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

## PROGRAM SOLICITATION
**NSF 12-516**

REPLACES DOCUMENT(S):
NSF 10-595

**National Science Foundation**

Directorate for Engineering
    Division of 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 02, 2012

First Monday in January, Annually Thereafter

June 29, 2012

Last Friday in June, Annually Thereafter

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

March 06, 2012

First Tuesday in March, Annually Thereafter

September 28, 2012

Last Friday in September, Annually Thereafter

## IMPORTANT INFORMATION AND REVISION NOTES

Phase I support has been increased from $55,000 to $60,000 per site when membership fees range between $150,000 and $300,000.

Phase I and Phase II centers are also eligible for additional funds to support innovative and effective center operations and communications.

All proposals that fail to address the following items will be considered non-responsive and will be returned without review.

1. Failure to submit a Letter of Intent (LOI), by deadline date outlined below.

2. A full proposal submitted after 5:00 pm (proposer's time) on the deadline date. The "proposer's time" is the local time zone associated with the lead institution as indicated on the Cover Page.

3. A proposal that does not have all of the required components, uploaded into the appropriate module, as outlined below:

    A. Project Summary (1 page limit) that addresses both Merit Review criteria as described in Section VI.
    B. Project Description (15 page limit) that addresses all required components as described in Section V.
    C. References Cited (required by NSF for all proposals)
    D. Biographical Sketches for all senior personnel and/or key individuals requesting salary support from NSF
    E. Budget and Sub-Awardee budget/s (if applicable)
    F. Current and Pending Support for key individuals with academic affiliations who are requesting salary support from NSF (required by NSF for all proposals, reference NSF GPG)
    G. Facilities, Equipment and Other Resources (required by NSF for all proposals, reference NSF GPG)
    H. Supplementary Documents (outlined below based on proposal type)

4. A proposal missing any of the items below, or with any items *other than the following,* in the "Other Supplementary Documents" section:

    **PLANNING GRANTS:**

    A. Proposed Center Marketing Plan
    B. Staffing Plan with a Responsibility Matrix
    C. Sample Membership Agreement for industry partners
    D. Draft Agenda
    E. Potential Center Member Letters (6 letter minimum per institution)
    F. Letter or other evidence that research thrust does not overlap existing Center where potential overlap could exist - *does not apply if joining an existing center as a research site.*

    **FULL CENTER GRANTS:**

A.  Membership Agreement
B.  List of participating center members and their letters of financial commitment
C.  List of collaborations with additional institutions (if applicable)
D.  List of key participants, noting diversity
E.  Marketing plans and plans for center growth over next five years
F.  Phase II Center:

   a.  Evaluator's Report
   b.  Membership certification for final and fifth year of Phase I
   c.  Commitment letters from potential members
   d.  List of key accomplishments during Phase I
   e.  Number of publications per year
   f.  Number of graduate students graduated each year
   g.  Number of patents generated per year

G.  Phase III Center:

   a.  Evaluator's Report
   b.  Membership certification for final and fifth year of Phase II
   c.  Commitment letters from potential members
   d.  List of key accomplishments during Phase II
   e.  Number of publications per year
   f.  Number of graduate students graduated each year
   g.  Number of patents generated per year

5.  Mentoring Plan (required if funds are included on line "B.1 Post Doctoral Scholars", reference NSF GPG)

6.  Data Management Plan (reference NSF GPG)

7.  A proposal requesting more than the maximum allowable amount as outlined in Section III below.

8.  A proposal with documents placed in the "Additional Single Copy Documents" module in FastLane, other than Suggested Reviewers and/or Proprietary Information.

9.  Any proposal submitted as a "Preliminary Proposal".

## Important Reminders

A revised version of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), NSF 11-1, was issued on October 1, 2010 and is effective for proposals submitted, or due, on or after January 18, 2011. Please be advised that the guidelines contained in NSF 11-1 apply to proposals submitted in response to this funding opportunity.

**Data Management Plan:** The PAPPG contains a clarification of NSF's long standing data policy. All proposals must describe plans for data management and sharing of the products of research, or assert the absence of the need for such plans. FastLane will not permit submission of a proposal that is missing a Data Management Plan. The Data Management Plan will be reviewed as part of the intellectual merit or broader impacts of the proposal, or both, as appropriate. Links to data management requirements and plans relevant to specific Directorates, Offices, Divisions, Programs, or other NSF units are available on the NSF website at: http://www.nsf.gov/bfa/dias/policy/dmp.jsp. See Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

**Postdoctoral Researcher Mentoring Plan:** Each proposal that requests funding to support postdoctoral researchers must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals. Please be advised that if required, FastLane will not permit submission of a proposal that is missing a Postdoctoral Researcher Mentoring Plan. See Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

# 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/UCRC) 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 the development and evolution of the center. Each center is established to conduct research that is of interest to both the industry members and the center faculty. 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. As appropriate, an I/UCRC uses international collaborations to advance these goals within the global context.

**Cognizant Program Officer(s):**

*Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.*

- Rathindra (Babu) DasGupta, Lead I/UCRC Program Director, Directorate for Engineering, telephone: (703) 292-8353, fax: (703) 292-9057, email: rdasgupt@nsf.gov

- Larry Hornak, I/UCRC Program Director, Directorate for Engineering, telephone: (703) 292-2678, email: lhornak@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

**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
- 47.081 --- Office of Experimental Program to Stimulate Competitive Research

## 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:** $10,000,000 - Funding is dependent on the availability of funds. Anticipated funding includes continued annual support and supplemental requests for existing centers.

## Eligibility Information

**Organization Limit:**

Proposals may only be submitted by the following:

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

**PI Limit:**

The PI at any institution participating in an I/UCRC proposal must be a tenured faculty member. Waivers may be requested when petitioned for by the PI's supervisor (Chairman of the Department or the Dean). In addition, the center or site director must be the PI.

Planning grant awardees for establishing new centers must complete their planning grant workshops (with NSF Program Director representation) before submitting full proposals.

Eligibility to submit a full proposal to establish a new center is dependent upon the PI completing one of the following (this does not apply to joining established centers):

- NSF sponsored boot camp - NSF will reimburse the center/site director for travel expenses.

- Submission of a Letter of Intent (LOI) and successful fulfillment of the requirements of a Planning Grant Award.

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

Any institution may submit multiple-university center proposals provided that the proposed research topics involve different disciplines and support different industries.

Grantee institutions that have an active single university I/UCRC award are not eligible to apply for another single university center; however, they may apply for a multi-university center.

A center site may apply for a Phase II (years 6 through 10) proposal if it meets the Phase II minimum requirements specified in the solicitation as well as having satisfactorily completed the Phase I (years 1 through 5).

A center site may apply for a Phase III (years 11 through 15) proposal if it meets the minimum Phase III requirements specified in the solicitation as well as having satisfactorily completed the Phase II (years 6 through 10).

Graduated centers who have successfully completed a Phase II award within the last 10 years may apply for a Phase III award.

**Limit on Number of Proposals per PI:** 1

PIs with an active award for any NSF I/UCRC research center are not eligible to apply for another Phase I award. PIs can only submit one proposal per submission period. Co-PIs can only participate in one proposal per submission period.

## 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 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/publications/pub_summ.jsp?ods_key=grantsgovguide)

**B. Budgetary Information**

- **Cost Sharing Requirements:** Cost Sharing is required. See the section on Indirect Cost (F&A) Limitations.

- **Indirect Cost (F&A) Limitations:**
  University recovery of indirect costs (F&A) shall be limited to 10% on the total expenditures of industry center membership fees. The unrecovered indirect costs on expenditures related to the membership fees, therefore, is the proposed cost sharing level.

- **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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  First Monday in January, Annually Thereafter

  June 29, 2012

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  March 06, 2012

  First Tuesday in March, Annually Thereafter

  September 28, 2012

  Last Friday in September, Annually Thereafter

## 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 or science workforce through the integration of research and education. As appropriate, NSF encourages international collaborations that advance these goals within the global context.

The I/UCRC program seeks to achieve this by:

- Contributing to the nation's research enterprise by developing long-term partnerships among industry, academe, and government;
- Leveraging NSF funds with industry to support graduate students performing industrially relevant research; and
- Expanding the innovation capacity of our nation's competitive workforce through partnerships between industries and universities.
- Encouraging the nation's research enterprise to remain competitive through active engagement with academic and industrial leaders throughout the world.

To meet these needs, multi-university I/UCRCs are preferred to single-university I/UCRCs since multi-universities contribute to an increased research base as well as to increased interaction among center participants. The centers are catalyzed by a small investment from NSF and they are primarily supported by other private and public sector center members, with NSF taking a supporting role in the development and evolution of the I/UCRC. The I/UCRC program initially offers five-year (Phase I) continuing awards. This five-year period of support 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 request support for a second five-year (Phase II) period. These awards allow centers to continue to grow and diversify their memberships and research portfolio during their Phase II period. After ten years, a Phase III award provides a third five-year award for centers that demonstrate significant impact on industry research as measured through robust and sustained membership, student impact, annual reports, site visits, and adherence to I/UCRC requirements. Centers are expected to be fully supported by private and public partners after fifteen-years as an I/UCRC.

# II. PROGRAM DESCRIPTION

A comprehensive range of disciplines and skills is often necessary to address research issues of interest to industry, and thus it is often 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 university partner research site is expected to attract industrial support for the center.

**Requirements of an I/UCRC**

A center in the I/UCRC Program will have the following characteristics:

- A strong partnership among participating universities, industry, and other organizations participating in the center;
- A research scope unique among I/UCRCs that represents the shared interests of the center and the industry sector that it serves;
- Center goals and objectives and a research roadmap for achieving them defined in collaboration with the center membership;
- A membership of private and public sector organizations who fund the shared research portfolio of the center;
- An organization led by a Director at the lead institution and site directors at each university site that incorporates a diverse team of faculty and students;
- A cooperative operational model for the center that is consistent with I/UCRC Best Practices
- Twice yearly meetings at which projects are reviewed and research findings are presented, and at which at least one meeting new projects are selected;
- A process based on I/UVRC Best Practices for the engagement of members in the cultivation, selection, funding and guidance of research projects;
- Effective implementation of best practices such as use of executive project summaries (see the Gray and Walters book at http://www.ncsu.edu/iucrc/PurpleBook.htm) that facilitate research project evaluation by members with respect to project scope, budget, duration, first year deliverables, and milestones;
- Graduate student involvement in high quality research projects, thus developing students who are knowledgeable in industrially relevant research;
- One membership agreement for members through which intellectual property developed by the center is shared (see the Sample Membership Agreement at http://www.nsf.gov/eng/iip/iucrc/sample_agreement_form.jsp);
- One membership agreement for members who are part of a trade organization or associations (see the Sample Membership Agreement for Associations and Institutes at http://www.nsf.gov/eng/iip/iucrc/sample_agreement_form.jsp);
- An effective plan that outlines how the center will grow, recruit new and retain existing members, and build relationships that attract companies to invest in the center's research;

Formal evaluation of the industry and university interaction conducted by an independent evaluator

An I/UCRC has the following structure:

- Industrial Support Requirements:
  - Members are 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).
  - An example to count memberships for a center site that has a $50,000 full membership fee is as follows:
    - *Company A* paying $50,000 in membership fees counts as *one full* member and *one* vote;
    - *Company B* paying $100,000 in membership fees counts as one *full member* and *two* votes;
    - Company C paying $150,000 in membership fees counts as one *full member* and *two* votes per signed membership agreement; and,
    - Company D paying $25,000 counts as *half* member and *half* a vote.
    - Thus, in this particular example, the center site has *3.5 members* and *membership fees totaling $325,000*.
  - A single university center must have a minimum of $400,000 annually in membership fees with a minimum of eight *full* members.
  - A multi-university Phase I center must have a minimum of $300,000 annually in membership fees; Multi-university Phase II and Phase III centers must have a minimum of $350,000 annually in membership fees.
  - A multi-university center must have a minimum of six *full* members with a membership fee of $25,000 or more per year.
  - Each research site in a Phase I multi-university center must have a minimum of $150,000 annually in cash membership fees and a minimum of three *full* members. However, for each research site, in-kind contributions may be allowed totaling no more than *one full* membership fee for the first year of operation. After the first year, each site must show $150,000 minimum annually in membership fees including in-kind contributions. In-kind contributions considered to be part of the $150,000 must be approved by the Industrial Advisory Board (IAB).
  - Multi-university Phase II and Phase III sites must have a minimum of $175,000 in cash membership fees and a minimum of three *full* members. After the first year of Phase II or Phase III, each site must show $175,000 minimum annually in membership fees including in-kind contributions. In-kind contributions considered to be part of the $175,000 must be approved by the Industrial Advisory Board (IAB).
  - In-kind contributions for membership fees must be approved by the IAB.
- Center policies meet NSF requirements for a Sample Membership Agreement with respect to membership fees and rights, intellectual property and publication.
- Center management and organization includes:
  - A center director at the lead institution responsible for all aspects of center operations;
  - Co-directors that manage their university team's researchers and collaborate with the administrative lead and other sites within the center (for multi-university centers);
  - An Industrial Advisory Board (IAB) that reviews and recommends on all research activities;
  - A university policy committee that facilitates the operation of the center while ensuring operation within the policies of the universities;
  - A uniform and consistent policy for handling memberships and member privileges across all sites of a center;
  - A collaborative and participative research environment;
  - Graduate and other student involvement; and
  - A plan for addressing diversity.

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.
- Centers must have an independent evaluator. The minimum evaluator selection criteria include:
  - Expertise and experience in conducting and communicating evaluation-related research in the behavioral-social sciences;
  - Knowledge of and/or experience with industry-university cooperative research, ideally from involvement with the I/UCRC Program; and
  - Independence from the Center being evaluated: a) no employment in the same administrative unit as the Center; b) no reporting relationship to an individual with administrative responsibility for the Center; and c) no financial interests in the Center other than as a paid evaluator.

Evaluators are paid by the lead administrative institution using the formula outlined in Section III, Award Information. These funds are intended to cover expenses and efforts expended by evaluators in the performance of their duties.

The Center evaluator is responsible for:

- Preparing an annual report of center activities (including the number of members at each site and the membership fees received by each site) with respect to industrial collaboration during the previous year (which is appended to the center's annual report to NSF);
- Conducting a survey 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).
- Reporting bi-annually to NSF, within a month of each IAB meeting and using the online data collection tool (or other means specified by NSF):
  - In consultation with the site director, report on the top research highlights, technology transfer, patents, and major discoveries that demonstrate successful NSF investments in that center;
  - On the center's status using a checklist provided by NSF to help determine if the center is adhering to the I/UCRC policy and guidelines (the checklist is available on the I/UCRC homepage http://www.nsf.gov/eng/iip/iucrc/) under Center Status Checklist for Evaluators;
  - 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.

**International Partnerships and Projects**

Collaboration with international research entities can advance I/UCRC objectives. An I/UCRC may submit a supplement request for

collaborative work with an international research entity constituting formation of an international site of the I/UCRC. International site supplemental requests must include a:

- Plan to interact with the international research site;
- Description of the proposed research projects;
- Description of the infrastructure that is in place to enable collaboration;
- Evidence that the international research entity has adequate partner funding in place to support the proposed projects;
- Formal agreement between the foreign and U.S.-based site that replicates the provisions for IP, copyrights, publication delays, and similar issues identified in the I/UCRC membership agreement; and
- Letter from the I/UCRC Industry Advisory Board (IAB) that endorses the international collaboration and proposed research projects.

The I/UCRC's international research site's supplement expires after one year. The I/UCRC must, therefore, submit an annual supplement request using FastLane for continuation of the international collaborative partnership. Each new supplemental funding request for continuation of the international collaborative partnership must address the outcomes and benefits realized by the international partnership in the prior award period.

Each I/UCRC is limited to one supplement per country to support an international site.

I/UCRCs may also request funding for project-specific collaborations with international partners. Please see http://www.nsf.gov/pubs/2010/nsf10008/nsf10008.pdf for more information in the *Dear Colleague Letter-Collaborative Opportunity for Research Between IUCRCs (CORBI)*. International CORBI projects must also meet the six bulleted points mentioned above for I/UCRC international sites.

## III. AWARD INFORMATION

***Planning Grant for New Centers and Sites***

The award amount for a Planning Grant seeking to establish a new center is $11,500 per academic institution with a 12-month duration. The $11,500 is for all expenses including travel to the "boot camp." For a Planning Grant seeking to join an existing center, the award amount is $10,000 per academic institution with a 12-month duration.

The Planning Grant lead institution will also receive $3,000 which is to be paid directly to an evaluator. The evaluator will guide the directors in conducting a successful planning grant meeting and attend the first planning meeting for a center.

Expectations from the conclusion of a planning grant meeting:

- PIs must send executive summaries of all potential research projects to all center members.
- Each prospective member is asked to rank the list of research projects showing that came out of the planning meeting based on each member's priorities.
- Each company sends back the prioritized list of research projects to the PIs.
- PIs must sort through and identify the top 5 research projects common to all sponsors.
- PIs must report back the titles of the top 5 research projects to NSF and all potential sponsors.
- PIs must list the top 5 projects in the full center proposal during submission.
- If awarded, these vetted research projects effectively start the first Industrial Advisory Board (IAB) meeting.

***Full Center Awards - continuing or standard grant***

*Phase I - First Five Year Center Award*

Multi-institutional center proposals are given preference over single institutional proposals. The initial Phase I I/UCRC award to a center has a potential duration of five years. NSF support is intended to augment the support that a center receives from industry and other sponsors. The I/UCRC program uses the following funding formulas. Multi-institutional center sites with an annual industry membership participation between $150,000 to $300,000 can receive up to $60,000 annually. (Note - the center must obtain a total of $300,000 in membership participation to receive an award.) Multi-university research sites with $300,000 or more in annual memberships can receive up to $80,000 annually. Single university I/UCRCs obtaining $400,000 or more in annual memberships can receive up to $80,000 annually.

*Phase II - Second Five Year Center Award*

Continuing I/UCRC program support is available for centers fully meeting the I/UCRC operational and membership requirements. A Phase II second five-year center award may be granted upon a favorable recommendation by the NSF program director. Multi-institutional center sites with yearly memberships between $175,000 and $350,000 will receive $40,000 annually. Multi-university center sites with over $350,000 in annual memberships will receive $60,000 annually. (Note the center must obtain a total of $350,000 or more to receive an annual award.) Single university I/UCRCs obtaining over $400,000 a year in memberships will receive $60,000 annually.

*Phase III - Third Five Year Center Award*

I/UCRC program support is available for current and graduated multi-institutional centers that continue to fully meet I/UCRC operational and membership requirements. For the purpose of this solicitation, a graduated center is one that has successfully completed a Phase II award within the last 10 years. A Phase III center award may be awarded upon NSF review and a favorable recommendation by the NSF program director. Research sites with memberships at or above $175,000 a year will receive $15,000 annually. There will be $25,000 available for the lead institution in a multi-university research center.

***Additional Supplemental Funding and Support for the Lead Administrative Institution***

The lead administrative institution is defined by the I/UCRC program as the institution that assumes primary coordination, general management and operations responsibilities including marketing, communications, dissemination, and evaluation of a multi-university center. Additional funds may be requested by the lead institution in a center proposal to help support these functions. Active centers with changes in their number of sites request support via a supplement. The lead administrative institution makes an annual request for supplemental funding consistent with the center's award phase and the current number of sites within the center. Contact NSF Cognizant Program Director listed within this document if guidance is needed in preparing a supplemental request.

*Multi-University Center Coordination*

The lead administrative institution for a Phase I and Phase II center receives an additional $10,000 per year for each added institution in the center to offset the added administrative functions. The lead administrative institution of a Phase III center receives a fixed amount of $25,000 independent of the number of sites.

*Center Operations and Communications*

The lead administrative institution for a Phase I and Phase II center receives an additional $20,000 in years 1 and 2, and $10,000 in years 3 through 5 to support innovative and effective center operations and communications including dissemination and marketing consistent with established program best practices.

*Evaluator Support*

In addition, NSF will provide the lead administrative institution with annual funds for an evaluator for Phase I and II awards as outlined below. The lead institution receives the following each year, all of which must be paid to the evaluator and be reflected in the budget:

- A one site center receives $9,000 for the evaluator.
- A two site center receives $15,000 for the evaluator.
- A three site center receives $18,000 for the evaluator.
- A four or more site center receives $21,000 for the evaluator.

The evaluator uses these funds to attend the bi-annual IAB meetings, write annual and semi-annual IAB highlight reports, and is expected to attend the annual directors' meeting, and to attend the annual evaluators' meeting. These fees are intended to cover expenses and efforts incurred by the evaluator.

Evaluators for a Phase III award must attend the annual IAB meeting, the evaluators' meeting, and the annual Directors' meeting for the center. NSF provides $9,000 to the lead institution for the evaluator, all of which must be paid directly to the evaluator.

*Deputy Director Support*

At NSF's discretion, a center with eight or more sites may submit a request for supplemental funding to help support a deputy director. The "Deputy Director" request for supplemental funding must outline specific responsibilities that are measureable and which will benefit all sites within the center. The funding level of these requests are based on the center phase and annual award for the lead institution as shown below:

- Phase I center with a $55,000 annual award may receive $33,000.
- Phase I center with a $80,000 annual award may receive $45,000.
- Phase II center with a $40,000 annual award may receive $25,000.
- Phase II center with a $60,000 annual award may receive $35,000.
- Phase III center with a $15,000 annual award may receive $12,000.
- Phase III center with a $25,000 annual award may receive $18,000.

## International I/UCRC Support

To advance I/UCRC goals within the global context, an I/UCRC may receive a $25,000 supplement annually for an international site or collaboration. These funds are to be used for expenses related to the international activity including site director(s) and evaluator international travel, and support for research visits by U. S. students and junior researchers. No NSF funds are to be used by non U.S. participants.

# IV. ELIGIBILITY INFORMATION

## Organization Limit:

Proposals may only be submitted by the following:

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

## PI Limit:

The PI at any institution participating in an I/UCRC proposal must be a tenured faculty member. Waivers may be requested when petitioned for by the PI's supervisor (Chairman of the Department or the Dean). In addition, the center or site director must be the PI.

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Eligibility to submit a full proposal to establish a new center is dependent upon the PI completing one of the following (this does not apply to joining established centers):

- NSF sponsored boot camp - NSF will reimburse the center/site director for travel expenses.

- Submission of a Letter of Intent (LOI) and successful fulfillment of the requirements of a Planning Grant Award.

## Limit on Number of Proposals per Organization:

Any institution may submit multiple-university center proposals provided that the proposed research topics involve different disciplines and support different industries.

Grantee institutions that have an active single university I/UCRC award are not eligible to apply for another single

university center; however, they may apply for a multi-university center.

A center site may apply for a Phase II (years 6 through 10) proposal if it meets the Phase II minimum requirements specified in the solicitation as well as having satisfactorily completed the Phase I (years 1 through 5).

A center site may apply for a Phase III (years 11 through 15) proposal if it meets the minimum Phase III requirements specified in the solicitation as well as having satisfactorily completed the Phase II (years 6 through 10).

Graduated centers who have successfully completed a Phase II award within the last 10 years may apply for a Phase III award.

**Limit on Number of Proposals per PI:** 1

PIs with an active award for any NSF I/UCRC research center are not eligible to apply for another Phase I award. PIs can only submit one proposal per submission period. Co-PIs can only participate in one proposal per submission period.

**Additional Eligibility Info:**

A Letter of Intent (LOI) is required and must be submitted before the institution may submit a planning grant proposal.

In general, institutions must have been awarded a planning grant before they are eligible to submit a full center proposal. NSF may waive this requirement if the institution wants to join an existing center, has the approval from the center director to join, and meets the minimum membership requirements to create a research site. If this requirement is waived, a Letter of Intent (LOI) is still required.

For a new research center, eligible academic institutions must have a new research focus with potential industry members that differs significantly from those found in planned, current, and graduated I/UCRCs. Please see the I/UCRC center directory at http://www.nsf.gov/eng/iip/iucrc/directory/index.jsp. Institutions may participate as a research site with these centers.

# V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

## A. Proposal Preparation Instructions

**Letters of Intent** *(required):*

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

**Format- Letter of Intent**

Letters of intent must be submitted for each proposed planning grant proposal by each institution participating in a center via FastLane which is accessible from the NSF web site. Proposed centers are potentially viable when they:

- Fit within the industry and university collaborative scope,
- Are economically important to the research area, and
- Do not significantly duplicate (less than 10%) of the research thrusts of other I/UCRCs.

**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 0 and Maximum of 2 Other Senior Project Personnel are allowed
- A Minimum of 0 and Maximum of 10 Other Participating Organizations are allowed
- List and describe research thrust areas is required when submitting Letters of Intent
- List of participating center sites (universities) is required when submitting Letters of Intent
- List of potential members 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 nsfpubs@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/publications/pub_summ.jsp?ods_key=grantsgovguide). 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 nsfpubs@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.4 of the Grant Proposal Guide provides additional information on collaborative proposals.

### (1) 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.

**Format- Planning Grant**

A Planning Grant Proposal is submitted as full proposal. The title for the proposal must be headed as "Planning Grant: I/UCRC for AREA" where area is the research area for which the center is being proposed. **DO NOT SUBMIT A PLANNING GRANT AS A PRELIMINARY PROPOSAL OR IT WILL BE RETURNED WITHOUT REVIEW.**

*Project Summary* - One page limit.

- 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.

*Project Description - limited to 15 pages, and should include:*

A. Planning Grant Objective - one page limit

- Objective - brief statement of the planning grant's objective (which should be a meeting with industry and university to agree on an initial research agenda to start the center);
- Strategy - how your objective will be met;
- Potential members -identify 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; and
  - Draft agenda

B. Planned Center

Provide a full description for the envisioned center that serves as a blueprint for action.

- 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 capabilities to conduct research addressing the industrial needs;
- Describe the proposed center's, policies, guidelines, organizational structure, and operational procedures within the I/UCRC framework;
- Present a plan for addressing diversity;
- Discuss proposed projects - a one page description for each envisioned research project covering:
  - experimental plan and a discussion of its industrial relevance and appropriateness for the    center;
  - project objectives;
  - proposed team (management and staff);
  - proposed first year and end of project deliverables;
  - proposed experimental plan;
  - determination of milestones and time to completion; and
  - determination of annual and total cost to completion.

**Supplementary Documents:**

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 showing target industry or market segmentation, proposed marketing activities (including promotion and advertising), pricing structure and membership variations;
- Staffing plan with a responsibility matrix showing the roles that the proposed center director, site directors, and other researchers will have in performing this planning study;
- Sample Membership Agreement for industry partners in accordance with the I/UCRC sample agreement at http://www.nsf.gov/eng/iip/iucrc/sample_agreement_form.jsp);
- An appropriate sample Membership Agreement for Associations and Institutes at http://www.nsf.gov/eng/iip/iucrc/;
- Universities submitting planning grant proposals seeking to join existing centers must have their membership agreement forms aligned with the one in use at the center;
- Draft Agenda - for the meeting consistent with I/UCRC best practices (http://www.nsf.gov/eng/iip/iucrc/plan_implement_center.jsp);
- Potential center member letters - (six letters of interest minimum per institution) from potential organization members noting that the center's concept and proposed research agenda have the potential for receiving support from that organization and that they would consider joining if the center were formed. *Proposals without the sufficient number of letters may be returned without review.*
- Proposals for new centers with potential overlap of an existing center must provide evidence (usually a letter from the other center director) that their research thrust does not significantly duplicate (less than 10%) other I/UCRC efforts. This evidence is not required when joining an existing center as a research site.
- **Mentoring Plan -** Each proposal that requests funding to support postdoctoral researchers must include, as a one-page supplementary document, a description of the mentoring activities that will be provided for such individuals. Proposals that do not comply with this requirement will be returned without review (see Chapter II of the NSF GPG for further information

about this requirement).

- **Data Management Plan** - the proposal must describe plans for data management and sharing of the products of research, or assert the absence of the need for such plans.

*Budget*

Support is generally for travel, an industry planning meeting, associated meeting publications, and faculty time. All line items in the proposed budget must be justified. Note any other sources of funds to be used in this study.

## (2) 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 and laboratories, and state and local governments, thus increasing the leverage of NSF funds.

To be eligible to submit a full Phase I center proposal, institutions must have submitted a Letter of Intent and have been awarded a planning grant. The requirement for a planning grant proposal may be waived by NSF provided that the research site meets the minimum membership requirements and has the approval from the center director to join an existing center. Phase II and Phase III proposals require the successful completion of prior phase awards.

### Proposal Format- Center Proposals

A Phase I proposal should reflect the unique combination of the proposed center's research interests, capabilities, and potential for working with industry. A Phase II or Phase III proposal should show the outcomes and continuing plans for the realization of this potential through application of I/UCRC best practices and achievement of center goals and objectives. These features should be discussed in sufficient detail to facilitate review in accordance with the I/UCRC Program requirements.

### Project Summary - *One-page limit*

Include and address all of the following points:

- Brief description of the proposed center, sites involved, 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. Centers are reminded that they are to address diversity.

### Project Description

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

*A. 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 industrially relevant research required, and the expertise and resources that will be used to address this need. For Phase II and Phase III renewals, describe how these have evolved over the life of the center and been impacted by the center.

*B. Center Structure and Operations.*

Proposers must discuss the following issues in their proposals:

- Available facilities and infrastructure;
- A center leadership including director's background, qualifications, and management capability;
- The membership agreement including:
    - 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
- Potential issues that might hinder the center and what steps could be taken to minimize those risks;
- I/UCRC policies and operations including process for project proposal cultivation, project selection, and project monitoring;
- The proposed evaluator and plans for the center to meet I/UCRC evaluation criteria; and
- Membership of the university policy committee.

*C. 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;
- Project duration, milestones, and annual proposed deliverables;
- Determine business or industry need;
- Describe the available research facilities; and
- Determine time to completion and cost.

### 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 five years of center operation and a five-year summary budget (including funds to support the independent evaluator); and
- Budget justifications must be included for all line items.

### Supplementary Documents

The following information should be added to 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.):

- A copy of the membership agreement document. For universities seeking to join existing centers, the membership agreement must be aligned with that in use at the existing center.
- A list of participating center members and their letters of financial commitment. It is imperative to include commitment letters from potential members that meet the requirements of Section III. Award Information for Center Awards. *Proposals failing to meet the minimum funding level of committed members may be returned without review.* The minimum number of members needed is outlined in Section II. Program Description under Requirements of an I/UCRC. *The number of commitment letters must be sufficient to meet the required number of memberships or the proposal may be returned without review.*
- If applicable, list collaborations with additional institutions, including any international 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.
- Marketing plans and plans for center growth over the next five years showing target industry or market segmentation, proposed marketing activities (including promotion and advertising), pricing structure, and membership variations.
- Phase II center proposals must include the following: evaluator's report and the membership certification for the final and fifth year of Phase I, commitment letters from potential members (if needed), a list of key accomplishments (spin-offs, technology transfer) during Phase I, the number of publications per year, the number of graduate students graduated each year, and the number of patents generated per year
- Phase III center proposals must include the following: evaluator's report and the membership certification for the final and fifth year of Phase II, commitment letters from potential members (if needed), a list of key accomplishments (spin-offs, technology transfer) during Phase II, the number of publications per year, the number of graduate students graduated each year, and the number of patents generated per year.
- **Mentoring Plan -** Each proposal that requests funding to support postdoctoral researchers must include, as a one-page supplementary document, a description of the mentoring activities that will be provided for such individuals. Proposals that do not comply with this requirement will be returned without review (see Chapter II of the NSF GPG for further information about this requirement).
- **Data Management Plan** - the proposal must describe plans for data management and sharing of the products of research, or assert the absence of the need for such plans.

## B. Budgetary Information

**Cost Sharing:**

Cost sharing is required. See the section on Indirect Cost (F&A) Limitations.

The proposed cost sharing must be shown on Line M on the proposal budget. Documentation of the availability of cost sharing must be included in the proposal. Only items which would be allowable under the applicable cost principles, if charged to the project, may be included as the awardee's contribution to cost sharing. Contributions may be made from any non-Federal source, including non-Federal grants or contracts, and may be cash or in-kind (2 CFR § 215.23). It should be noted that contributions counted as cost-sharing toward projects of another Federal agency may not be counted towards meeting the specific cost-sharing requirements of the NSF award. All cost-sharing amounts are subject to audit. Failure to provide the level of cost-sharing required by the NSF solicitation and reflected in the approved award budget may result in termination of the NSF award, disallowance of award costs and/or refund of award funds to NSF.

Administrative requirements related to cost sharing may be found in 2 CFR § 215.23, "Cost Sharing or Matching." For additional information on cost principles consult: 2 CFR Part 220, Cost Principles for Educational Institutions (OMB Circular A-21); or 2 CFR Part 230, Cost Principles for Nonprofit Organizations (OMB Circular A-122), as applicable.

**Indirect Cost (F&A) Limitations:**

University recovery of indirect costs (F&A) shall be limited to 10% on the total expenditures of industry center membership fees. The unrecovered indirect costs on expenditures related to the membership fees, therefore, is the proposed cost sharing level.

## C. Due Dates

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

    January 02, 2012

    First Monday in January, Annually Thereafter

    June 29, 2012

    Last Friday in June, Annually Thereafter

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

    March 06, 2012

    First Tuesday in March, Annually Thereafter

    September 28, 2012

    Last Friday in September, Annually Thereafter

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

January 02, 2012

First Monday in January, Annually Thereafter

A letter of intent must be submitted when submitting a planning grant proposal for the next immediate deadline. If the planning grant proposal deadline is missed, a new letter of intent needs to be submitted.

June 29, 2012

Last Friday in June, Annually Thereafter

A letter of intent must be submitted when submitting a planning grant proposal for the next immediate deadline. If the planning grant proposal deadline is missed, a new letter of intent needs to be submitted.

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

March 06, 2012

First Tuesday in March, Annually Thereafter

September 28, 2012

Last Friday in September, Annually Thereafter

## 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. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www07.grants.gov/applicants/app_help_reso.jsp. 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 judgments.

**What is the intellectual merit of the proposed activity?**
How important is the proposed activity to advancing knowledge and understanding within its own field or across

different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative, 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 .

Mentoring activities provided to postdoctoral researchers supported on the project, as described in a one-page supplementary document, will be evaluated under the Broader Impacts criterion.

**Additional Solicitation Specific Review Criteria**

**Evaluation**

*Letters of Intent* will be evaluated by NSF staff based on the economic importance of the research area, the depth and breadth of the proposed center's research, and whether the proposed research overlaps other I/UCRCs. 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 Ad hoc Review and/or Panel Review, Internal NSF Review, or Site Visit 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 use 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 (see the link for potential overlaps). (http://www.nsf.gov/eng/iip/iucrc/directory/index.jsp).
- 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.
- For I/UCRCs involving international collaborations, reviewers will consider: mutual benefits, true intellectual collaboration with the foreign partner(s), benefits to be realized from the expertise and specialized skills, facilities, sites and/or resources of the international counterpart, and active research engagement of U. S. students and early- career researchers, where such individuals are engaged in the research.
- Phase II and Phase III proposals will be reviewed as to their previous achievement of NSF's broader impacts, significance and impact of previous research, and efforts of the center in communicating with the public and center members.

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.

## B. Review and Selection Process

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

Proposals that do not exceed $100,000 in annual funding such as planning grant proposals, Phase II (years 5 through 10), Phase III (years 11 through 15), and proposals seeking to join an existing center will be reviewed internally by two or more program directors. However, program officers may elect to obtain external reviews to inform their decision. If an external review is to be obtained, then the PI will be so informed in the interest of maintaining the transparency of the review and recommendation process.

For I/UCRC Phase I (years 1 through 5) proposals for new centers: New Industry/University Cooperative Research Center Phase I proposals will be subjected to 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 nsfpubs@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 to 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 may 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, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report 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. The project outcomes report must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements 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

Each center site that receives NSF funding must submit an annual report 90 days before the end of their current budget period. 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 - annual funds certification for the recently completed reporting period.

*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 project portfolio, 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 the public).
- Communications and Decision Making
    - How does the center interact and communicate with center members?
    - How are the research programs planned and selected?
    - Confirm annual update of the I/UCRC Directory at http://www.nsf.gov/eng/iip/iucrc.
- Membership identification: current members, members at the start of the award, new members added, and members who left the center.
- Annual membership fees: primary, secondary, and tertiary

*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 affirms the execution of membership agreements and details the receipts of annual cash and in-kind membership fees or commitments from members.

## Center Structural Date Reporting

In addition to the annual report, centers are required to provide data to NSF and its authorized representatives (contractors or grantees.) These data are used for NSF internal reports, historical data, and for securing future funding for continued I/UCRC program maintenance and growth. Data that given center provides as well as aggregate data across all centers is available to that center as a management tool. Updates by centers to their structural data in the I/UCRC database are required annually. Data for the *last complete fiscal year* should be submitted via the means provided 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 I/UCRC 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 (number of faculty scientists and engineers, number of non-faculty scientists and engineers)
    - Students (number of graduate, number undergraduate)
    - Administration, number 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

- Name and position of the person to whom the Center Director reports
- 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
      - number with center research
      - number with Industrial Advisory Board (IAB) members
      - number 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.jsp. Instructions for updating and reporting web site information can be found at http://www.nsf.gov/eng/iip/iucrc/directory/instructions.jsp.

## VIII. AGENCY CONTACTS

*Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.*

General inquiries regarding this program should be made to:

- Rathindra (Babu) DasGupta, Lead I/UCRC Program Director, Directorate for Engineering, telephone: (703) 292-8353, fax: (703) 292-9057, email: rdasgupt@nsf.gov

- Larry Hornak, I/UCRC Program Director, Directorate for Engineering, telephone: (703) 292-2678, email: lhornak@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

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, National Science Foundation Update is a free e-mail subscription service 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 when new publications are issued that match their identified interests. Users can subscribe to this service by clicking the "Get NSF Updates by Email" link on the NSF web site.

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, interagency transfers, tie-projects, MIPRs, and other general information about the I/UCRC program.
- The Typical Agreement for I/UCRCs can be found at http://www.nsf.gov/eng/iip/iucrc/sample_agreement_form.jsp
- The Directory of I/UCRCs can be found at http://www.nsf.gov/eng/iip/iucrc/directory/index.jsp
- Programs in which I/UCRCs may participate can be found at http://www.nsf.gov/div/index.jsp?div=IIP

## 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 55,000 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 Arctic 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:                          nsfpubs@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
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