Partnerships for International Research and Education

(PIRE)

Program Solicitation

NSF 06-589

Replaces Document(s): NSF 05-533



National Science Foundation

Office of International Science and Engineering

Office of Cyberinfrastructure

Directorate for Mathematical & Physical Sciences

Directorate for Social Behavioral & Economic Sciences

Directorate for Computer & Information Science & Engineering

Directorate for Geosciences

Directorate for Engineering

Directorate for Biological Sciences

Directorate for Education & Human Resources

Office of Polar Programs

Preliminary Proposal Due Date(s) (required):

October 30, 2006

(required) (due by 5 p.m. proposer's local time)

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

February 28, 2007

BY INVITATION ONLY

REVISION NOTES

In furtherance of the President's Management Agenda, in Fiscal Year 2006, NSF has identified programs that will offer proposers the option to utilize Grants.gov to prepare and submit proposals, or will require that proposers utilize Grants.gov to prepare and submit proposals. Grants.gov provides a single Government-wide portal for finding and applying for Federal grants online.

In response to this program solicitation, proposers may opt to submit proposals via Grants.gov or via the NSF FastLane system.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Partnerships for International Research and Education (PIRE)

Synopsis of Program:

Partnerships for International Research and Education (PIRE) seeks to catalyze a cultural change in U.S. institutions by establishing innovative models for international collaborative research and education. The program will enable U.S. institutions to establish collaborative relationships with international groups or institutions in order to engender new knowledge and discoveries at the frontier and to promote the development of a globally-engaged, U.S. scientific and engineering workforce. International partnerships are, and will be, increasingly indispensable in addressing many critical science and engineering problems. As science and engineering discoveries result more and more from international collaboration, U.S. researchers and educators must be able to operate effectively in teams comprised of partners from different nations and cultural backgrounds. The program supports forward-looking research whose successful outcome results from all partners – U.S. and foreign – providing unique contributions to the research endeavor. It is also intended to facilitate greater student preparation for and participation in international research collaboration, and to contribute to the development of a diverse, globally-engaged, U.S. science and engineering workforce.

Cognizant Program Officer(s):

- Edward O. Murdy, Senior Program Manager, 929 N, telephone: (703) 292-7222, fax: (703) 292-9067, email: emurdy@nsf.gov
- Michael Pritchard, Program Specialist, 935 N, telephone: (703) 292-7533, fax: (703) 292-9067, email: mpritcha@nsf. gov

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

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

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 14 to 17

Anticipated Funding Amount: \$7,000,000 per year for five years, pending availability of funds.

Eligibility Information

Organization Limit:

Proposals may only be submitted by the following:

Only Ph.D.-granting organizations in the United States may submit preliminary proposals or full
proposals; Ph.D.-granting organizations in the United States are defined as academic organizations
that have produced more than 20 Ph.D.s or D.Sci's in any NSF-supported fields of science,
mathematics or engineering during the previous two academic years (please refer to NSF's website
for further information about NSF-supported fields of science, mathematics and engineering: http://
www.nsf.gov/).

Non-Ph.D.-granting, nonacademic, and international organizations may serve as collaborating organizations in PIRE projects.

PI Limit:

PI must be affiliated with the lead institution. Only U.S. participants should be listed as co-PIs. International collaborators should be designated as senior personnel. One may participate as PI or co-PI in no more than three (3) proposal submissions. This restriction applies to both preliminary proposals and full proposals. A person listed as PI or co-PI in three proposals may serve as senior personnel in other proposals.

Limit on Number of Proposals per Organization:

- Limit on Number of Preliminary Proposals: Three (3) preliminary proposals per eligible institution. Institutions should develop an internal mechanism for selecting preliminary proposals to be submitted to NSF.
- Limit on Number of Full Proposals: Invitation to submit a full proposal is based on merit review of the preliminary proposal. There is no limit on the number of full proposals on which an institution may participate as non-lead institution.

Limit on Number of Proposals per PI:

One may participate as PI or co-PI in no more than three (3) proposal submissions. This restriction applies to both preliminary proposals and full proposals. A person listed as PI or co-PI in three proposals may serve as senior personnel in other proposals.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- Letters of Intent: Not Applicable
- **Preliminary Proposals:** Submission of Preliminary Proposals is required. Please see the full text of this solicitation for further information.
- Full Proposals:

Full Proposals submitted via FastLane: Grant Proposal Guide (GPG) Guidelines apply. 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.

Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf/)

B. Budgetary Information

- Cost Sharing Requirements: Cost Sharing is not required by NSF.
- Indirect Cost (F&A) Limitations: Not Applicable
- Other Budgetary Limitations: Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

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

October 30, 2006

(required) (due by 5 p.m. proposer's local time)

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

February 28, 2007

BY INVITATION ONLY

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: Additional reporting requirements apply. Please see the full text of this solicitation for further information.

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I. INTRODUCTION

Partnerships For International Research and Education - Concept

Scientific and engineering discovery is a worldwide phenomenon. Increasingly, centers of research excellence are emerging across the globe and new ideas and research are resulting from the intellectual interactions of people with diverse backgrounds. Consequently, U.S. scientists and engineers and their institutions must be globally engaged and able to operate effectively in teams comprised of partners from different nations and cultural backgrounds. International partnerships are, and will be, increasingly indispensable in addressing many critical science and engineering problems.

PIRE awards will enable U.S. institutions to develop long-term, collaborative research and education programs with international partners. Successful proposals will describe excellent, focused science and engineering research projects that are based on integrated research and education efforts, and substantive intellectual contributions from international collaborators who bring unique capabilities to the research activity. In addition, successful proposals will explain how the complementary strengths of the collaborating institutions will be used to enable and sustain a long-term program.

The program is intended to catalyze a cultural change in U.S. institutions by establishing innovative models for international collaborative research and education. It is also intended to facilitate greater student preparation for and participation in international research collaboration, and to contribute to the development of a diverse, globally-engaged, U.S. science and engineering workforce.

II. PROGRAM DESCRIPTION

A. Program Objectives:

- Support research and education excellence.
- Deepen collaborative research and education between U.S. institutions and international counterparts.
- Provide international research experiences for U.S. students and faculty to prepare them to work
 effectively in the global research community.
- Engage resources within and across institutions to build strong international partnerships.
- Develop new replicable models for international collaborative research and education.
- Raise the profile and increase the importance of international collaborative research and education within the U.S. research and education community.

Building international partnerships that advance research integrated with innovative educational opportunities is the focus of this program. Proposals submitted to the PIRE program should be organized around a focused research topic that requires the close collaboration of U.S. and international research partners to achieve significant scientific/engineering goals while also emphasizing the integration of research and education. The principal investigator will direct the partnership and work closely with foreign researchers as well as a diverse suite of participating U.S. entities (e.g. university research faculty, language departments, international program offices, administration, and information technology centers).

Any science and engineering area supported by the NSF is eligible, but PIRE awards will only support activities that: depend on intellectual collaborations with international partners; include significant and specific contributions (e.g., expertise, facilities, sites, data, different approaches/methods/models,

educational opportunities, etc.) from international partners; and make use of the diverse capabilities of all participating institutions. Proposers are encouraged to describe how the partnership will contribute to creating a hub of international collaboration that will bring demonstrable benefits to the U.S. research community.

In line with NSF's commitment to creating a diverse, competitive, and globally-engaged U.S. workforce, projects are expected to develop a cadre of scientists and engineers that will play a leadership role in forging international collaborations. Globalization of research and career opportunities places importance on U.S. scientists and engineers gaining an international perspective early in their careers. Therefore, a significant part of the partnership must involve U.S. participants working at foreign sites, such as academic, industrial, or national laboratories, or other suitable settings. Active participation of U.S. students and junior researchers, including those from underrepresented groups, at the foreign sites will be an integral part of the international collaboration.

Use of information/communication technologies, networking, distance learning, and other means of remote interaction as well as development of innovative curricular activities with strong international content is encouraged to strengthen the international dimensions of the project for those participants who travel abroad, as well as those who do not.

B. Principal Investigator

The Principal Investigator (PI) shall be the director of the PIRE project, and is expected to be an essential participant in its research and related educational activities. The PI will have overall responsibility for administration of the award, management of the project, and for interactions with the NSF. Other U.S. participants who will provide sustained intellectual contributions to the project should be identified as co-PIs. NSF only allows one PI and at most four co-PIs to be designated. Only U.S. participants should be listed as co-PIs. Foreign collaborators should be designated as non co-PI senior personnel.

C. Two-Stage PIRE Competition

This PIRE competition is structured as a two-stage process—a preliminary proposal submission stage followed by a full proposal submission stage. To be considered eligible for the full submission stage, proposers must submit a preliminary proposal that outlines the planned PIRE project. The preliminary proposals will be reviewed and, based upon the preliminary proposal evaluation, successful proposers will be invited to submit full proposals.

D. Additional Considerations

Pls are responsible for obtaining any required visas for foreign travel, and through the U.S. research institution, for providing documentation in support of U.S. visas for foreign counterpart investigators. Pls are also responsible for obtaining research permits and import/export documents, where necessary. Pls should review NSF's web page "Information for U.S. Travelers"; among other things, this page includes information regarding the collection of genetic resources outside of the United States.

III. AWARD INFORMATION

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds. Awards will be standard or continuing grants. Under this solicitation, proposals may be submitted for support for up to five years, with annual budgets not to exceed \$500,000. It is anticipated that NSF will make 14 - 17 awards for this competition. Future funding of this program will be dependent on availability of funds.

IV. ELIGIBILITY INFORMATION

Organization Limit:

Proposals may only be submitted by the following:

Only Ph.D.-granting organizations in the United States may submit preliminary proposals or full proposals; Ph.D.-granting organizations in the United States are defined as academic organizations that have produced more than 20 Ph.D.s or D.Sci's in any NSF-supported fields of science, mathematics or engineering during the previous two academic years (please refer to NSF's website for further information about NSF-supported fields of science, mathematics and engineering: http://www.nsf.gov/).

Non-Ph.D.-granting, nonacademic, and international organizations may serve as collaborating organizations in PIRE projects.

PI Limit:

PI must be affiliated with the lead institution. Only U.S. participants should be listed as co-PIs. International collaborators should be designated as senior personnel. One may participate as PI or co-PI in no more than three (3) proposal submissions. This restriction applies to both preliminary proposals and full proposals. A person listed as PI or co-PI in three proposals may serve as senior personnel in other proposals.

Limit on Number of Proposals per Organization:

- Limit on Number of Preliminary Proposals: Three (3) preliminary proposals per eligible institution. Institutions should develop an internal mechanism for selecting preliminary proposals to be submitted to NSF.
- Limit on Number of Full Proposals: Invitation to submit a full proposal is based on merit review of the preliminary proposal. There is no limit on the number of full proposals on which an institution may participate as non-lead institution.

Limit on Number of Proposals per PI:

One may participate as PI or co-PI in no more than three (3) proposal submissions. This restriction applies to both preliminary proposals and full proposals. A person listed as PI or co-PI in three proposals may serve as senior personnel in other proposals.

Additional Eligibility Info:

Projects may involve more than one U.S. institution as well as more than one international institution, but a single U.S. institution must serve as the lead institution and accept overall management responsibility as the lead institution. Only Ph.D.-granting organizations in the United States may submit proposals. Non-Ph.D. granting, nonacademic, and international organizations may serve as collaborating organizations. Eligible U.S. institutions may submit a maximum of three preliminary proposals as the lead institution. Invitation to submit a full proposal is based on merit review of the preliminary proposal. There is no limit on the number of proposals on which an institution may participate as non-lead institution.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Preliminary Proposals (required): Preliminary proposals must be submitted via FastLane. 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 PIRE instructions below. 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.

PRELIMINARY PROPOSAL CONTENT

Preliminary proposals must contain the items listed below and adhere to the specified page limitations, using reader-friendly fonts as specified in the GPG. No additional information may be provided by links to webpages. At the preliminary proposal stage, no letters of commitment or endorsement from the submitting institution or collaborating institutions are necessary. 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 PIRE program solicitation number shown at the beginning of this solicitation from the pull down menu, and then select PIRE preliminary proposal for the program unit from the ensuing screen. An informative title for the proposed PIRE project that begins with "PIRE:", must be provided. Check the box indicated for preliminary proposal. Only U. S. participants should be listed as co-PIs. Additional lead personnel should be designated as non co-PI Senior Personnel. The international activities box should be checked and the countries involved listed. For proposals that involve human subjects, IRB review and approval is not required at the time of preliminary proposal submission.

- A. **Project Summary** (1-page limit): Provide a summary description of the PIRE project, including its research focus and key research and education 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 PIRE 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 PIRE program; and (4) at the end of the project summary provide up to 3 key words that best describe the major themes of the international collaborative research proposed in their order of importance.
- B. International Programs Cover Page Addendum. This Addendum will be listed as a form for completion after the NSF Cover Sheet has been saved with the OISE Program Solicitation selected. Appendix I shows Addendum details.
- C. Table of Contents: The Table of Contents is generated by FastLane and cannot be edited.
- D. **Project Description:** The project description contains the following items: 1 and 2 (below), which are limited to a combined total length of 6 pages, inclusive of tables, figures, or other graphical data.
 - 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. This list should also include the names and institutional affiliations of key international collaborators.
 - 2. Integrated Research and Education Plan with Innovative Model of International Collaboration. (5-page limit). The research and education discussions should be balanced in length.

Briefly describe:

- a focused, integrated research project and education program requiring collaboration with a single (or multiple) international research institution(s);
- the rationale for the research and education project, specific hypotheses to be tested, methodologies, and relevant preliminary data (in sufficient detail to allow disciplinary peer review of the merit of the proposed project);
- a model for international research and education collaboration, and how it is innovative, effective, and coherent;
- the intellectual collaboration between the United States and international partners, and benefits to be accrued;
- the nature of the international research experiences to be provided to U.S. students and early-career researchers, plans for the provision of effective mentoring in both U.S. and international institutions, and the career development to be provided;
- how the PIRE project will both benefit from and add value to the participating U.S. institutions' international programs and goals;
- mechanisms for building a robust and sustainable collaboration, including strategies for continuation of the partnership beyond OISE support; and
- the potential impacts or expected significance of the work.
- E. **References Cited** (1-page limit). Cite references relevant to both the research and educational plans.
- F. **Biographical Sketches:** A maximum of 10 biographical sketches may be included; an appropriate mix of U.S. and international investigators is recommended. Additional individuals may be included in the List of Participants, Section #(D).1. Prepare the standard 2-page biographical sketches in accordance with the GPG. In choosing what to include, emphasize information that will be helpful for understanding the strengths, qualifications, and specific contribution the individual brings to the PIRE project.
- G. Current and Pending Support: Current and pending support for the PI and co-PI's must be included.

H. **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: 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.
- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at:(http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also 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 GPG or the NSF Grants.gov Application Guide. No additional information may be provided by links to web pages.

Cover Sheet:

- FastLane Users: Select the PIRE program solicitation number shown at the beginning of this solicitation from the pull-down menu, and then select PIRE Full Proposal for the program unit from the ensuing screen. An informative title for the proposed PIRE project that begins with "PIRE:", must be provided. Enter the related preliminary proposal number in the appropriate box. The international cooperative activities box should be checked and the countries involved listed. You may list a starting date as early as July 1, 2007.
- Grants.gov Users: The PIRE program solicitation number will be pre-populated by Grants.gov on the NSF Grant Application Cover Page. On the SF 424 (R&R) (Cover Page), enter the related preliminary proposal number in Field 4 and an informative title that begins with "PIRE:" in Field 11. You may list a starting date as early as July 1, 2007 in Field 13. On the R&R Other Project Information form, check "yes" in Field 5.a. and list the countries involved in Field 5.b.
- A. **Project Summary.** (1-page limit): Provide a summary description of the PIRE project, including its research focus and key research and education 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 PIRE 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 PIRE program; and (4) at the end of the project summary provide up to 3 key words that best describe the major themes of the international collaborative research proposed in their order of importance.
- B. International Programs Cover Page Addendum. Appendix I shows Addendum details. If submitting via FastLane, this Addendum will be listed as a form for completion after the NSF Cover Sheet has been saved with the OISE Program Solicitation selected. If submitting via Grants.gov, complete the information and attach as a PDF file (see Field 11, Other Attachments, on the R&R Other Project Information Form).
- C. **Table of Contents:** The Table of Contents is system generated and cannot be edited.
- D. **Project Description:** The project description contains the following items: 1 through 5, which are limited to a combined total length of 20 pages, inclusive of tables, figures, or other graphical data.

- 1. **List of Participants** (2-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. This list should also include the names and institutional affiliations of key international collaborators.
- 2. Integrated Research and Education Plan with Innovative Model of International Collaboration. (10-page limit). The research and education discussions should be balanced in length. Describe in sufficient detail:
 - a focused, integrated research project and education program requiring collaboration with a single (or multiple) international research institution(s):
 - the rationale for the research and education project, specific hypotheses to be tested, methodologies, and relevant preliminary data (in sufficient detail to allow disciplinary peer review of the merit of the proposed project);
 - a model for international research and education collaboration, and how it is innovative, effective, and coherent;
 - the intellectual collaboration between the United States and international partners, and benefits to be accrued;
 - the nature of the international research experiences to be provided to U.S. students and early-career researchers, plans for the provision of effective mentoring in both U.S. and international institutions, and the career development to be provided:
 - how the PIRE project will both benefit from and add value to the participating U.S. institutions' international programs and goals;
 - mechanisms for building a robust and sustainable collaboration, including strategies for continuation of the partnership beyond OISE support; and
 - the potential impacts or expected significance of the work.
- 3. Management, Assessment, and Institutional Commitment. (4-page limit). Describe in sufficient detail the:
 - division of responsibilities among U.S. and international partners, management framework, and overall schedule for research and education activities;
 - strategies for recruiting U.S. citizens and permanent residents to participate as postdoctoral and student researchers in the international collaborations;
 - strategies for engaging significant participation of underrepresented U.S. groups and institutions, and researchers and students at all levels;
 - use of advanced information and communications technologies to advance the project's research and education objectives, including engagement of faculty, students, and others who do not travel to the foreign site(s);
 - procedures and strategies for measuring, qualitatively and quantitatively, the success of the project in achieving its
 goals, particularly in terms of the impact of the project's international dimensions on individual students and
 researchers, on the research aspects of the project, and on strengthening U.S. institutions as vital hubs for
 international collaboration and training. In addition, it is highly desirable to have a structured means of tracking
 participating students beyond graduation, with the aim of gauging the degree to which the PIRE experience has been
 a lasting influence in the students' career paths; and
 - commitments participating institutions will make to facilitating and furthering project plans and goals, and to creating a supportive environment for international collaborative research and education activities on a long-term, sustainable basis.
- 4. **International Coordination and Logistics.** (4-page limit). Recognizing that international research experiences should be of sufficient duration to acculturate the U.S. researchers/students and provide a meaningful research/education experience, describe in sufficient detail:
 - procedures and arrangements for recruiting, selecting, preparing, and sending participants to international sites for research and education collaboration;
 - practical aspects of sending students, faculty, and postdoctoral associates from U.S. institutions abroad, including logistical (lodging, transportation, health care, safety, etc.) arrangements, language and cultural issues, and administrative requirements;
 - resources, e.g. language and cultural training programs, information technologies, and experience of the U.S. institution(s) in international activities that could contribute to the success of the proposed PIRE project;
 - nature, size, and scope of the international institution(s) and how the international partners complement the U.S.
 effort; and
 - specific and unique contributions (e.g., expertise, facilities, sites, data, different approaches/methods/models, educational opportunities, etc.) of the international partners.
- 5. Results from Prior NSF Support (if applicable, 5-page limit). The PI or any co-PI on the project who has received NSF funding in the past five years must provide information on the prior award(s). The PI and each co-PI who has received more than one prior award (excluding amendments) must report on the award most closely related to the proposal. The information required is described in the GPG or Grants.gov Application Guide. Reviewers will be asked to comment on the quality of the prior work described in this section of the proposal. Please note that the proposal may devote up to five pages to describe the

results, within the maximum 20 pages of Project Description. Results may be summarized in fewer than five pages, which would leave the balance of the 20 pages for the Project Description.

- E. References Cited (3-page limit). Cite references relevant to both the research and educational plans.
- F. **Biographical Sketches:** A maximum of 20 biographical sketches may be included; an appropriate mix of U.S. and international investigators is recommended. Additional individuals may be included in the List of Participants, Section (D).1. Prepare the standard 2-page biographical sketches in accordance with the GPG. In choosing what to include, emphasize information that will be helpful for understanding the strengths, qualifications, and specific impact the individual brings to the PIRE project.
- G. Current and Pending Support: Current and pending support for the PI and co-PI's must be included.
- H. **Budget and Allowable Costs:** Provide a budget for each year of support requested. The amount requested cannot exceed \$500,000 for any year. The system will automatically fill out the cumulative multiyear budget for the proposal.

Allowable Costs:

- Salary support for the PI and co-PIs (or subaward senior personnel). Within an overall limit of five months of salary support per year, up to two months per year for the PI and up to one month per year for each co-PI (or subaward senior personnel):
- Travel support for the PI and co-PIs (or subaward senior personnel). Up to one month (cumulative) per year of research-related travel support (i.e., airfare, lodging, meals, incidental expenses) for the PI and each co-PI (or subaward senior personnel);
- PI travel to Washington, D.C. area. The cost of travel for the PI for one trip per year to the Washington, D.C. area to report on award progress and/or participate in a grantees' meeting should be included;
- Stipend/salary support for postdoctoral associates, graduate students and undergraduate students who will perform dedicated work on the PIRE project. Whereas only a relatively small number of postdoctoral associates and students will receive stipend support, it is expected that larger numbers of individuals will participate in specific project activities (e.g., research activities at an international partner institution). The NSF contribution to graduate student stipends is currently \$30,000 per year for a 12-month appointment, and \$42,000 per year for a 12-month appointment for postdoctoral associates. Undergraduate or graduate students who do not receive stipend support, but perform dedicated work on the PIRE project may receive salary support at a level consistent with the organization's regular practices. (Note that U.S. citizens and permanent residents should receive preference for support by the PIRE grant.)
- Travel (including transportation, subsistence, health insurance and miscellaneous expenses) support for postdoctoral associates, graduate students, and undergraduate students. For living expenses abroad, applicants are encouraged to work with international counterparts to develop realistic budget requests. For example, access to university guest housing or similar facilities should be explored. It is expected that cost-effective arrangements will be made for individuals residing at the international site for extended periods and for projects involving on-going exchanges of short-term visitors. In no case should the amount for lodging and meals and incidental expenses (MI&E) exceed the authorized U.S. Government per diem rates, calculated at the daily rate for the first 30 days of a single project visit, and 50 percent of that rate for all time after that;
- Cost of education allowance. NSF 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 PIRE student-related activities;
- Funds for language training may be requested if not available at any of the participating institutions, or if specialized training is required;
- Limited funds may be requested for administration of the project, including support for administrative staff, faculty visits to international sites for research coordination and student mentoring, education and communication linkages between institutions, and preparation/orientation of students for living abroad;
- Expenses related to project evaluation, including, for example, consultant's fees for internal or external evaluators, costs of preparing pre- and post-travel questionnaires for project participants, and cost associated with tracking participating students beyond graduation;
- Purchase of limited shared-research equipment, special-purpose research materials, software and databases may be requested. Projects that require extensive equipment or fieldwork costs will need to secure such funding from other sources;
- NSF awards are normally limited to support of the U.S. portion of the collaboration. Whereas reciprocal visits by international researchers and students to the U.S. institutions are encouraged, NSF will not usually pay for such visits. In the case of scientists and engineers from a developing country or from a country whose currency is not convertible, limited funds may be requested to support their participation in the project. Proposers are encouraged to discuss specifics with the cognizant OISE program manager(s) before submitting a proposal.

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 (5-page limit): Provide a justification for the requested funds in each budget category. Provide detailed information on costs of research stays abroad, including expected number and duration of visits, airfare, subsistence expenses, and other costs. Include a breakdown showing the amount of budget that will support what number of senior researchers, junior researchers (within six years of the Ph.D.), graduate students, and undergraduate students. Provide details of anticipated resource commitments of other organizations expected to participate in the PIRE project, such as government, industry, non-U.S. institutions, or private foundations. Appropriate letters of commitment from participating organizations must be included in Supplementary Documentation (below). Cost sharing is not required under this solicitation, and any information provided will not be auditable as cost sharing.

- I. 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.
- J. **Supplementary Documentation:** Up to ten supporting letters, including one that must be from the senior administration of the submitting institution, may be provided as part of the proposal. Letters of support from international counterparts should provide substantive details regarding the international collaborators' commitment to the proposed project and the related support available through their funding mechanisms; at least one of these letters should come from a high ranking official at each major participating institution.

B. Budgetary Information

Cost Sharing: Cost sharing is not required by NSF in proposals submitted under this Program Solicitation.

Other Budgetary Limitations:

The NSF award is granted to the U.S. lead institution. NSF funding can support the participation of principal investigators, coprincipal investigators, contributing researchers, postdoctoral associates, students and support staff affiliated with the U.S. institution(s), when specifically justified in terms of the international collaboration. In almost all cases, international partners should obtain their own funding for participation. However, if an international collaborator is from a developing country or a country whose currency is not convertible, some support may be provided for that international collaborator. Proposers are encouraged to discuss specifics with the cognizant OISE program manager(s) before submitting a proposal. In rare cases where the project would include a subaward to a international institution, the PI must document:

- the subaward enables the project to be carried out more effectively than if the funds were administered directly by the U.S. grantee institution; and
- the possibility of indigenous support for the project has been thoroughly explored and found inadequate.

By law, U.S. flag carriers must be used if service provided by such a carrier is available (see sections 761.2 and 761.3 of the Grant Policy Manual at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpm)

C. Due Dates

Preliminary Proposal Due Date(s) (required):

October 30, 2006

(required) (due by 5 p.m. proposer's local time)

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

February 28, 2007

BY INVITATION ONLY

D. FastLane/Grants.gov Requirements

• For Proposals Submitted Via FastLane:

Detailed technical 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 solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this 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/

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 and, if they meet NSF proposal preparation requirements, for review. 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 with the proposer.

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 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 addition to the general NSF review criteria described above, the following criteria will be used by reviewers and NSF staff in evaluating proposals submitted in response to this solicitation:

- 1. Coherence and innovation of the international collaboration model, including its effectiveness and replicability as an intellectual collaboration for all participating scientists, engineers, and educators;
- 2. Effectiveness of career development opportunities for U.S. students and researchers;
- 3. (Full proposals only) Appropriateness of the management plan and organizational structure;
- 4. (Full proposals only) Commitment of the institutions to achieving the project's goals and to sustaining the partnership; and
- 5. (Full proposals only) Appropriateness of the budget.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Adhoc Review 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 date of receipt. 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 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 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.

Pls 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. Pls 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.

As part of the reporting requirement, each PIRE will also be required to collect information on management and performance indicators and supply this information to an NSF evaluation technical assistance contractor. Part of this reporting will take the form of a database that will be owned by the institution and eventually made available to the evaluation contractor. This database will capture specific information to demonstrate progress towards achieving the goals of the program. Such reporting requirements will be included in the PIRE awards letters.

VIII. AGENCY CONTACTS

General inquiries regarding this program should be made to:

- Edward O. Murdy, Senior Program Manager, 929 N, telephone: (703) 292-7222, fax: (703) 292-9067, email: emurdy@nsf.gov
- Michael Pritchard, Program Specialist, 935 N, telephone: (703) 292-7533, fax: (703) 292-9067, email: mpritcha@nsf.
 gov

For questions related to the use of FastLane, contact:

• FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@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.

For specific Project Development inquiries: The OISE geographic region/country program manager regarding project development. Contacts are available from the OISE Staff by Country page.

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/.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

Other programs managed by the Office of International Science and Engineering include:

- Developing Global Scientists and Engineers (Dissertation Enhancement and International Research Experiences for Students)
- International Research Fellowship Program (IRFP)
- Pan-American Advanced Studies Institutes Program (PASI)
- East Asia Pacific Summer Institutes for U.S. Graduate Students (EAPSI)
- International Research and Education: Planning Visits and Workshops

Other useful links for PIs submitting proposals to this solicitation:

PIRE awardees: http://www.nsf.gov/news/news_summ.jsp?cntn_id=105766

"Looking Beyond the Borders: A Project Director's Handbook of Best Practices for International Research Experiences for Undergraduates": http://www.nsf.gov/pubs/2006/nsf06204/index.html

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 40,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at http://www.nsf.gov

Location: 4201 Wilson Blvd. Arlington, VA 22230

• For General Information (703) 292-5111

(NSF Information Center):

• TDD (for the hearing-impaired): (703) 292-5090

• To Order Publications or Forms:

Send an e-mail to: pubs@nsf.gov

or telephone: (703) 292-7827

• To Locate NSF Employees: (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and 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 proposer 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 or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; 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," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). 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 Office of Management and Budget (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 the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton Reports Clearance Officer Division of Administrative Services National Science Foundation Arlington, VA 22230

X. APPENDIX

Phone: _

Appendix I

Office of International Science and Engineering Cover Page Addendum

(When using FastLane, this Addendum is listed as form for completion after the NSF Cover Sheet has been saved with the OISE Program Solicitation selected.)

Country #1:	
Country #2:	
Country #3:	
Proposal Category: [] Planning Visit or Workshop [] Developing Global Scientists and [] Partnerships for International Rese [] Multilateral Organizations	<u>.</u>
International Counterpart Investigato Investigators/Organizers/Hosts) Name: Department: Institution: Address:	

Email:
For Planning Visit or Workshop Location (use only when appropriate) City: Country: Start Date: End Date:
Demographics (people that will be supported by this project):
Number of senior US scientists and engineers (excluding those within 6 years of their Ph.D. and graduate and undergraduate students):
Number of U.S. scientists within 6 years of the Ph.D. (including the PI and/or co-PI if applicable):
Number of U.S. graduate students:
Number of U.S. undergraduate students:
Number of international scientists and engineers (including post-docs, graduate students and undergraduate students) associated with the international institution. Include only those that will be supported under this NSF proposal. Do not count international participants that will be supported by non-NSF funds.

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