Integrative Graduate Education and Research Traineeship Program (IGERT)

Program Solicitation
NSF 05-517
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National Science Foundation
Directorate for Education and Human Resources
Division of Graduate Education

Preliminary Proposal Due Date(s) *(required):*

February 04, 2005

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

August 05, 2005

BY INVITATION ONLY

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Integrative Graduate Education and Research Traineeship Program (IGERT)

Synopsis of Program:

The IGERT program has been developed to meet the challenges of educating U.S. Ph.D. scientists and engineers who will pursue careers in research and education, with the interdisciplinary backgrounds, deep knowledge in chosen disciplines, and technical, professional, and personal skills to become, in their own careers, leaders and creative agents for change. The program is intended to catalyze a cultural change in graduate education, for students, faculty, and institutions, by establishing innovative new models for graduate education and training in a fertile environment for collaborative research that transcends traditional disciplinary boundaries. It is also intended to facilitate diversity in student participation and preparation, and to contribute to the development of a diverse, globally-engaged, science and engineering workforce.

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

- 47.074 --- Biological Sciences
- 47.070 --- Computer and Information Science and Engineering
- 47.076 --- Education and Human Resources
- 47.041 --- Engineering
- 47.050 --- Geosciences
- 47.049 --- Mathematical and Physical Sciences
- 47.078 --- Office of Polar Programs
- 47.075 --- Social, Behavioral and Economic Sciences

Eligibility Information

- **Organization Limit:**

U.S. academic institutions in the United States, its territories or possessions that grant the Ph.D. degree in the sciences and engineering may submit proposals. Non-Ph.D. granting, nonacademic, and international organizations may serve as collaborating organizations.

- **PI Eligibility Limit:**

  One may participate as PI or co-PI in only one proposal submission. That restriction applies to preliminary proposals as well as full proposals. A PI or co-PI on one proposal may serve as non-senior personnel on other proposals.

- **Limit on Number of Preliminary Proposals:** None.

- **Limit on Number of Full Proposals:** Invitation to submit a full proposal is based on merit review of the preliminary proposal. An institution may submit no more than two single-institution full proposals and, as lead institution with other participating U.S. academic institutions, one multi-institution full proposal. There is no limit on the number of multi-institution full proposals on which an institution may participate as non-lead institution. A multi-institution proposal is defined as one that has at least one co-PI at a different academic institution than that of the PI, a subaward to a different academic institution than that of the PI, or both.

Award Information

- **Anticipated Type of Award:** Continuing Grant
- **Estimated Number of Awards:** 30 new and renewal awards, depending upon the quality of proposals and availability of funds
- **Anticipated Funding Amount:** $15,500,000 - Up to $3.0M per award over 5 years. Up to $200K total per award for approximately 10 projects that include strongly integrated international research activities in Years 2 - 5. For new awards, up to $200K additional in Year 1 for appropriate purposes. Please see full text for detailed funding information.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Preliminary Proposals:** Submission of Preliminary Proposals is required. Please see the full text of this solicitation for further information.
- **Full Proposal Preparation Instructions:** This solicitation contains information that deviates from the standard Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full text of this solicitation for further information.

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required.
- **Indirect Cost (F&A) Limitations:**

  Partial reimbursement of indirect costs not to exceed 8% of total direct costs, excluding equipment and cost-of-education allowances, but not excluding participant support. This is in variance with Chapter II.C.2.g.v. of the Grant Proposal Guide.

- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Preliminary Proposals *(required)* :**

February 04, 2005

- **Full Proposal Deadline Date(s)** (due by 5 p.m. proposer's local time):
  August 05, 2005
  BY INVITATION ONLY

Proposal Review Information

- **Merit Review Criteria:** National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

- **Award Conditions:** Standard NSF award conditions apply.
- **Reporting Requirements:** Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

The National Science Foundation continues the Integrative Graduate Education and Research Traineeship (IGERT) program

into its eighth annual competition. Proposals for new IGERT projects as well as proposals based on existing IGERT projects are invited. The IGERT program has been developed to meet the challenges of educating U.S. Ph.D. scientists and engineers who will pursue careers in research and education with the interdisciplinary backgrounds, deep knowledge in chosen disciplines, and technical, professional, and personal skills to become, in their own careers, leaders and creative agents for change. The program is intended to catalyze a cultural change in graduate education, for students, faculty, and institutions, by establishing innovative new models for graduate education and training in a fertile environment for collaborative research that transcends traditional disciplinary boundaries. It is also intended to facilitate diversity in student participation and preparation, and to contribute to the development of a diverse, globally-engaged, science and engineering workforce.

IGERT is an NSF-wide endeavor involving the Directorates for Biological Sciences (BIO), Computer and Information Science and Engineering (CISE), Education and Human Resources (EHR), Engineering (ENG), Geosciences (GEO), Mathematical and Physical Sciences (MPS), Social, Behavioral, and Economic Sciences (SBE), the Office of Polar Programs (OPP), and the Office of International Science and Engineering (OISE). The IGERT program is managed by the Division of Graduate Education in EHR.

II. PROGRAM DESCRIPTION

Proposals submitted to the IGERT program must be integrative, research-based, graduate education and training activities in emerging areas of science and engineering. The IGERT project should be organized around an interdisciplinary theme involving a diverse group of faculty members and other investigators with appropriate expertise in research and teaching. The interdisciplinary theme provides a framework for integrating research and education and for promoting collaborative efforts within and across departments and institutions. Students should gain the breadth of skills, strengths, and understanding to work in an interdisciplinary environment while being well grounded with depth of knowledge in a major field. As an opportunity for faculty to experiment with new approaches to graduate education, the IGERT project should provide students with experience relevant to both academic and nonacademic careers. This may involve such activities as internships and mentoring in industrial, national laboratory, academic, or other settings. Globalization of research and career opportunities places importance on providing students with an international perspective. This may be gained through programs within the institution, or through strongly integrated, collaborative research experiences and/or fieldwork at foreign institutions and sites. The graduate experience should contribute to the professional and personal development of the students and equip them to understand and integrate scientific, technical, business, social, ethical, and policy issues to confront the challenging problems of the future.

The IGERT project may draw upon investigators from one or more academic departments within a single institution or from more than one institution. The primary emphasis should be on integrative, innovative approaches to education and training of doctoral students. Participation of individuals at the undergraduate, masters, and postdoctoral levels may be included if such participation clearly strengthens the IGERT doctoral program, but only doctoral students may receive stipends from IGERT funds. All stipend recipients supported by IGERT funds must be citizens or permanent residents of the U.S., its territories or its possessions. However, individuals, including foreign students, who are supported by other sources of funds may participate as IGERT associates. In contributing to a diverse science and engineering workforce for the future, the IGERT project must include strategies for recruitment, mentoring, and retention aimed at members of groups underrepresented in science and engineering, including women, racial and ethnic minorities, and persons with disabilities.

Features of IGERT Projects

IGERT projects are expected to incorporate and integrate the following features:

A comprehensive interdisciplinary theme, appropriate for doctoral-level research, that serves as the foundation for traineeship activities;

Integration of the interdisciplinary research with innovative graduate education and training mechanisms, curricula enhancement, and other educational features that foster strong interactions among participating students and faculty;

An environment that exposes students to a broad base of state-of-the-art research instruments and equipment and

educational tools and methodologies;

Career development opportunities, provision for developing professional and personal skills, fostering an international perspective, and instruction in ethics and the responsible conduct of research;

Program strategy and plan for recruitment, mentoring, retention, and graduation of U.S. graduate students, including efforts aimed at members of groups underrepresented in science and engineering (a member of an under-represented group is American Indian/Alaskan Native, Black, Hispanic, Pacific Islander (native of Hawaii, Guam, Samoa), disabled, and/or female);

Strategy and methodology for formative assessments of the project's effectiveness by individuals internal and external to the institution and program improvements based on these assessments;

Administrative plan and organizational structure that ensures effective management of the project resources;

Plan for dissemination of innovative graduate education activities both within and outside the institution; and

Institutional commitment to facilitating and furthering the plans and goals of the IGERT project, to creating a supportive environment for integrative research and education, and to institutionalizing the successful elements of the project after NSF funding ends.

Principal Investigator

The Principal Investigator (PI) shall be the Director of the IGERT project and is expected to be an essential participant in its educational and research activities. The PI will have overall responsibility for administration of the award, management of the project, and interactions with the NSF.

Two-Stage IGERT Competition

Proposers for new and renewal IGERT projects compete in a two-stage process. In the first stage, all proposers must submit a preliminary proposal (preproposal) that outlines the planned IGERT project. In the second stage, based on panel review of the preliminary proposals, successful proposers will be invited to submit full proposals. Only those proposers invited to submit full proposals may do so, consistent with the institutional limitations discussed in Section III. ELIGIBILITY INFORMATION (below). For renewal proposals, site visits may be conducted as part of the review process.

III. ELIGIBILITY INFORMATION

U.S. academic institutions in the United States, its territories or possessions that grant the Ph.D. degree in the sciences and engineering may submit proposals. Projects may involve more than one institution, but a single institution must accept overall management responsibility. Non-Ph.D. granting institutions, nonacademic, and international organizations may serve as collaborating organizations.

One may participate as PI or co-PI in only one proposal submission. That restriction applies to preliminary proposals as well as full proposals. A PI or co-PI on one proposal may serve as non-senior personnel on other proposals.

Projects involving research in any of the areas appropriate for funding by NSF are eligible. To encourage the development of innovative projects, there is no limit on the number of preliminary proposals that may be submitted by an institution.

Full proposals are by invitation only. However, the following limitations apply. Of the full proposals invited, an institution may select and submit no more than two single-institution full proposals; and, as lead institution with other participating U.S. academic institutions, only one multi-institution full proposal.

Proposals for new IGERT projects as well as proposals based on existing IGERT projects may be submitted, but the limit on the number of proposals an institution may submit as lead institution applies to a combined total of new and renewal IGERT proposals. There is no limit on the number of multi-institution full proposals on which an institution may participate as a non-lead institution.

IV. AWARD INFORMATION

NSF plans to make approximately 30 new and renewal IGERT awards from this competition, depending on the quality of the proposals and the availability of funds. The anticipated funding amount in FY 2006 is $15,500,000. For new projects, the first year award will be up to $300,000 and in amounts up to $600,000 for each of the next four years. For renewals, awards will be made in amounts up to $600,000 per year for a duration of five years. Projects requiring substantially lower levels of funding may also be proposed.

For new IGERT projects only: Additional funds of up to $200,000 may be provided in Year 1 for purposes appropriate to the new IGERT project, including shared research equipment, special-purpose research materials, software, and databases, and faculty release time for development of new curricula. (See Section V. for additional information on Budget and Allowable Costs.)

For new and renewal IGERT projects: If proposed, additional funding up to a total of $200,000 PER AWARD may also be provided for up to 10 IGERT projects that include strongly integrated international research activities in Years 2 through 5. These activities should be designed to significantly enhance the research, education, and training experiences of the IGERT students. NSF plans on allocating up to $2,000,000 from this competition to support well integrated international research activities for approximately 10 of the IGERT awards.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Preliminary Proposals *(required):*

Proposals should be prepared in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG), with exception of deviations given in the specific IGERT instructions below. The complete text of the GPG is available electronically on the NSF Web Site at: http://www.nsf.gov/pubsys/ods/getpub.cfm?gpg.

PRELIMINARY PROPOSAL CONTENT

Preliminary proposals must contain the items listed below and adhere to the specified page limitations, using reader-friendly fonts. No additional information may be provided by links to web pages. At the preliminary proposal stage, up to five letters of commitment or endorsement from the submitting institution or other organizations may be included. Letters from collaborating institutions are strongly encouraged. Proposers should carefully review the requirements that will be expected at the full proposal stage to better understand how to prepare their preliminary proposals.

Cover Sheet: Select the IGERT program solicitation number shown at the beginning of this solicitation from the pull down menu, and then select IGERT preliminary proposal for the program unit from the ensuing screen. An informative title for the proposed IGERT project, that begins with “IGERT: ”, must be provided. Check the box indicated for preproposal. FastLane allows one PI and at most four Co-PIs to be designated. Additional lead personnel should be designated as non co-PI Senior Personnel. If international activities are proposed, the international activities box should be checked and the countries involved listed. If the proposal is a renewal application, the appropriate box should be checked and the original proposal number indicated on the cover sheet.

A. **Project Summary** (1-page limit): Provide a summary description of the IGERT project, including its research theme and key education and training features, in a manner that will be informative to a general technical audience. The project summary must consist of 4 parts: (1) At the top of this page include the title of the IGERT project, the name of the PI, and the lead institution. Also list any other participating institutions/organizations; (2) provide a succinct summary of the intellectual merit of the proposal; (3) describe the broader impacts for the proposed IGERT program; and (4) at the end of the project summary provide up to 4 key words. Select up to 3 key words from the list provided below that best describe the major themes of the interdisciplinary research proposed in their order of importance:

Biology

Chemical Sciences

Computer Sciences/Information Technology

Engineering

Environmental Sciences

Geosciences

Materials Sciences

Mathematics

Physical Sciences

Social Sciences

In addition you may provide one key word of your own choosing.

B. **Table of Contents:** The Table of Contents is generated by FastLane and cannot be edited.

C. **Project Description:** The project description contains the following items: 1 through 7, which are limited to a combined total length of 9 pages, inclusive of tables, figures, or other graphical data. The research and education discussions in items c and d should be balanced in length.

1. **List of Participants** (1-page limit): Include departmental and institution/organization affiliation of all faculty members and other senior personnel expected to have an important role in the project.

2. **Vision, Goals, and Thematic Basis:** Describe the vision, goals, and anticipated impact of the proposed IGERT project. Describe the thematic basis and unifying aspects of the interdisciplinary research and educational activities to be offered. Include a discussion of what is currently missing from graduate education and training or what could be done more effectively, and how the proposed project will address these issues. Summarize the value-added aspects of the proposed project, and be specific about what is new and innovative. Proposals must clearly articulate project objectives, planned outcomes with respect to recruitment, retention, degree conferral, and career placement of trainees; project monitoring guidelines; and how outcomes will be measured. Proposals based on existing IGERT projects must clearly indicate what improvements and innovations are proposed for the renewal period, and the plans for evaluating the impact of the project, documenting and disseminating to the appropriate professional communities what was learned from the project, and sustaining the essential elements of the project after NSF funding ceases.

3. **Major Research Efforts:** Describe the major research efforts, their cutting-edge aspects, and how they are

interwoven and integrated to form the thematic basis for the interdisciplinary project. They should be described in sufficient detail for reviewers to assess their scientific merit and relevance to the project theme. If an international component is included, describe how it is to be integrated in the core research, education, and training activities of the IGERT project.

4. **Education and Training:** Describe the graduate education and training mechanisms that are central to the IGERT project, the logic and evidence to support them, and how they are to be integrated with the research and across the disciplines. Novel aspects should be emphasized to enable assessment of their innovation and potential impact. Discuss plans for how students will be recruited and mentored as well as career development opportunities, provisions for developing professional and personal skills, fostering an international perspective and ability to work in diverse teams, and integrating instruction in ethics and the responsible conduct of research. If proposed, discuss the benefits of international research experiences (e. g. quality of research partners, development of long-term international research partnerships, etc.).

5. **Management, Assessment, and Institutional Commitment** (1-page limit): Describe the strategies for management of the IGERT project and for assessment using external expertise of the project's effectiveness in its impact on students, faculty, and institution. Describe the commitment that the institution will make to facilitating and furthering project plans and goals and to creating a supportive environment for interdisciplinary research and education. Indicate how student and faculty diversity will be promoted as an integral part of the project. Describe any plans for collaborating with recruitment, retention, and professional development programs available at the institution, particularly those supported by NSF such as those listed under "Full Proposal-Recruitment, Mentoring and Retention." If your institution already has one or more IGERT awards, how will the proposed IGERT interact with, learn from, and build upon the existing award(s)?

6. **Other Resources and Connections** (1-page limit): Describe anticipated resource commitments to the IGERT project by other participating organizations, such as industry, government, non-U.S. institutions, and private foundations. Describe the nature and extent of connections with existing NSF multidisciplinary and industry-related programs such as those listed under "Full Proposal-Organization, Management, and Institutional Commitment." Proposers proposing international activities may wish to consult the OISE (Office of International Science and Engineering) member of the IGERT Coordinating Committee, listed in Section VIII, CONTACTS FOR ADDITIONAL INFORMATION.

7. **Recent Traineeship Experience and Results from Prior NSF Support** (if applicable): Describe prior experience with and outcomes of any related graduate traineeship project, including IGERT projects, during the past five years. In this description, address not only the outcomes of the prior project, but also, in a comparative manner, describe the differences and value-added aspects of the proposed IGERT project.

D. **References Cited** (1-page limit). Cite references relevant to both the scientific and educational plans.

E. **Biographical Sketches and Current and Pending Support:** A maximum of 20 biographical sketches may be included. Additional individuals may be included in the List of Participants, Section(C).1. Prepare the standard 2-page biographical sketches in accordance with the Grant Proposal Guide. In choosing what to include, emphasize information that will be helpful for understanding the strengths, qualifications, and specific impact the individual brings to the IGERT project.

   Current and pending support for the PI and co-PI's must be included.

F. **No budget is required;** however, please enter $2 in the Requested Amount box on the FastLane cover sheet (this entry allows correct FastLane processing). The PI should examine the budget instructions for the Full Proposal so that the activities proposed are congruent with the budget framework.

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.

FULL PROPOSAL CONTENT

Only those proposers invited to submit full proposals may do so. Full proposals must contain the items listed below and adhere to the specified page limitations, using reader-friendly fonts as specified in the Grant Proposal Guide. No additional information may be provided by links to web pages.

Cover Sheet: Select the IGERT program solicitation number shown at the beginning of this solicitation from the pull down menu, and then select IGERT Full Proposal for the program unit from the ensuing screen. An informative title for the proposed IGERT project, that begins with "IGERT: ", must be provided. Enter the related preproposal number in the appropriate box. If international activities are proposed, the international cooperative activities box should be checked and the countries involved listed. If the application is a renewal application, check the appropriate box and type in the previous proposal number. You may list a starting date of February 15, 2006.

A. **Project Summary (1-page limit):** Provide a summary description of the IGERT project, including its research theme and key education and training features, in a manner that will be informative to a general technical audience. The project summary must consist of 4 parts: (1) At the top of this page include the title of the IGERT project, the name of the PI, and the lead institution. Also list any other participating institutions/organizations; (2) provide a succinct summary of the intellectual merit of the proposal; (3) describe the broader impacts for the proposed IGERT program; and (4) at the end of the project summary provide up to 4 key words. Select up to 3 key words from the list provided below that best describe the major themes of the interdisciplinary research proposed in their order of importance:

   Biology

   Chemical Sciences

   Computer Sciences/Information Technology

   Engineering

   Environmental Sciences

   Geosciences

   Materials Sciences

   Mathematics

   Physical Sciences

   Social Sciences

   In addition you may provide one key word of your own choosing.

B. **Table of Contents:** The Table of Contents is generated by FastLane and cannot be edited.

C. **Project Description:** The project description section contains the following items: 1 through 10. Items 1 through 8 are limited to a combined total length of 25 pages, inclusive of tables, figures, or other graphical data. The research and education discussions in items 3 and 4 (below) should be balanced in length.

1. **List of Participants** (1-page limit): Include departmental and institutional/organizational affiliation of all faculty members and other senior personnel expected to have an important role in the project.

2. **Vision, Goals, and Thematic Basis:** Discuss the vision, goals, and broader impacts of the proposed IGERT project. Describe the thematic basis and unifying aspects of the interdisciplinary research and educational activities to be offered. Include a discussion of what is currently missing from graduate education and training or what could be done more effectively, and how the proposed project will address these issues. Benefits to be realized from opportunities for interdisciplinary collaboration in research and education should be emphasized. Summarize the value-added aspects of the proposed project, and be specific about what is new and innovative. Proposals should clearly articulate project objectives, planned outcomes with respect to recruitment, retention, degree conferral, and career placement of trainees; project monitoring guidelines; and how outcomes will be measured. Proposals based on existing IGERT projects must clearly indicate what improvements and innovations are proposed for the renewal period, and the plans for evaluating the impact of the project, documenting and disseminating to the appropriate professional communities what was learned from the project, and sustaining the essential elements of the project after NSF funding ceases.

3. **Major Research Efforts:** Describe the major research efforts, their cutting-edge aspects, and how they are interwoven and integrated to form the thematic basis for the interdisciplinary project. For each research area described, specify the faculty members and other principals involved, and provide sufficient detail to enable assessment of the scientific merit and relevance to the overall project theme. Needs for special materials, shared equipment, travel to research sites, or interdisciplinary curriculum development must be justified in the context of the research theme and breadth of challenges involved. If an international component is included, describe how it is to be integrated into the core research, education, and training activities of the IGERT project.

4. **Education and Training:** Describe the graduate education and training mechanisms that are central to the IGERT project, the logic and evidence to support them, and how they are to be integrated with the research and across the disciplines. Novel aspects should be emphasized to enable assessment of the innovation and potential impact. Specify faculty members and other participants with primary responsibility for these integrative efforts. Describe strategies for developing a community of students. Discuss plans for providing career development opportunities, developing professional and personal skills, fostering an international perspective and ability to work in diverse teams, and integrating instruction in ethics and the responsible conduct of research. If planned student training includes internships, fieldwork, or other opportunities, domestic and foreign, identify the potential mentors and discuss how the opportunity is intended to strengthen both a student's graduate experience and the IGERT project. If proposed, discuss the benefits of international research experiences (e.g. quality of research partners, development of long-term international research partnerships, etc.). Supporting letters from host organizations should document willingness to receive students and the expected role of individual mentors. Show typical student pathways through the program and the effect on expected time to degree and career progression. The role of undergraduate, masters, and postdoctoral components, if proposed, must also be described with sufficient detail to clarify the benefit to the doctoral program and to justify support through this type of award.

5. **Organization, Management, and Institutional Commitment:** Describe plans and procedures for the organization and management of the IGERT project. The plans should be specific and include use of a formal mechanism that assures the fair and effective allocation of IGERT resources and enables faculty members, students, and others to interact effectively in furthering project goals. Plans should include provision for an external advisory body. Consider the institutional or departmental obstacles you foresee in implementing your project, and how you plan to address them. Describe the commitment of the institution at all appropriate administrative levels to facilitating and furthering the plans and goals of the IGERT project and to creating a supportive environment for integrative research and education. A supporting letter of commitment from the senior administration of the submitting institution must accompany this proposal. Should a multi-institution project be proposed, then provide a careful justification that considers the administrative complexity and the expected benefits to student experiences. Discuss the role of any other academic institutions or organizations such as industry, government, non-U.S. institutions, or private foundations that are expected to participate in the IGERT project. Describe the nature and extent of connections with existing NSF multidisciplinary and industry-related programs such as the Science and Technology Centers (www.nsf.gov/od/oia/programs/stc/about.htm), Science of Learning Centers (www.nsf.

gov/home/crssprgm/slc), Engineering Research Centers (www.eng.nsf.gov/eec/funding/pgm_display.cfm?pub_id=9971&div=eec), Materials Research Science and Engineering Centers (http://www.nsf.gov/mps/vgn_bah/output/program_page/1,3120,510,00.html), Grant Opportunities for Academic Liaison with Industry (www.nsf.gov/home/crssprgm/goali/start.htm), and other IGERT awards at the participating institutions. Discuss plans for sustaining the key features of the IGERT project after NSF funding is completed. For renewal proposals, discuss the plan for how successful elements of the project will be sustained after NSF funding ceases.

6. **Performance Assessment:** Describe a performance plan and methodology that relates the goals of the IGERT project, as it impacts students, faculty, and institution, to indicators and specific measurements for formative assessment of progress towards goal achievement. The assessment should involve evaluators internal and external to the institution who can render an objective evaluation and whose expertise spans the education and research objectives of the IGERT project. Describe how the results of the assessment will be applied to modify the project.

7. **Recruitment, Mentoring, and Retention:** Describe plans for recruitment, mentoring, and retention of U.S. graduate students, including specific provisions, beyond the norm, aimed at members of groups underrepresented in science and engineering. (A member of an under-represented group is American Indian/Alaskan native, Black, Hispanic, Pacific Islander (native of Hawaii, Guam, Samoa), disabled, and/or female. Discuss how new students will be staged into the program, the duration and level of their support with IGERT funds, and provisions for continued support through the completion of degree. IGERT support for two years (24 months) of full participation is strongly recommended. Alternative plans for student support must be justified in the proposal. Describe the diversity makeup of faculty participating in the IGERT project. If applicable, discuss how undergraduate student participation will be used to further the goals of attracting and graduating members of underrepresented groups. Describe the nature and extent of connections with recruitment, retention, and professional development programs available at the institution, particularly those supported by NSF, such as Alliances for Graduate Education and the Professional (www.ehr.nsf.gov/EHR/HRD/agep.asp), Louis Stokes Alliances for Minority Participation (www.ehr.nsf.gov/EHR/HRD/amp.asp), Tribal Colleges and Universities Program (www.ehr.nsf.gov/EHR/HRD/tcup.asp), Historically Black Colleges and Universities - Undergraduate Program (www.ehr.nsf.gov/EHR/HRD/hbcu.asp), and the Centers for Research Excellence in Science and Technology (www.ehr.nsf.gov/EHR/HRD/crest.asp). Specify the Ph.D. programs in which the IGERT graduate students may enroll.

8. **Recent Traineeship Experience and Results from Prior NSF Support** (if applicable; up to 5 pages, within the 25-page limit for project description): Describe your experience with and outcomes of any related graduate traineeship project, including IGERT projects, during the past five years. In this description, address in a comparative manner not only the outcomes of the prior project, including failures and proposed remedies, but also the differences and value-added aspects of the proposed IGERT project. Value-added aspects may include: new areas of research; new educational paradigms for students, faculty, and institution; sustainable vertical and lateral impact on faculty, institution, and even outside your institution; and recruitment, mentoring, retention, and career paths of U.S. graduate students, with special emphasis on those from underrepresented groups.

9. **International Collaboration** (for applicants requesting additional funds of up to a total of $200,000 per award; 2-page limit): Describe the procedures and arrangements for selecting, preparing, and sending IGERT students to foreign sites for research and education collaboration, including how their activities abroad will be integrated into and benefit the overall IGERT program. Discuss how specific projects will be determined for individual students and how effective mentoring will be ensured in the foreign host institutions. Address the practical aspects of sending U.S. students abroad, including logistical arrangements, language and cultural issues, supervision abroad to ensure the student's welfare, and administrative requirements.

10. **Recruitment and Retention History** (1 page per participating department/program): Explain your capacity to host an IGERT project, and past performance, resources, and ability to attract well-qualified U.S. graduate students in science and engineering, including those from underrepresented groups. Provide the following specific information for the last three years, regarding recruitment and retention of students in the

participating departments/programs. (For proposals based on existing IGERT projects, provide these data for all students participating in the project): (1) total number of applicants, (2) total number of applicants accepted, (3) total number of applicants who enrolled, (4) total number of students currently enrolled in the program indicating part-time and full-time status, (5) number of students who have withdrawn from the program, (6) total number of Ph.D.s awarded, (7) average time to degree, defined as number of enrolled quarters or semesters (specify) since the baccalaureate degree, (8) position types and employers of graduates, and (9) other relevant measures of student success, and (10) data for women, underrepresented minorities, and persons with disabilities for each of the above categories. A tabular format should be used with separate tables for each participating department/program.

D. **References Cited** (3-page limit)

E. **Biographical Sketches and Current and Pending Support:** A maximum of 20 biographical sketches may be included, with up to 5 additional sketches of international participants when international activities are proposed. The standard NSF 2-page biographical sketches for the PI, co-PI's, and other participants should be prepared in accordance with instructions in the Grant Proposal Guide, as should Current and pending support, that is required for the PI, co-PI's, and all participants.

F. **Budget and Allowable Costs:** Provide a FastLane budget for each year of support requested. For new awards, the amount requested should not exceed $300,000 for the first year and $600,000 each year for years two through five. The first-year budget for new awards only may include up to an additional $200,000 as a special allocation for purposes discussed below. For renewal awards the budget should not exceed $600,000 each year. In addition to the amounts described above, if proposed for either new or renewal awards, proposers may incorporate in Years 2 through 5 a budget for international collaborative activities not to exceed a total of $200,000 per award. The FastLane system will automatically fill out the cumulative 5-year budget for the proposal. Awarded funds not expended in the specific year requested may be carried over only with appropriate justification provided in the annual report to NSF and with the approval of the cognizant program officer. The major portion of funds must be used for doctoral student stipends and educational and training activities. A limited amount of funds may be budgeted for necessary administrative support, support of short-term visitors, and to partially defray the costs of research and publication by students. No funds for faculty research or salaries will be provided, with the following exceptions: (a) one month per year of salary support for the Principal Investigator for management purposes; (b) up to 4 months total of faculty salary support for development of IGERT curricula. The faculty salary support for development of curricula should be requested from within the first-year special allocation; however, its expenditure may be extended over the first two years of IGERT project activity. The budget should also include funds for travel for the PI, one graduate student and one administrator to attend the annual IGERT PI meeting in the Washington DC area.

Additional funds requested for international activities should be appropriate to enable the unique benefits expected for the IGERT graduate students and the IGERT project. The primary support is intended for graduate students through internships (university, government, industry), collaborative research and/or fieldwork with foreign collaborators, or in other settings abroad appropriate to the research area. The stays should be of sufficient duration to acculturate the student and provide a meaningful research and education experience. Limited funds may also be used for student preparation, administration of the international activities, and faculty visits to foreign sites for research coordination and developing communication linkages between institutions. Requests for travel funds for the sole purpose of attending international conferences or workshops are not appropriate. Reciprocal visits by foreign researchers and students to the U.S. institutions are encouraged, although NSF funds will normally not be used for such visits. Proposers should consult the Office of International Science and Engineering (OISE) member of the IGERT Coordinating Committee, listed in Section VIII, CONTACTS FOR ADDITIONAL INFORMATION.

The NSF contribution to graduate student stipends is currently $30,000 per year per IGERT trainee for a 12-month appointment, and budgeting for stipends should be made on this basis for each year of the award. All IGERT-supported students are expected to be full-time IGERT trainees. IGERT support for 2 years (24 months per student) is strongly recommended. Alternative plans for graduate student support must be justified in the proposal. NSF also provides a cost-of-education allowance for tuition, health insurance, and normal fees of $10,500 per year per student (for 12 months.) If this allowance is not fully required, then it may be used to support other IGERT student-related activities. Funds requested for graduate student trainees should be entered in line F: Participant Support, as stipends (F.1), travel (F.2), and cost of education (F.4). The number of trainees anticipated, along with the duration of the appointment, should be

listed and consistent with the requested stipend funds. All stipend recipients must be citizens or permanent residents of the U.S., its territories or its possessions. (NOTE: Entering stipends on Line G6 on the proposal budget is in variance with Chapter II.C.2.g.v. of the Grant Proposal Guide. It states that Line F on the proposal budget should be used for costs of transportation, per diem, stipends and other related costs for participants or trainees.)

Purchase of shared research equipment, special-purpose research materials, software and databases that cost more than $5,000 per item may be requested within the first-year special allocation, and should be listed under Equipment on line D. Any of those items that cost $5,000 or less per item should be listed under Materials and Supplies on line G1. Personnel and shop costs for developing and constructing special instruments may be requested within the regular yearly budget. Funds for facility renovation or for equipment installation or maintenance are not allowed. Awards will carry an 8% allowance for indirect costs based on the total direct cost, excluding equipment and cost-of-education allowances, but not excluding participant support. This is in variance with Chapter II.C.2.g.v. of the Grant Proposal Guide.

For multi-institution projects, the lead institution shall submit the proposal, with other participating institutions included under subawards. Budgets shall be provided for the overall project as well as individually for the lead institution and for each participating institution/organization that receives a subaward.

Budget Justification (3-page limit): Provide a justification for the funds requested for the overall project in each budget category of Section (F) and line G.6. Describe the proposed allocation of funds in the major budget categories with sufficient clarity to show how resources will be utilized in carrying out the planned IGERT project activities. Indicate the total number of graduate students to be supported and the staging and duration and FTE level of their support on IGERT funds. If the first-year special allocation of funds for new awards is requested, describe in a separate table how the funds are to be used. If additional funds are requested for international activities, describe in a separate table the requested amount and allocations over the project duration, beginning with Year 2 of the award. Provide details of anticipated resource commitments of any other organizations expected to participate in the IGERT project, such as government, industry, non-U.S. institutions, or private foundations. Appropriate letters of commitment from participating organizations should be included in Supplementary Documentation (below). Cost sharing is not required under this solicitation. Any information provided here and in similar places in this solicitation will not be auditable as cost sharing.

G. **Facilities, Equipment and Other Resources** (1-page limit): Provide a description of facilities and major instruments that are available to the project and require no additional support from NSF.

H. **Supplementary Documentation:** Up to eight supporting letters, including one that must be from the senior administration of the submitting institution, may be provided as part of the proposal, with up to four additional letters when international activities are proposed. Letters of endorsement from foreign counterparts should discuss the benefits and foreign commitment to the project.

Proposers are reminded to identify the program announcement/solicitation number (05-517) in the program announcement/ solicitation block on the proposal Cover Sheet. 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.

Indirect Cost (F&A) Limitations:

Partial reimbursement of indirect costs not to exceed 8% of total direct costs, excluding equipment and cost-of-education allowances, but not excluding participant support. This is in variance with Chapter II.C.2.g.v. of the Grant Proposal Guide.

Other Budgetary Limitations:

The NSF contribution to graduate student stipends is currently $30,000 per year per IGERT trainee for a 12 month appointment and budgeting for stipends should be made on this basis for each year of the award. All IGERT-supported students are expected to be full-time IGERT trainees. IGERT support for 2 years (24 months per student) is strongly recommended. Alternative plans for graduate student support must be justified in the proposal. If there is an increase in the approved stipend amount beyond $30,000, requests for additional project funding during the five-year period may be granted, depending on funds available. All stipend recipients must be citizens or permanent residents of the U.S., its territories or possessions.

C. Due Dates

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

Preliminary Proposals *(required):*

February 04, 2005

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

August 05, 2005

BY INVITATION ONLY

All proposals must be submitted via FastLane by 5:00 PM local time on the deadline dates listed at the beginning of this solicitation. Applicants are urged to submit well in advance of the stated deadlines to avoid any possible delays in use of the FastLane system.

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: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program 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.

Additional Review Criteria:

In responding to the standard NSF review criteria, reviewers will be asked to place emphasis on the following IGERT program objectives:

Integration and coherence of the interdisciplinary theme in its effectiveness as an intellectual focus for all participating scientists, engineers, and educators;

Quality of the proposed research efforts, and their appropriateness to the interdisciplinary theme;

Quality and innovation in the planned graduate education and training mechanisms, and in their integration with the research;

Effectiveness of career development opportunities, provision for developing professional and personal skills, fostering an international perspective and ability to work in diverse teams, and instruction in ethics and the responsible conduct of research;

Effectiveness of the strategy for recruitment, mentoring, retention, degree completion, and career progression of U.S. graduate students, including those from groups underrepresented in science and engineering: a partial list of examples of effective strategies might include development of new approaches in information technology or connectivity to engage members of underrepresented groups; collaborations with students and/or faculty who are members of underrepresented groups or are affiliated with minority-serving institutions (MSI's); campus visits/ presentations at MSI's; regular publication of bulletins/newsletters to enhance cross-cultural/gender communication; and monitoring of graduate student retention. Plans for effective recruitment and assessment should be specific and detailed;

Appropriateness of the plans for assessment of project performance in meeting objectives and expanding the knowledge base in STEM (Science, Technology, Engineering, and Mathematics) graduate education and disseminating results to appropriate professional communities;

Appropriateness of the administrative plan and organizational structure in assuring effective allocation of project resources and participation by project members;

Appropriateness of the budget, for full proposals only;

Commitment of the institution to facilitating and furthering the plans and goals of the IGERT project, to creating a supportive environment for integrative research and education, and to sustaining the successful elements of the project after NSF funding ceases;

Quality of the international collaborative activities and benefits to the U.S. participants, if proposed; and

Quality of outcomes of prior IGERT project, value-added aspects of new IGERT project, and potential for adding to the knowledge base in STEM (Science, Technology, Engineering, and Mathematics) graduate education, if applicable.

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 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 proposers whether their proposals have been declined or recommended for funding within six months. The time interval begins on the closing date of an announcement/solicitation, or the date of proposal receipt, whichever is later. 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.

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.

The annual report should be submitted through FastLane. In addition, awarded IGERT projects will submit their annual project reports through a special IGERT Web-based reporting system that standardizes the evaluation across all sites. Any proposed carrying forward of funds should be justified in the annual report.

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.

NSF has implemented an electronic project reporting system, available 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. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system.

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:

- Carol Van Hartesveldt, Program Director for IGERT, Directorate for Education & Human Resources, Division of Graduate Education, 907 N, telephone: (703) 292-8696, fax: (703) 292-9048, email: cvanhart@nsf.gov
- Debasish Dutta, Program Director for IGERT, Directorate for Education & Human Resources, Division of Graduate Education, 907 N, telephone: (703) 292-5304, fax: (703) 292-9048, email: ddutta@nsf.gov
- Myles G. Boylan, Lead Program Director (CCLI-ND, SOC) (On-Detail), Directorate for Education & Human Resources, Division of Undergraduate Education, 812 N, telephone: (703) 292-4617, fax: (703) 292-9015, email: mboylan@nsf.gov
- Renee D. Crain, Research and Education Specialist, Office of the Director, Office of Polar Programs, 755 S, telephone: (703) 292-4482, fax: (703) 292-9082, email: rcrain@nsf.gov
- Cassandra M. Dudka, Program Manager, Office of the Director, Office of International Science and Engineering, 935 N, telephone: (703) 292-8703, fax: (703) 292-9177, email: cdudka@nsf.gov
- Cynthia J. Ekstein, Program Director, Directorate for Engineering, Division of Bioengineering & Environmental Systems, 565 S, telephone: (703) 292-7941, fax: (703) 292-9098, email: cekstein@nsf.gov
- Joan M. Frye, Program Director, Directorate for Mathematical & Physical Sciences, Division of Chemistry, 1055 S, telephone: (703) 292-4953, fax: (703) 292-9037, email: jfrye@nsf.gov
- Rose Gombay, Program Manager, Office of the Director, Office of International Science and Engineering, 935 N, telephone: (703) 292-8702, fax: (703) 292-9067, email: rgombay@nsf.gov

- Bruce K. Hamilton, Division Director, Directorate for Engineering, Division of Bioengineering & Environmental Systems, 565 S, telephone: (703) 292-8320, fax: (703) 292-9098, email: bhamilto@nsf.gov
- Jacqueline Huntoon, Program Director for Diversity and Education in GEO, Directorate for Geosciences, 705 N, telephone: (703) 292-7718, email: jhuntoon@nsf.gov
- Roosevelt Y. Johnson, Program Director, Directorate for Education & Human Resources, Division of Human Resource Development, 815 N, telephone: (703) 292-4669, fax: (703) 292-9018, email: ryjohnso@nsf.gov
- Karen Kukich, Program Director, Directorate for Computer & Information Science & Engineering, Division of Information and Intelligent Systems, 1125 S, telephone: (703) 292-4549, fax: (703) 292-9073, email: kkukich@nsf.gov
- Lynnette D. Madsen, Program Director (CER), Directorate for Mathematical & Physical Sciences, Division of Materials Research, 1065 N, telephone: (703) 292-4936, fax: (703) 292-9035, email: lmadsen@nsf.gov
- Vladimir Papitashvili, Aeronomy and Astrophysics Program Manager, Office of the Director, Office of Polar Programs, 755 S, telephone: (703) 292-8033, email: vpapita@nsf.gov
- Muriel E. Poston, Deputy Division Director (Acting), Directorate for Biological Sciences, Division of Biological Infrastructure, 615 N, telephone: (703) 292-8470, fax: (703) 292-9063, email: mposton@nsf.gov
- Geoffrey A. Prentice, Program Director, Directorate for Engineering, Division of Chemical & Transport Systems, 525 N, telephone: (703) 292-8371, fax: (703) 292-9054, email: gprentic@nsf.gov
- Barbara Ransom, Program Director, Directorate for Geosciences, Division of Ocean Sciences, 725 N, telephone: (703) 292-8581, fax: (703) 292-9085, email: bransom@nsf.gov
- Frank P. Scioli, Jr., Program Director, Directorate for Social, Behavioral & Economic Sciences, Division of Social and Economic Sciences, 995 N, telephone: (703) 292-8762, fax: (703) 292-9068, email: fscioli@nsf.gov
- Mark L. Weiss, Program Director/Cluster Coordinator, Directorate for Social, Behavioral & Economic Sciences, Division of Behavioral and Cognitive Sciences, 995 N, telephone: (703) 292-7321, fax: (703) 292-9068, email: mweiss@nsf.gov

Additional IGERT Coordinating Committee members are listed on the IGERT web page, at http://www.nsf.gov/igert.

For questions related to the use of FastLane, contact:

- Yvette D Jackson, IT Specialist, National Science Foundation, Division of Graduate Education, 4201 Wilson Boulevard, Room 907 N, Arlington, VA, 22230, USA telephone: 703-292-4925, fax: 703-292-9048, email: yjackson@nsf.gov
- FastLane Help Desk, telephone: 1-800-673-6188, fax: 703-292-9281, email: fastlane@nsf.gov

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.

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Facilitation Awards for Scientists and Engineers with Disabilities (FASED) 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

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- **For General Information** (NSF Information Center)**:** (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**

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  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.

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