowships, research starter grants are not awards to individuals. Proposals from former Fellows for research starter grants are submitted through the sponsored research office at the employing institution using FastLane as for all research grant proposals.

Fellows who elect to pursue an academic career and accept a tenure-track position at a U.S. institution eligible to receive NSF funding immediately following their fellowships may apply for a special one-year, nonrenewable research starter grant to assist in establishing an independent research program. Research starter grants are not fellowships but research grants made to the employing institution. Proposals for research starter grants must be submitted through FastLane using this program announcement number and are then assigned to the appropriate research programs for scientific review and decision. The research starter grant is for maximum \$50,000 total costs and requires matching on a 2:1 (institution to NSF) basis. None of the institutional matching funds or the NSF funds can be used for PI salary, renovations of laboratory or office space, or indirect costs. The funds are to be used for expenses directly related to the conduct of research that falls under the purview of the Directorates for Biological Sciences or Mathematical and Physical Sciences at NSF.

To request a research starter grant, you must request a FastLane password from the sponsored research office of your employing institution. Begin the application at www.fastlane.nsf.gov by selecting "proposal processing" (you'll have to scroll down the page). Then select "prepare a proposal". It's important to update your personal information, with special attention to your institution.

Continue with proposal preparation by selecting "create blank proposal." You'll need to complete the following sections of the proposal:

- 1. Cover page. Be sure to select program announcement NSF 98-162 from the list and don't select a closing date.
 - Select "renewal" and give the award number of your fellowship in the space provided. For

title, use Research Starter Grant. The award amount depends on the amount of matching funds from your institution and the duration is 12 months.

Check all appropriate boxes on the cover sheet, e.g., human subjects, animal welfare. When you click on "OK," the cover sheet will be saved.

- 2. Project summary. Give an abstract of your proposed project using the text box.
- 3. Supplementary documents. Give a progress report of your fellowship activities, not to exceed three pages.
- 4. Project description (no more than three pages plus the bibliography).
- 5. Biographical sketch.
- 6. Current and pending support.
- 7. Budget. Select use, create, and edit. Prepare only year 1. Put the amount of the start up funds from your institution on line M. As needed, give additional information in the budget justification section. Be sure to save the budget.

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Now, your sponsored research office can submit the application to NSF.

VI. Proposal review information

A. NSF Proposal Review Process

An advisory panel of scientists, mathematicians, and statisticians convened to review fellowship applications only and representing a wide-range of biological, physical, chemical, mathematical, and informatics disciplines will review the applications. In some cases, mail reviews may be used to supplement the expertise of the advisory panel. Fellowship Program Officers select these reviewers and panelists. Care is taken to ensure that reviewers have no conflicts with applicants and sponsoring scientists. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the application. Applicants need to be aware that the make-up of the panel necessitates that the proposal be written for both the specialist and an interdisciplinary reader. The NSF will select the Fellows on the basis of the panel's recommendations, staff review, program priorities, effect of the selections on the infrastructure of science in the U.S., and the NSF's education and human resource goals.

Proposals for research starter grants are not subject to external review but are reviewed by NSF program officers only.

Proposals will be reviewed against the following general 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 application. Each reviewer will be asked to address only those relevant to the application 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?

Applicants and sponsoring scientists should address the following elements in their submissions to provide reviewers with the information needed to respond fully to both of the above-described NSF merit review criteria. NSF staff will give these elements careful consideration 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.

Additional Factors in Evaluation and Selection of Fellows

Because one of the objectives of the program is to broaden the perspectives and experiences of the

Fellows, careful consideration should be given to the selection of the Sponsoring Scientists and host institutions. The NSF encourages Fellows to gain international experience by selecting foreign hosts for at least part of the tenure of the fellowship.

Applicants are evaluated on their ability, accomplishments, and potential as evidenced by the CV and reference reports. The research and training plan is evaluated on its scientific merit, its feasibility, its significance in generating new knowledge, and its impact on the career development of the applicant. Other important evaluative factors are the suitability and availability of the sponsoring scientist(s) and host institution(s), including colleagues and facilities.

B. Review Protocol and Associated Customer Service Standard

As explained above, all fellowship applications submitted in response to this announcement will be reviewed by panel review. The Fellowship Program Officer will be able to tell applicants if their applications will be declined or recommended for funding within six months of the deadline for 95 percent of applicants.

In all cases, after programmatic approval has been obtained, the applications recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and processing and issuance of a grant letter. Applicants 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 any NSF Program Officer.

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VII. Award Administration Information

A. Notification

Fellowship offers will be sent by email in March; other applicants will be notified of final decisions by letter in May 2003. All applicants receive an explanation of the review process and verbatim copies of reviews without the identity of the reviewers with NSF's official letter to award or decline the application. A Grants Officer in the Division of Grants and Agreements notifies the applicant of the fellowship award by letter. Forms needed to start fellowship payments are sent from the program office.

Applicants are requested to send address and phone changes to dbibi@nsf.gov. After May 15, 2003, inquiries about status of applications may be addressed to the BIO Postdoctoral Fellowship Coordinator at dbibi@nsf.gov.

For research starter awards, notification is sent to the submitting institution.

B. Conditions of Award

An NSF fellowship consists of: (1) the award letter, which includes any special provisions applicable to the grant and any numbered amendments thereto; (2) the application; (3) the applicable grant conditions, see below; (4) this NSF program announcement incorporated by reference in the award letter; (5) and an information booklet sent to successful applicants with the offer. Fellowships are awards to individuals and the Fellows are responsible for administering the fellowship.

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

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

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

C. Reporting Requirements

For all fellowships, the Fellow must submit an annual project report to the Postdoctoral Fellowship Program Officer within 90 days following the anniversary of the start date. Within 90 days after termination of the fellowship, the Fellow is required to submit a final project report and a termination certificate (this form will be provided by the program office). Fellows are requested to report in their annual and final reports on their research as well as their educational activities during the fellowship tenure, including mentoring and guiding students at all educational levels.

Failure to provide final technical reports will delay NSF review and processing of subsequent pending proposals from the Fellow.

Fellows are expected to maintain contact with the Postdoctoral Fellowship Program Officer after completing fellowship activities to permit evaluation of the success of the program in advancing

scientific careers.

Research starter grants require a final project report submitted through FastLane. 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.

D. Research starter awards are administered through the employing institution in accordance with institutional and NSF policies.

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VIII. CONTACTS FOR ADDITIONAL INFORMATION

General inquiries should be made to the following:

Carter Kimsey (BIO), Program Manager, DBI, room 615, telephone: 703 292-8470, e-mail: ckimsey@nsf.gov

C. Denise Caldwell (MPS), Program Director, PHY, room 1015, telephone: 703 292-7371, e-mail: dcaldwel@nsf.gov

For questions related to the use of FastLane, contact:

FastLane user support at 1-800-673-6188 or

Nicole S. Harris, Division of Biological Infrastructure, email: <u>biofl@nsf.gov</u>

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IX. OTHER PROGRAMS OF INTEREST

The NSF Guide to Programs is a compilation of funding for research and education in science, mathematics, and engineering. It is available electronically at http://www.nsf.gov/pubsys/ods/getpub.cfm?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 listed in the Guide to Programs or Appendix A of the Grant Proposal Guide. 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 web site at http://www.nsf.gov/home/ebulletin, and in individual program announcements and 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 which become available.

Other Information

Copies of NSF publications are available on the NSF Documents OnLine System at http://www.nsf.gov/pubs/start.htm, or at no cost from the NSF Publication Clearinghouse, P.O. Box 218, Jessup, Maryland 20794-0218, telephone (301) 947-2722, or via e-mail to pubs@nsf.gov.

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General Information

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.

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)292-5090 or through FIRS on 1-800-877-8339.

NSF is committed to making its published information easy to understand. If you have suggestions about how to improve the clarity of this or other NSF documents, please contact us at plainlanguage@nsf.gov.

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Privacy Act and Public Burden Statements

The information requested on the application materials is solicited under the authority of the National

Science Foundation Act of 1950, as amended. It will be used in connection with the selection of qualified applicants and may be disclosed to qualified reviewers and staff assistants as part of the review process; to the institution the nominee, applicant or fellow is attending or is planning to attend or is employed by for the purpose of facilitating review or award decisions, or administering fellowships or awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing data regarding applicants or nominees as part of the proposal 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 from this system may be merged with other computer files to carry out statistical studies the results of which do not identify individuals. Notice of the agency's decision may be given to nominators, and disclosure may be made of awardees' names, home institutions, and fields of study for public information purposes. For fellows or awardees receiving stipends directly from the government, information is transmitted to the Department of the Treasury to make payments. See System of Records, NSF12, "Fellowships and Other Awards,"

63 Federal Register 265 (January 5, 1998). Submission of the information is voluntary; however, failure to provide full and complete information may reduce the possibility of your receiving an award.

The public reporting burden for this collection of information is estimated to average 12 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or 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.

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