

Industry / University Cooperative Research Centers Program (I / UCRC)

PROGRAM SOLICITATION NSF 07-537

REPLACES DOCUMENT(S): NSF 01-116



National Science Foundation

Directorate for Engineering
Industrial Innovation and Partnerships

Directorate for Computer & Information Science & Engineering

Letter of Intent Due Date(s) (*required*) (due by 5 p.m. proposer's local time):

January 19, 2007

June 29, 2007

January 04, 2008

First Friday in January, Annually Thereafter

June 27, 2008

Fourth Friday in June, Annually Thereafter

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

March 30, 2007

September 28, 2007

March 28, 2008

Fourth Friday in March, Annually Thereafter

September 26, 2008

Fourth Friday in September, Annually Thereafter

REVISION NOTES

Changes from the previous solicitation include:

- Enabled FastLane submissions for the Letter of Intent;
- Directorate for Computer & Information Science & Engineering participation;
- Revised award, cost sharing, and eligibility information;
- Revised Program Description and Proposal Submission sections; and
- Required management plans that include a:
 - Marketing Plan,
 - Financial Plan, and
 - Staffing Plan.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Industry/University Cooperative Research Centers Program (I/UCRC)

Synopsis of Program:

The Industry/University Cooperative Research Centers (I/UCRCs) program develops long-term partnerships among industry, academe, and government. The centers are catalyzed by a small investment from the National Science Foundation (NSF) and are primarily supported by industry center members, with NSF taking a supporting role in their development and evolution. Each center is established to conduct research that is of interest to both the industry and the center. An I/UCRC contributes to the Nation's research infrastructure base and enhances the intellectual capacity of the engineering and science workforce through the integration of research and education.

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

- 47.041 --- Engineering
- 47.070 --- Computer and Information Science and Engineering

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 2 to 8 full center awards and 4-12 planning grant awards annually.

Anticipated Funding Amount: \$6,000,000 to \$9,000,000 -- Funding is dependent on the availability of funds.

Eligibility Information

Organization Limit:

Proposals may only be submitted by the following:

- Only U.S. academic institutions with graduate research programs may apply. Please see Section IV. Eligibility Information for details on organizational eligibility information including:
 - research and graduate program requirements, and
 - letter of intent, planning grant, and full center proposal requirements.

PI Limit:

The center director must be the PI and come from the lead institution. A PI must be a tenured faculty member (or equivalent) at an institution eligible to submit an I/UCRC proposal.

Limit on Number of Proposals per Organization:

Each institution is limited to a maximum of two single institution I/UCRC awards. Institutions which currently have two single institution awards are not eligible to submit another single institution proposal. There is no limit on the number of proposals that may be submitted when collaborating with another institution. It is permissible for an institution to have two single institution center awards and also submit a proposal to be a site in a multi-institutional center.

Limit on Number of Proposals per PI:

None Specified

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Submission of Letters of Intent is required. Please see the full text of this solicitation for further information.
- **Preliminary Proposal Submission:** Not Applicable
- **Full Proposals:**
 - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: 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

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

- **Letter of Intent Due Date(s) (required)** (due by 5 p.m. proposer's local time):
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 - September 28, 2007
 - March 28, 2008
 - Fourth Friday in March, Annually Thereafter
 - September 26, 2008
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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: Additional award conditions apply. Please see the full text of this solicitation for further information.

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

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I. INTRODUCTION

The Industry/University Cooperative Research Centers (I/UCRC) Program was initiated in 1973 to develop long term partnerships among industry, academe and government. The National Science Foundation invests in these partnerships to promote research programs of mutual interest, contribute to the Nation's research infrastructure base and enhance the intellectual capacity of the engineering workforce through the integration of research and education.

The centers are catalyzed by a small investment from NSF and they are primarily supported by center members, with NSF taking a supporting role in their development and evolution. The I/UCRC program initially offers five-year awards to centers. This five-year period allows for the development of a strong partnership between the academic researchers and their industrial and government members. After five years, centers that continue to meet the I/UCRC program requirements may submit for a second five-year renewal award. These awards allow centers to continue to grow and diversify their non-NSF memberships. After ten years, the centers are expected to be fully supported by industrial, other Federal agency, and state and local government partners.

II. PROGRAM DESCRIPTION

A comprehensive range of disciplines and skills is necessary to address research issues of interest to industry, it is generally necessary to form a consortium of universities to achieve a critical mass of interdisciplinary research capabilities for the formation of a center. In that case, one of the universities acts as the administrative lead for the center and each partner is expected to attract industrial support to the center.

Requirements of an I/UCRC

A center in the I/UCRC Program must:

- Develop a partnership among academe, industry, and other organizations participating in the center;
- Consult with center members to set a defined research agenda focused on shared research interests, needs, and opportunities;
- Limit the scope of research to areas of interest by that industry and not extend to areas within the scope of other I/UCRC centers.
- Share the intellectual property developed by the center equally among center members in accordance with the Bayh Dole Act;
- Have center members that monitor and advise on the progress of the research and contribute towards technology transfer between universities and industry;
- Have a strong industry and university interaction program of university, industry, and other partners that are the primary financial resource for the center;
- Have a formal structure and policies for center members as outlined in an I/UCRC membership agreement (See the Sample Membership Agreement in Section IX. Other Information);
- Rely on graduate student involvement in high quality research projects, thus developing students who are knowledgeable in industrially relevant research;
- Have an interdisciplinary team of faculty and students that is diverse in gender, race, and ethnicity;
- Have a center director, based at the lead university, who is responsible for all center activities;
- Provide reliable, accurate, and timely information about their center for the I/UCRC Directory. (See Section IX. Other Information);
- Have a marketing plan;
- Have a financial plan;
- Have a research team capable of developing and operating a center; and
- Have formal evaluation of the partnership conducted by an independent evaluator.

An I/UCRC has the following infrastructure:

- Industrial Support Requirements:
 - Members are generally comprised of industrial firms, organizations, and non-NSF Federal agencies;
 - Members can be:
 - Full members - with full membership rights who support the center.
 - Associate members - memberships with reduced rights commensurate with their support for the center (often a firm with fewer than 500 employees.)
 - A center must obtain a minimum of ten memberships. Multi-institutional sites within a center must obtain a minimum of five members annually per institution. For the purpose of this requirement, a small business (as defined by the small business administration) counts as 1/2 member; and
 - An agreement outlining center policies that is signed by all center members.
- Center policies address their ability to meet NSF guidelines in accordance with the sample membership agreement with respect to:
 - property rights,
 - industry member rights,
 - publication delays, and
 - membership fees and rights.
- Marketing plan that effectively guides the center in recruiting and retaining industry members. The marketing plan must include viable strategies that build industry relationships that attract companies to invest in the center's research.
- Center management and organization includes:
 - A Center Director who is responsible for all aspects of center operation and has primary responsibility for administering the award in accordance with NSF's Grant Special and General Conditions and the I/UCRC program;
 - An Industrial Advisory Board (IAB) that reviews and recommends ongoing and completed activities and new projects;

- A University Policy Committee that facilitates the operation of the center while ensuring that the center is operating within the university's normal policies;
- Collaboration among multiple investigators;
- Graduate and other student involvement; and
- A plan for broadening participation.

Other requirements of an I/UCRC include reporting and evaluation.

- Centers are required to submit reports as specified in Section VII. Award Administration Information, Subsection C. Reporting Requirements.
- There must be an independent evaluator who cannot be from the department within the institution receiving funding for the I/UCRC award. The center evaluator is responsible for:
 - Preparing an annual report of center activities with respect to industrial collaboration during the previous year (which is appended to the center's annual report to NSF);
 - Conducting a survey (using an instrument that will be provided by NSF to all centers) of all center participants to probe the participant satisfaction with center activities;
 - Compiling a set of quantitative indicators determined by NSF to analyze the management and operation of the center;
 - Participating in I/UCRC center and informational meetings including:
 - Semi-annual Industrial Advisory Board (IAB) meetings.
 - Annual center director's meeting (usually held in January near NSF).
 - Other evaluator meetings (usually held in June near NSF).
 - Performing exit interviews to determine why members chose to withdraw from the center; and
 - Participating in continuous quality process improvement by providing information to the NSF I/UCRC program officials.

Establishment of a Center

A Center can be composed of one or more institutions with one Industrial Advisory Board (IAB) reviewing all the researchers' activities. Multi-institution centers are encouraged because they provide a broader research base that readily addresses industry's research needs. Collaborative proposals for multi-institution centers must be submitted via FastLane as separate submissions from multiple organizations in accordance with Chapter II, Section D.3.b. of the Grant Proposal Guide.

The phases for I/UCRC Program funding are described below. All phases are required for all prospective centers.

1. Letter of Intent

A letter of intent describing the proposed center must be submitted to NSF for internal review using FastLane. The letter of intent must be approved by an I/UCRC program director before a proposal for a planning grant award will be accepted. The proposed centers are considered potentially viable when they:

- Fit within the industry and university collaborative scope,
- Are economically important to the research area,
- Do not significantly duplicate the research focus of other I/UCRCs, and
- Former I/UCRC sites may not reform into a new I/UCRC with the same research focus or scope.

2. Planning Grant Proposal

A planning grant supplies funds to study the feasibility of developing the industry and university interaction necessary to establish and support a center. As part of this study, it is a requirement that a meeting be held that brings together potential members to explore opportunities and establish a research plan that fits their needs. Planning grant proposals will be reviewed competitively by a panel.

3. Center Proposal

Submission of a proposal requires that all institutions comply with all the requirements listed in IV. Eligibility Information and in V. Proposal Preparation and Submission. sections. The NSF support is intended to simply augment support for administration of the center.

The initial I/UCRC continuing award to a center has a potential duration of five years. It may be extended for an additional period of up to five years following a successful renewal review guided by peer evaluation and a favorable recommendation by the NSF program director. Annual renewal reviews look for sufficient meritorious achievement and success at maintaining leverage of NSF support.

4. Collaborations with Additional Institutions

Support is available for additional institutions to join an existing or proposed center in the I/UCRC Program. See Award Information for details.

III. AWARD INFORMATION

Planning Grant

\$10,000 per institution for a planning grant award with an 18 month duration.

Center Awards - continuing or standard grant.

The annual combined CISE and ENG I/UCRC program budget is approximately \$6,000,000 to \$8,000,000 million pending the availability of funds.

Centers may be based at a single institution but are generally multi-institutional. The initial I/UCRC award to a center has a potential duration of five years. NSF support is intended to augment the support the center receives from industry and other sponsors. The I/UCRC program uses the following funding formulas.

I/UCRC FUNDING FORMULA

First Five Year Initial Awards:

1. \$70,000 award per year for ten or more memberships per site.
2. \$50,000 award per year for five to nine industry memberships per site.
3. Lead institution receives an additional \$10,000 per year for each added institution in the center to offset the added administrative functions.

Second Five Year Renewal Awards

1. \$35,000 award per year for centers with ten or more memberships per site.
2. \$25,000 award per year for centers with five to nine memberships per site.
3. The lead institution receives an additional \$10,000 per year for each added institution in the center.

Amount added to towards the support of an evaluator

1. Lead institution: \$9,000 is added annually.
2. Second institution: \$6,000 is added annually.
3. Third institution: \$3,000 is added annually.
4. Fourth through the sixth institution: \$1,000 is added to the award annually.
5. Seven or more: No additional evaluator support is provided.

IV. ELIGIBILITY INFORMATION

Organization Limit:

Proposals may only be submitted by the following:

- Only U.S. academic institutions with graduate research programs may apply. Please see Section IV. Eligibility Information for details on organizational eligibility information including:
 - research and graduate program requirements, and
 - letter of intent, planning grant, and full center proposal requirements.

PI Limit:

The center director must be the PI and come from the lead institution. A PI must be a tenured faculty member (or equivalent) at an institution eligible to submit an I/UCRC proposal.

Limit on Number of Proposals per Organization:

Each institution is limited to a maximum of two single institution I/UCRC awards. Institutions which currently have two single institution awards are not eligible to submit another single institution proposal. There is no limit on the number of proposals that may be submitted when collaborating with another institution. It is permissible for an institution to have two single institution center awards and also submit a proposal to be a site in a multi-institutional center.

Limit on Number of Proposals per PI:

None Specified

Additional Eligibility Info:

A Letter of Intent must be approved by the NSF Program Director before the institution may submit a planning grant proposal. Institutions must have been awarded a planning grant before they are eligible to submit a full center proposal.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Letters of Intent(required):

1. **Guide to Submission of a Letter of Intent for an Industry/University Cooperative Research Center**

Format- Letter of Intent

Letters of intent are to be submitted via FastLane which is accessible from the NSF web site.

Letter of Intent Preparation Instructions:

When submitting a Letter of Intent through FastLane in response to this Program Solicitation please note the conditions outlined below:

- Sponsored Projects Office (SPO) Submission is required when submitting Letters of Intent
- A Minimum of 1 and Maximum of 4 Other Senior Project Personnel are allowed
- A Minimum of 0 and Maximum of 4 Other Participating Organizations are allowed
- A description of the research focus of the potential center is required when submitting Letters of Intent
- A list of participating center sites (universities & colleges) & faculty members is required when submitting

- Letters of Intent
- A list of potential members (industry & firm) that the research will attract is required when submitting Letters of Intent
- Submission of multiple Letters of Intent is allowed

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.
- 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.

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.

2. Guide to Submission of a Planning Grant Proposal for an Industry/University Cooperative Research Center

Introduction- Planning Grant

Planning grant proposals are accepted only if the letter of intent describing a proposed I/UCRC has been approved by an I/UCRC program director. Planning grants are used to plan the joint industry and university research agenda and to determine the feasibility and viability of developing a center. The proposal is limited to 15 pages or less excluding supplementary documents.

Format- Planning Grant

Project Summary - One page maximum length discussing these two topics:

- Intellectual Merit of the center - See Section VI. NSF Proposal Processing and Review Procedures for details.
- Broader Impact of the center - See Section VI. NSF Proposal Processing and Review Procedures for details.

Planning Grant Objective

- Objective - brief statement of the planning grant's objective (which should be a meeting with industry and university agreeing on an initial research agenda to start the center.)
- Strategy - how will you meet your objective? Provide detailed plans.
- Potential members - identify industry members who are likely to join the proposed center and the plan to recruit them.
- Meeting planning arrangements including,
 - Proposed location;
 - Meeting format and organization;
 - Responsibilities of staff and presenters;
 - Draft agenda.

Project Description

Provide a full description for the envisioned center that serves as a blue print for action that expands on the following:

- Provide a general analysis of the industry on which the proposed center plans to focus; how that industry affects the Nation's economic health; and its research interests and needs, especially in those areas of research that could be considered appropriate for the proposed center;
- Provide a description of the center's scope as to what the center will do and define areas that are out of scope;
- Determine the proposed center's, policies, guidelines, organizational structure, and operational procedures within the I/UCRC framework;
- Determine a plan for broadening participation;
- Proposed project selection - a one page description for each envisioned research project that includes:
 - experimental plan and a discussion of its industrial relevance and appropriateness for the center;
 - project objectives;
 - proposed team (management and staff);
 - proposed deliverables;
 - proposed methodology;
 - determination of milestones and time to completion;
 - determination of annual and total cost to completion.

Include these required planning grant documents in the Supplementary Documents section of FastLane (For

Grants.gov users, supplementary documents should be attached in Field 11 of the R&R Other Project Information Form.):

- Proposed center marketing plan;
- Proposed center financial plan;
- Staffing plan with a responsibility matrix showing the roles that the proposed center director and other researchers will have in performing this planning study;
- Membership Agreement;
- Draft Agenda - for the meeting with industrial representatives designed to determine the research agenda and its viability; and
- Potential center member letters - (six letters minimum) from industry noting that the center's concept and proposed research agenda have the potential for receiving support from industry and that the firm or organization would consider joining if the center were formed.

Budget

Support is generally for travel, an industry planning meeting, associated meeting publications, and faculty time. Note any other sources of funds to be used in this study.

3. Guide to Submission of a Center Proposal for an Industry/University Cooperative Research Center

Introduction - Center Proposal

Support from NSF for Industry/University Cooperative Research Centers is awarded as seed funds to develop a partnership between industry and academe, with NSF taking the role of a facilitator. A significant proportion of a center's support is expected to come from industrial, state, and other funds. As a center progresses, it is likely to have increased opportunities for funding from additional firms, other Federal agencies, Federal laboratories, and state and local governments, thus increasing the leverage of NSF funds.

To be eligible to submit a proposal, a center must have been awarded a planning grant. In addition, the center must develop and submit a marketing, financial, and staffing plan that supports a vital research agenda and ensures that the center can support graduate students and research projects. The minimum number of members required produces a critical mass and encourages a more generic research program. In general, center members are industrial firms, although some may be other organizations such as Federal agencies.

Proposal Format- Center Proposals

The proposal should reflect the unique combination of the proposing institution's research interests, capabilities, and potential for working with industry. These features should be discussed in sufficient detail to facilitate review in accordance with the I/UCRC Program requirements.

Project Description

The following narrative outline is recommended for the project description. This narrative should be no longer than 30 pages.

a. Project Summary. One-page limit.

Include and address the following points:

- Brief description of the proposed center and scope of the research program.
- Intellectual Merit - See Section VI. NSF Proposal Processing and Review Procedures for details.
- Broader Impact - See Section VI. NSF Proposal Processing and Review Procedures for details.

b. Project Overview. Three-page limit.

In no more than three pages, describe the technical focus of and need for the center. Describe the technical area, the industry, the research required and the expertise and resources that will be used to address this need.

c. Center Structure and Operations

Proposers must discuss the following issues in their proposals:

- Available facilities and infrastructure;
- A director responsible for all activities of the center, with evidence of the director's management capability;
- Show how these are addressed in the membership agreement:
 - Intellectual property policies in accordance with the Bayh-Dole Act that permit non-exclusive, royalty-free licenses for industrial center members and the possibility of exclusive, royalty-bearing licenses;
 - Publication delay policies;
 - The membership structure of the center, as well as the role of members in the center and the specific benefits of membership categories; (Use the Sample Membership Agreement referenced in Section IX of this solicitation as a guide)
- Discussions on risk management, research scope, staffing, and broadening participation;
- The proposed evaluator and plans for the center to meet I/UCRC evaluation criteria; and
- Membership and composition of the university policy committee.

d. Research Plan.

Envisioned Projects - up to three pages describing each envisioned research project that includes:

- A discussion of its industrial relevance and appropriateness for the center;
- Project objectives;
- Proposed team (management and staff) with plans to address broadening participation;
- Proposed deliverables;
- Determine business or industry need;
- Develop product or process description;
- Describe the available research facilities;
- Determine time to completion and cost; and

- Describe the involvement of students and Industrial Advisory Board (IAB) personnel in planning and executing the project, if applicable.

Budget Sheet

The proposal should include:

- A separate budget detailing all sources of funding and costs,
- A proposed budget for NSF funds for each of the first five years of center operation and a five-year summary budget (including funds to support the independent evaluator.)

Supplemental Docs

The following information should be added to the Supplemental Docs section of FastLane (For Grants.gov users, supplementary documents should be attached in Field 11 of the R&R Other Project Information Form.):

- A copy of the membership agreement document.
- A list of participating center members and their letters of financial commitment or intent.
- If applicable, list collaborations with additional institutions. All policies and procedures for a center and its sites should be the same.
- A list of the individuals who are key to the center, and other participating individuals, noting diversity. The list should identify institutional and departmental affiliation or discipline, and should include biographical information on the center director and all key faculty members or other individuals from participating institutions who will be directly involved in the development, operation, and evaluation of the center. The list of publications for these individuals should be limited to the five most relevant to the proposed research.
- Current and pending support for key individuals with academic affiliations who are requesting salary support from NSF.
- Marketing Plan.
- Financial Plan.
- Staffing Plan.

B. Budgetary Information

Cost Sharing: Cost sharing is not required under this solicitation.

C. Due Dates

- **Letter of Intent Due Date(s) (required)** (due by 5 p.m. proposer's local time):
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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?

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: <http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>.

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:

Evaluation

Letters of Intent will be evaluated by NSF staff based on the economic importance of the research area, the quality and quantity of the proposed research and the researchers. The NSF evaluation will be furnished to the author of the Letter of Intent. Notification of approval of the Letter of Intent is required before submission of a planning grant proposal.

Planning grant proposals and full center proposals will be competitively reviewed by mail and/or panel review. The proposals will be subject to the NSF merit review criteria and the additional criteria given below:

- The envisioned center is consistent with the defining characteristics and operational requirements of an I/UCRC.
- There is enough potential university support, faculty, and facilities involved to build a viable center.
- The planning study will effectively focus on the research interests of an industry that is in a position to support the center, so that it could meet the requirements to submit a center proposal.
- The planning study will effectively utilize I/UCRC operational requirements for structuring and operating the envisioned center.
- The center has an effective marketing plan to develop a strong contingent of firms and sufficient industry support to be successful and meet the I/UCRC criteria.
- The Center proposes to develop a research program that does not duplicate that of an existing I/UCRC.
- The proposal requires cross-disciplinary and cross-departmental participation where appropriate to the research envisioned.
- The NSF reviewers will consider the extent to which there is evidence that the Center will meet the *"Requirements of an I/UCRC"* as described in Section II. Program Description.

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 Research 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/award_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.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the *NSF Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Special Award Conditions:

Prior to the start of the new fiscal year and funding period, the program director, program managers, and the division director will review the center on a number of renewal criteria including the following:

1. The degree of collaboration amongst center sites;
2. The extent in which the marketing plan is being pursued;
3. The extent to which the industry/university collaborations are growing; and
4. The extent to which the industrial research program is developing.

If the review is satisfactory, the program director will recommend support for the next period of the continuing award.

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.

Annual Report for the Center

Each center site that receives NSF funding must submit an annual report 90 days before the end of their current budget period. This information is needed by the I/UCRC program to help make the case for continued center support for the upcoming fiscal year. The annual report is used as a basis for assessing annual performance and determining continued funding. Incomplete reports are not accepted by NSF. Evaluators also undergo an annual review that examines the completeness of their reports, participation in the annual director's meeting, participation in the annual evaluators meeting, and the degree of their effectiveness in their center's Industry Advisory Board (IAB) meetings.

The complete annual report has three main sections:

1. Director's Report,
2. Evaluator's Report, and
3. Certification of Membership.

The format of the report sections should include the following headings:

Director's Report

- Center Identification: Award number, year of initial funding, center director name and contact information.
- Research Goals - goals for the current year.
- Collaborations with other universities (if applicable) and names of co-director(s).
- Major Accomplishments - current year scientific and technological developments, patents, reports, events, and significant technology transferred to members and its impact on the company, the industry, and the nation. (This should be written for laymen understanding for possible NSF promotional use);
- Prospective Research Projects - list likely project title, duration, budget, and deliverable.
- Communications and Decision Making - how does the center interact and communicate with center members? How are the research programs planned and selected.
- Industry Membership Descriptors for the current award
 - Membership identification
 - Current members
 - Members at the start of the award.
 - New members added
 - Identify members who left the center.
 - Annual membership fees
 - Primary
 - Secondary
 - Tertiary
- I/UCRC Directory Changes - list changes (if any) needed to the I/UCRC directory at <http://www.nsf.gov/eng/iip/iucrc>.

Evaluator's Report

Evaluators are expected to produce an annual report that incorporates information obtained via participant observation, surveys of faculty and industry and exit interviews. Additional information about the evaluator's role, responsibility and data gathering instruments can be found at www.ncsu.edu/iucrc/. The format of the report is as follows:

- Overview: Provide a general overview of the center's status.
- Goals and objectives: Describe the center's primary technical and organizational goals and objectives.
- Environmental and Institutional: Describe any environmental (e.g., decline in industry's competitive position) or institutional or university (e.g., partnerships with other universities, shift in university priorities) changes.
- Organizational: Describe any changes in the center's personnel, structure, policies, financial status, etc.
- Research Program: Describe any changes in the center's research program.
- Center accomplishments: Describe any accomplishments or impact the Center has had in the following areas: knowledge/technical advances; technology transfer; educational impacts.
- Analysis: Based on the information provided above and other relevant information, comment on the health and vitality of the Center.
- Timeline: Attach an updated timeline of significant events and milestones, which have occurred over the center's lifetime.

Certification of Membership

The certification is a letter or document from an authorized university official familiar with the center that details the receipts of annual cash membership fees or commitments.

Required Essential Data

In addition to the annual report, centers are required to provide data to NSF and its authorized representatives (contractors or grantees.) This data is used for NSF internal reports, historical data, and for securing future funding for continued I/UCRC program

maintenance and growth. Updates to the I/UCRC database of performance indicators are required annually. Data for the *last complete fiscal year* should be submitted via the web-based interface maintained by NSF or its contractors no later than September 30. Centers are responsible for submitting this information after the award expires for their final fiscal year of activity. These indicators are both quantitative and descriptive.

- Quantitative information from the most recently completed fiscal year such as:
 - number and diversity of students, faculty, and industrial members involved in the center,
 - degrees granted to students involved in center activities,
 - amounts and sources of income to the center, and
 - lists of patents, licenses, and publications created.
- Operating Budget and Total Funding
 - Total funding
 - NSF/IUCRC funding received
 - Other NSF funding received
 - Additional support broken down by Industry, State, University, Other Federal, Non-Federal, and other support.
- Capital and in-kind support
 - Equipment
 - Facilities
 - Personnel
 - Software
 - Other Support
- Human Resources
 - Researchers (# of faculty scientists and engineers, # of non-faculty scientists and engineers)
 - Students (# of graduate, # undergraduate)
 - Administration, # of full and part time professional and clerical staff.
 - Information about broadening participation on the above with plans to increase broadening participation, if necessary
- Center Director Descriptors
 - Position and Rank of the Director
 - Status of tenure
 - Identify the name and position of the person to whom the Center Director reports to
 - Estimate of the percent of time the director devotes to center administration, other administration, research, teaching, other.
- Center Outcomes
 - Students receiving degrees and type of degree earned.
 - Students hired by industry by type of degree.
 - Publications
 - # with center research
 - # with IAB members
 - # of presentations
- Intellectual Property Events
 - Invention disclosures
 - Patent applications
 - Software copyrights
 - Patents granted and derived or both
 - Licensing agreements
 - Royalties Realized

I/UCRC Directory Reporting

I/UCRCs are required to provide accurate and up-to-date information that NSF can use for the online I/UCRC directory at <http://www.nsf.gov/eng/iip/iucrc/directory/index.htm>. Instructions for updating and reporting web site information can be found at <http://www.nsf.gov/eng/iip/iucrc/directory/instructions.htm>.

VIII. AGENCY CONTACTS

General inquiries regarding this program should be made to:

- Rathindra DasGupta, telephone: (703) 292-8353, email: rdasgupt@nsf.gov
- Glenn Larsen, I/UCRC Program Director, Directorate for Engineering, 505, telephone: (703) 292-4607, email: glarsen@nsf.gov
- Gregory Misiorek, Program Assistant, Directorate for Engineering, 585 N, telephone: (703) 292-8383, fax: (703) 292-9051, email: gmsiore@nsf.gov
- Rita Rodriguez, Program Director, Directorate for Computer & Information Science & Engineering, 1175 N, telephone: (703) 292-8950, fax: (703) 292-9010, email: rrodrigu@nsf.gov
- Alex Schwarzkopf, **Lead I/UCRC Program Director**, Directorate for Engineering, 585 N, telephone: (703) 292-5359, fax: (703) 292-9051, email: aschwarz@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.

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>.

Related Programs:

Sources for additional information:

- Visit <http://www.nsf.gov/eng/iip/iucrc/> for information on unsolicited proposal submissions and other general information about the I/UCRC program.
- The Sample Agreement for I/UCRCs can be found on http://www.nsf.gov/eng/iip/iucrc/sample_agreement_form.jsp
- The Directory of I/UCRCs can be found on <http://www.nsf.gov/eng/iip/iucrc/directory/index.jsp>

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>

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| • Location: | 4201 Wilson Blvd. Arlington, VA 22230 |
| • For General Information
(NSF Information Center): | (703) 292-5111 |
| • 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

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