Materials World Network: Cooperative Activity in Materials Research between US Investigators and their Counterparts Abroad (MWN)

Program Solicitation
NSF 07-574

Replaces Document(s):
NSF 06-590

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

November 13, 2007

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Materials World Network: Cooperative Activity in Materials Research between US Investigators and their Counterparts Abroad (MWN)

Synopsis of Program:

Continued progress in fundamental materials and condensed matter research is increasingly dependent upon collaborative efforts among different disciplines, as well as closer coordination among funding agencies and effective partnerships involving universities, industry, and national laboratories. In addition, because of the growing interdependence of the world's economies, partnerships are important not only at the national level but from an international point of view as well. The National Science Foundation is working jointly with counterpart national, regional and multinational funding organizations worldwide to enhance opportunities for collaborative activities in materials research and education between US investigators and their colleagues abroad. This solicitation describes an activity to foster opportunities for such collaborations. It includes joint activities between NSF and funding organizations in Africa, Asia, Europe and other regions.

Proposals submitted to NSF in response to this solicitation must have clear relevance to research supported by the NSF Division of Materials Research (DMR), as they will be evaluated within the context of programmatic areas within DMR. Proposals not appropriate for DMR consideration will be returned without review. NSF will accept proposals from US universities and colleges addressing collaborations between researchers from the US and participating countries or regions. Concurrently, investigators at non-US research institutions should submit to the counterpart funding organization in their country or region a request for support of their side of the collaboration. NSF will consider support of all appropriate research costs for the US side of such collaborations, with the expectation that funding or research organizations from the appropriate countries or regions will consider supporting the costs of the non-US participants. Projects proposed to NSF are expected to offer students and junior researchers the opportunity to participate in international research and education experiences and, more generally, for integrating research and training in an international environment, and to clearly demonstrate the value added by the international collaboration.
Cognizant Program Officer(s):

- Dr. Carmen Huber, Division of Materials Research, Office of Special Programs, telephone: 703-292-4939, fax: 703-292-9036, email: chuber@nsf.gov

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

- 47.049 --- Mathematical and Physical Sciences

**Award Information**

**Anticipated Type of Award:** Standard Grant or Continuing Grant

**Estimated Number of Awards:** 20 to 40 depending on quality of proposals and availability of funds

**Anticipated Funding Amount:** $2,500,000 to $4,500,000 total in FY 2008, depending on quality of proposals and availability of funds

**Eligibility Information**

**Organization Limit:**

Proposals may only be submitted by the following:

- Universities and Colleges: Universities and two- and four-year colleges (including community colleges) located and accredited in the US, acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.

**PI Limit:**

An investigator may be Principal Investigator in either (a) a proposal submitted in response to this solicitation or, (b) an unsolicited proposal submitted to the Division of Materials Research within the FY08 DMR submission window (see http://www.nsf.gov/materials for the submission window of unsolicited proposals to DMR), but not both.

**Limit on Number of Proposals per Organization:**

None Specified

**Limit on Number of Proposals per PI:**

An investigator may be Principal Investigator in only one proposal submitted in response to this solicitation.

**Proposal Preparation and Submission Instructions**

**A. Proposal Preparation Instructions**

- **Letters of Intent:** Not Applicable

- **Preliminary Proposal Submission:** Not Applicable

- **Full Proposals:**

B. Budgetary Information

- **Cost Sharing Requirements**: Cost Sharing is not required under this solicitation.

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

- **Other Budgetary Limitations**: Not Applicable

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):
  
  November 13, 2007

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### Proposal Review Information Criteria

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

### Award Administration Information

**Award Conditions**: Standard NSF award conditions apply.

**Reporting Requirements**: Standard NSF reporting requirements apply.

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I. INTRODUCTION

The basic properties of materials frequently define the capabilities, potential, reliability and limitations of technology. Advances in fundamental materials and condensed matter research enable progress to be made across a broad range of scientific and engineering disciplines and technological areas with dramatic impacts on society. Continued progress in materials research is increasingly dependent upon collaborative efforts among several different disciplines, as well as closer coordination among funding agencies and effective partnerships involving universities, industry, and national laboratories. In addition, because of the growing interdependence of the world's economies, partnerships are important not only at the national level but from an international point of view as well.

Over the last decade, the National Science Foundation has co-sponsored a series of international workshops designed to help stimulate enhanced collaboration among materials researchers and create networks linking individuals and centers in participating regions. These workshops have identified possible areas for mutually beneficial collaborations, and recommended that extensive use be made of electronic communication, information exchanges, and databases to promote and facilitate research collaborations and education activities at the international level. The National Science Foundation is working jointly with counterpart national, regional and multinational funding organizations worldwide to enhance opportunities for collaborative activities in materials research and education between US investigators and their colleagues abroad.

II. PROGRAM DESCRIPTION

This solicitation describes an activity to foster collaboration in materials and condensed matter research between investigators in the US and their counterparts abroad. It includes joint activities between NSF and funding organizations in Africa, through the US-Africa Materials Collaboration; Asia, Europe and other countries or regions.

Proposals submitted to NSF in response to this solicitation must have clear relevance to fundamental materials and condensed matter research supported by the NSF Division of Materials Research (DMR). Projects not having this focus will not be considered for funding. Proposals will be evaluated within the context of programmatic areas supported by DMR. For areas supported by DMR see http://www.nsf.gov/funding/pgm_list.jsp?org=DMR. It is strongly recommended that you contact the cognizant program officer (Dr. Carmen Huber, chuber@nsf.gov) to ascertain that the scientific or technical focus of the proposed research is appropriate for this solicitation. Proposals not appropriate for consideration by the Division of Materials Research will be returned without review.

NSF will accept proposals from US universities and colleges addressing collaborations between researchers from the US and participating countries or regions. Concurrently, investigators at non-US research institutions should submit to the counterpart funding organization in their country or region a request for support of their side of the collaboration. NSF will consider support of all appropriate research costs for the US side of such collaborations, with the expectation that funding or research organizations from the appropriate countries or regions will consider supporting the costs of the non-US participants. NSF will not accept proposals from investigators at non-US institutions. Contact information for participating funding organizations abroad is listed in Section VIII.

In addition to proposals for collaborative materials research and education, proposals to interface networks of US investigators and counterpart networks abroad will also be considered. Proposals from networks of US researchers to NSF in support of activities such as workshops, meetings, brief personnel exchanges, etc., may be linked to counterpart networks abroad supported, for example, by the European Science Foundation.

Projects proposed to NSF in areas supported by DMR are expected to offer students and junior researchers the opportunity to participate in an international research and education experience and, more generally, for integrating research and training in an international environment. Proposals that include exchange of students and post-doctoral research associates between the US and abroad are strongly encouraged, as well as proposals from junior faculty and members of underrepresented groups in science and engineering.

Proposals addressing materials and condensed matter research areas as described above are covered by this solicitation. Of special interest to NSF are proposals including activities that build upon and expand current cyber infrastructure capabilities, such as remote use of instrumentation, database creation and use, visualization and virtual experimentation, virtual networking, etc, to enhance and advance the international collaboration.

Proposals to NSF from individual investigators and small groups of investigators (3-5 investigators) are welcome. Proposals should be balanced in terms of intellectual effort and participation in the US and abroad.
III. AWARD INFORMATION

The estimated number of awards is 20 to 40, depending on quality of proposals and availability of funds. The total anticipated funding amount is $2,500,000 to $4,500,000 in FY 2008. Estimated total funding, number of awards and average award size/duration are subject to quality of proposals and availability of funds. Awards may be standard or continuing grants.

IV. ELIGIBILITY INFORMATION

Organization Limit:

Proposals may only be submitted by the following:

- Universities and Colleges: Universities and two- and four-year colleges (including community colleges) located and accredited in the US, acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.

PI Limit:

An investigator may be Principal Investigator in either (a) a proposal submitted in response to this solicitation or, (b) an unsolicited proposal submitted to the Division of Materials Research within the FY08 DMR submission window (see http://www.nsf.gov/materials for the submission window of unsolicited proposals to DMR), but not both.

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI:

An investigator may be Principal Investigator in only one proposal submitted in response to this solicitation.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

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

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

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

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.3 of the Grant Proposal Guide provides additional information on collaborative proposals.

Requests for additional funding (supplement) by a US Principal Investigator to an existing NSF award may not be submitted to this competition; such requests should be made directly through the program where the existing award is administered.

Proposals from foreign investigators should be submitted to the appropriate counterpart funding organization in accordance with the guidelines of that organization. Because application guidelines may differ among the participating organizations, it may or may not be possible to submit identical proposals to NSF and the counterpart organization(s). However, whenever the guidelines and evaluation criteria from NSF and the counterpart organization(s) allow for submission of a single project description to both organizations, proposers are strongly encouraged to do so. In such case, the Project Description of the counterpart proposal (item 5.b below) is redundant and need not be included as a supplementary document.

Proposals submitted in response to this solicitation must comply with proposal preparation guidelines in the NSF Grant Proposal Guide (GPG) or NSF Grants.gov Application Guide. A deviation from the page limitation for the Project Description is hereby authorized as described below. The following guidelines, in addition to those in the GPG or NSF Grants.gov Application Guide, should be followed in preparing the proposal to NSF:

1. The title of the proposal to NSF should begin as: "Materials World Network: ... "
2. The duration of the project proposed to NSF should match the duration of the counterpart project proposed to the other funding organization(s).
3. The Project Summary must address in separate statements the intellectual merit and the broader impacts of the proposed activity and, within the context of these two statements, the value added by the proposed international collaboration.
4. The Project Description may not exceed 17 pages. As indicated in the GPG and NSF Grants.gov Application Guide, the Project Description must include a section on Results from Prior NSF Support, which is limited to a maximum of 5 pages. The Project Description must also include a specific summary of the proposed interaction, including visits between the US and their partners abroad, stating the anticipated scientific benefits of the interaction and not to exceed 2 pages.
5. The proposal to NSF must include information clearly identifying the nature and scope of the corresponding counterpart proposal. This information must be entered into the "Supplementary Docs" section of the proposal to NSF. For each counterpart proposal include:

   a. Summary Information: name of the counterpart agency or agencies, names and affiliations of principal participants, the counterpart project title and identification code (if any), and date of proposal submission. Also state the requested funds, requested start and termination dates, and provide a technical abstract. (Limit: 3 pages).

   b. Project Description of the counterpart proposal including, for example, state of knowledge of the field, results from previous work, objectives, plan of work, expected outcomes and their significance (Limit: 15 pages - this is an upper limit, not a required length). NSF strongly encourages submission of a single project description to the participating funding organizations whenever possible. If the same project description is submitted to NSF and the counterpart funding organization(s) and/or the main body of the proposal to NSF already contains a description of the counterpart effort, then this item (b) is not necessary.

   c. Biographical sketches or curriculum vitae of the senior project personnel, including significant publications related to the proposed project. As for US participants, these must include the investigators’ thesis and postdoctoral advisors, thesis recipients and postgraduate scholars sponsored, as well as a list of collaborators (Limit: 2 pages per individual).

6. No letters of support or recommendation may be included.

Proposals not complying with the above preparation guidelines will be returned without review.

B. Budgetary Information

Cost Sharing: Cost sharing is not required under this solicitation.
C. Due Dates

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

  November 13, 2007

D. FastLane/Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

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

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

- **For Proposals Submitted Via Grants.gov:**

  Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant’s organization can then apply for any federal grant on the Grants.gov website. The Grants.gov’s Grant Community User Guide is a comprehensive reference document that provides technical information about Grants.gov. Proposers can download the User Guide as a Microsoft Word document or as a PDF document. The Grants.gov User Guide is available at: http://www.grants.gov/CustomerSupport. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

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

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program where they will be reviewed if they meet NSF proposal preparation requirements. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer’s discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal.

A. NSF Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. 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 the reviewer is qualified to make judgements.
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, original, or potentially transformative 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 also 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:

Reviewers will also take into consideration the value added by the proposed international collaboration in materials and condensed matter research, and the extent to which the collaboration integrates research and education and promotes diversity. Preference will be given to proposals where the intellectual efforts in the US and abroad are balanced and where students and junior researchers participate in international research experiences.

Representatives from NSF's Division of Materials Research will manage the review of proposals on the US side, either in parallel or jointly with participating funding organizations. Coordinated support will be arranged for successful proposals by the participating organizations. Information about proposals will be shared between the participating organizations as appropriate. While each side reserves the option to fund proposals independently, strong preference will be given to proposals with support from both NSF and the counterpart organization.

B. Review and Selection Process

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

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

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

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.
In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

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

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); * or 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 agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

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


C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report.

Failure to provide the required annual or final project reports will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. 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. Such reports provide information on activities and findings, project participants (individual and organizational) 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. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete.

VIII. AGENCY CONTACTS

General inquiries regarding this program should be made to:
For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.
- Maxine E. Jefferson-Brown, Computer Specialist, 1065 N, telephone: (703) 292-4918, fax: (703) 292-9035, email: mjeffers@nsf.gov

For questions relating to Grants.gov contact:

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

Contacts at other organizations:

Contact information in participating countries or regions is provided for the convenience of researchers in those countries or regions. Questions from US investigators should be directed to NSF.

Africa-USA Materials Collaboration Contacts:

**ALGERIA**

**Ministère de l'enseignement supérieur et de la recherche scientifique**

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**CROATIA**

**Ministry of Science, Education and Sports**

http://www.mzos.hr/index.htm

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**FINLAND**

**Tekes, Finnish Funding Agency for Technology and Innovation**

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Materials Technology

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**FRANCE**

**Centre National de la Recherche Scientifique (CNRS)**
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IX. OTHER INFORMATION

The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, MyNSF (formerly the Custom News Service) is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail or the user’s Web browser each time new publications are issued that match their identified interests. MyNSF also is available on NSF’s Website at http://www.nsf.gov/mynsf/.

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- International Planning Visits and Workshops
- Developing Global Scientists and Engineers (International Research Experiences for Students (IRES) and Doctoral Dissertation Enhancement Projects (DDEP))
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- East Asia and Pacific Summer Institutes for U.S. Graduate Students
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