

# ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers (ADVANCE)

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## Program Solicitation

NSF 07-582

*Replaces Document(s):*

NSF 05-584



### National Science Foundation

Directorate for Education & Human Resources  
Division of Human Resource Development

Directorate for Biological Sciences

Directorate for Computer & Information Science & Engineering

Directorate for Engineering

Directorate for Geosciences

Directorate for Mathematical & Physical Sciences

Directorate for Social, Behavioral & Economic Sciences

Office of International Science and Engineering

Office of Polar Programs

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

December 06, 2007

Institutional Transformation Planning Grants (IT-Start)

December 06, 2007

Institutional Transformation (IT)

January 17, 2008

Partnerships for Adaptation, Implementation and Dissemination (PAID)

## REVISION NOTES

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

In response to this program solicitation, proposers may opt to submit proposals via [Grants.gov](http://Grants.gov) or via the [NSF FastLane](http://NSF.FastLane.gov) system. 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](http://NSF.FastLane.gov) system. Chapter II, Section D.3 of the Grant Proposal Guide provides additional information on collaborative proposals.

ADVANCE Leadership awards ([NSF 05-584](http://NSF.FastLane.gov)) have been merged into the PAID component of this solicitation.

IT-Start awards are catalytic planning grants designed to support fundamental work necessary to prepare for institutional transformation, and are intended to assist in broadening participation in ADVANCE.

## SUMMARY OF PROGRAM REQUIREMENTS

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### General Information

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#### Program Title:

ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers

#### Synopsis of Program:

The pursuit of new scientific and engineering knowledge and its use in service to society requires talent, perspectives and insight that can only be assured by increasing diversity in the science, engineering, and technological workforce. One of the National Science Foundation's (NSF) key strategic goals is to cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens. Investments are directed at programs that strengthen scientific and engineering (S&E) research potential and education programs at all levels. These outcomes are essential to the Nation as we progress toward an increasingly technological job market and a scientifically complex society.

To meet the continuing, strong demand for a highly educated and technologically savvy workforce, it is important that every American has an opportunity to achieve and to contribute in mathematics, engineering, and science. Women comprise an increasing percentage of the overall U.S. workforce, and of science and engineering majors at academic institutions, but constitute only 27 percent of the science and engineering workforce at large. Although women earn half of the bachelors degrees in science and engineering, they continue to be significantly underrepresented in almost all science and engineering fields, constituting 29 percent (in 2003) of doctoral science and engineering faculty in four-year colleges and universities and only 18 percent of full professors. Women from minority groups are particularly underrepresented in science and engineering, constituting approximately 3 percent of science and engineering faculty in four-year colleges and universities.

The goal of the ADVANCE program is to develop systemic approaches to increase the representation and advancement of women in academic science and engineering careers, thereby contributing to the development of a more diverse science and engineering workforce. Creative strategies to realize this goal are sought from women and men. Members of underrepresented minority groups and individuals with disabilities are especially encouraged to apply. Proposals that address the participation and advancement of women with disabilities and of women from underrepresented minority groups are encouraged.

In 2008, this program will support the following types of ADVANCE Projects:

#### **Partnerships for Adaptation, Implementation, and Dissemination (PAID) Awards**

Partnerships for Adaptation, Implementation, and Dissemination awards support analysis, adaptation, dissemination and use of existing innovative materials and practices that have been demonstrated to be effective in increasing representation and participation of women in academic science and engineering careers. This category of award also supports proposals for developing national and/or discipline-specific

leadership in enabling the full participation and advancement of women in academic science and engineering careers.

Deadline: January 17, 2008

### **Institutional Transformation (IT) Awards**

Institutional Transformation Awards support academic institutional transformation to promote the increased participation and advancement of women scientists and engineers in academe. These awards support innovative and comprehensive programs for institution-wide change.

Deadline: December 6, 2007

### **Institutional Transformation Planning Grants (IT-Start)**

IT-Start awards support basic data collection and analysis functions necessary to understand the status of women faculty in academic science and engineering at institutions seeking institutional transformation. This category of award is intended to broaden the spectrum of institutions participating in ADVANCE activities. IT-Start awards seek to include institutions with varying institutional scope, sizes, experiences, and perspectives, for example (but not limited to): primarily undergraduate institutions, teaching intensive colleges, community colleges, minority-serving institutions (e.g. tribal colleges, Historically Black Colleges and Universities, Hispanic serving institutions) as well as women's colleges.

Deadline: December 6, 2007

### **Cognizant Program Officer(s):**

- Jessie DeAro, Program Director for ADVANCE, 815.23, telephone: (703) 292-5350, email: [jdearo@nsf.gov](mailto:jdearo@nsf.gov)
- Laura Kramer, Program Director for ADVANCE, 815.11, telephone: (703) 292-8575, email: [lkramer@nsf.gov](mailto:lkramer@nsf.gov)

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

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

## **Award Information**

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

**Estimated Number of Awards:** 30 to 38 - NSF expects to make up to 10 IT-Start awards, with durations of up to two years and total budgets of approximately \$200,000 each, for a total of approximately \$2,000,000 for the IT-Start portfolio. NSF expects to award up to 20 PAID awards at various award sizes totaling up to \$5,000,000 for the PAID portfolio of awards. NSF expects to award approximately 8 Institutional Transformation awards, at various award sizes, totaling up to \$6,000,000 for the Institutional Transformation portfolio of awards.

**Anticipated Funding Amount:** \$13,000,000 Pending availability of funds, NSF anticipates having approximately \$13,000,000 available for support of the ADVANCE portfolio.

## **Eligibility Information**

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## Organization Limit:

Proposals may only be submitted by the following:

- **Institutional Transformation and IT-Start**

Institutional Transformation proposals may be submitted by academic institutions of higher learning in the U.S., its territories or possessions, or the Commonwealth of Puerto Rico, that award degrees in a field supported by NSF. Partnerships involving industry, government, professional societies and other not-for-profit organizations are encouraged but not required; however, in the case of partnerships, the lead partner organization must be an academic institution of higher learning and must accept overall management responsibility for the activity. Government organizations (other than academic institutions of higher learning) are not eligible to apply, but may participate in partnerships when the lead partner organization is an academic institution of higher learning with overall management responsibility for the activity. Partner organizations and institutions must be based in the U.S., its territories or possessions, or the Commonwealth of Puerto Rico.

Organizations that have received NSF ADVANCE Institutional Transformation awards are not eligible to apply for another institutional transformation award or for an IT-Start award.

### **Partnerships for Adaptation, Implementation and Dissemination**

Partnerships for Adaptation, Implementation and Dissemination proposals may be submitted by: academic institutions of higher learning that award degrees in a field supported by NSF; professional societies; or other not-for-profit organizations. Submitting institutions and organizations must be based in the U.S., its territories or possessions, or the Commonwealth of Puerto Rico. Government organizations (other than academic institutions of higher learning) are not eligible to apply, but may participate in partnerships when the lead partner organization is an academic institution of higher learning with overall management responsibility for the activity. Partner institutions and organizations must be based in the U.S., its territories or possessions, or the Commonwealth of Puerto Rico.

## PI Limit:

None Specified

## Limit on Number of Proposals per Organization: 1

Organizations may submit only one Institutional Transformation proposal or one IT-Start proposal. There is no limitation on the number of PAID proposals.

## Limit on Number of Proposals per PI:

None Specified

## **Proposal Preparation and Submission Instructions**

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### **A. Proposal Preparation Instructions**

- **Letters of Intent:** Not Applicable
- **Full Proposals:**
  - Full Proposals submitted via FastLane: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpg](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

## B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required by NSF.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Not Applicable

## C. Due Dates

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

December 06, 2007

Institutional Transformation Planning Grants (IT-Start)

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## Proposal Review Information Criteria

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**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

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**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.

## TABLE OF CONTENTS

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### Summary of Program Requirements

- I. [Introduction](#)
- II. [Program Description](#)
- III. [Award Information](#)
- IV. [Eligibility Information](#)
- V. [Proposal Preparation and Submission Instructions](#)
  - A. [Proposal Preparation Instructions](#)
  - B. [Budgetary Information](#)

- C. Due Dates
- D. FastLane/Grants.gov Requirements

## VI. NSF Proposal Processing and Review Procedures

- A. NSF Merit Review Criteria
- B. Review and Selection Process

## VII. Award Administration Information

- A. Notification of the Award
- B. Award Conditions
- C. Reporting Requirements

## VIII. Agency Contacts

## IX. Other Information

# I. INTRODUCTION

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The pursuit of new scientific and engineering knowledge and its use in service to society requires the talent, perspectives and insight that can only be assured by broadening participation in the science, engineering, and technological workforce. One of the National Science Foundation's (NSF) key strategic goals is to cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens. These outcomes are essential to the Nation as we progress toward an increasingly technological job market and a scientifically complex society.

At a time when approximately 78 percent of science and engineering doctorates worldwide were earned outside the United States, and in light of continuing, strong demand for a highly educated and technologically savvy workforce, it is important that every American has an opportunity to achieve and to contribute in science, technology, engineering, and mathematics. Women, minorities, and persons with disabilities are an increasing percentage of the overall U.S. workforce, but remain underrepresented in STEM (Science, Technology, Engineering, and Math) professions. In particular, despite significant advances made in the proportion of women choosing to pursue science and engineering degrees, women continue to be significantly underrepresented in almost all science and engineering fields, constituting only approximately 27 percent of the science and engineering workforce at large, and 18 percent of all science and engineering faculty at the full professor rank in four-year colleges and universities. Women from minority groups underrepresented in science and engineering constitute only about 3 percent of science and engineering faculty in four-year colleges and universities.

Academic institutions of higher learning play a pivotal role in preparing the science and engineering workforce. Faculty members and academic and administrative leadership at these institutions serve as intellectual, professional, personal, and organizational role models that shape the expectations of many prospective scientists and engineers. Persistent underrepresentation of senior women faculty members limits all students' potential to benefit from a combination of both male and female mentors and role models, and likely affects women students' full participation as members of research and education teams, and self-identification as potential researchers. This situation creates a minimizing effect on the number of women choosing to pursue science and engineering careers.

A number of factors have been hypothesized to account for the lower proportion of women in the senior ranks of science and engineering faculties, e.g. differential effects of conflicts between work and family demands, unequal access to resources such as space and supporting facilities, underrepresentation of women in important departmental decision-making processes, to name a few. The cumulative effect of such diverse factors has been to create formidable barriers to the advancement of women in academic science and engineering. To address these and other challenges, the ADVANCE Program provides Partnerships for Adaptation, Implementation and Dissemination Awards, IT-Start Awards, and Institutional Transformation Awards.

# II. PROGRAM DESCRIPTION

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The goal of the ADVANCE Program is to increase the participation of women in the scientific and engineering workforce through the increased representation and advancement of women in academic science and engineering careers. Through these awards, NSF seeks to support new and systemic approaches to improving the climate for women in U.S. academic institutions and to facilitate women's retention and advancement to the highest ranks of academic leadership. Creative approaches to realize the goal of this program are sought from women and men. Proposals may include international

activities that directly support the goals of ADVANCE.

#### Partnerships for Adaptation, Implementation and Dissemination (PAID)

All projects supported by PAID seek to speed the diffusion of innovative approaches to transformation of institutional and/or disciplinary climate, practices, and policies that increase the participation and advancement of women science and engineering faculty. Awards for adaptation, implementation, and dissemination provide support to broaden the impact of systemic approaches to enhancing the participation and advancement of women in academic science and engineering careers, and to expand the network of institutions and individuals that are equipped with knowledge about the institutional factors underlying the under representation of women in academic science and engineering. These awards seek innovative approaches to adapting and implementing exemplary programs, policies, and practices for increasing the participation and advancement of women in academic science and engineering careers, particularly at the senior faculty and leadership levels.

PAID proposals are expected to provide evidence that the exemplary materials and practices have been effective on other campuses, to explain why they are expected to be effective in this new context, and to provide a plan to evaluate them, including any necessary adaptations in this new environment.

For institutions not currently supported through ADVANCE Institutional Transformation awards, PAID awards could provide support for pilot transformation efforts, for example at a departmental level, or a college level. PAID awards may also support workshop and planning activities that emphasize, for example, approaches to data collection; designing, executing and analyzing climate surveys; or programs that encourage development of a cohort of faculty to be leaders of institutional change efforts at other institutions.

Proposals that are designed as partnerships among several institutions are encouraged. Such partnerships may be between an existing ADVANCE awardee and new partners, or between two or more institutions that have not previously received an ADVANCE award. Partnership proposals may be submitted as either two collaborative proposals or as a subaward to a partnering institution. Partnership proposals should offer a clear rationale for the partnership as well as the value-added to each partnering institutions.

Creative approaches to synthesizing and disseminating promising practices are encouraged, such as establishment of ADVANCE 'hubs', regional or common-interest based resource centers providing a concentration of knowledge and expertise on approaches to enhance institutional effectiveness in increasing the participation and advancement of women in academic science and engineering careers. ADVANCE hubs may collect, synthesize, and provide information and guidance on related scholarship and on effective research-based practice. Hubs should promote learning communities with web-based support to pursue institutional transformation and to facilitate the integration of knowledge into practice.

For current ADVANCE Institutional Transformation awardees, PAID awards provide an opportunity to streamline and focus continued efforts on programs that work and areas that are in serious need of continued effort, based on evidence generated in the first grant period, while pursuing creative means of disseminating learning, methods, and practices to a wider community beyond the awardee institution.

PAID awards also support national and/or discipline-specific leadership in meeting the challenges of increasing the participation and advancement of women in academic science and engineering careers. These awards are available to support efforts of individuals, small groups, and organizations such as professional societies to advance the diversity of the academic science and engineering workforce.

Projects that have systemic impact across a discipline or set of related disciplines are encouraged. Innovative approaches that address particular career stages are also welcomed, for example advancing from post-doctoral appointments to tenure track positions, from associate to full professor, or from senior faculty to academic leadership. Activities that enhance the participation of women students in science and engineering may be included in proposals, but should not be the primary focus of proposals. The primary focus of activities under this category should be on faculty and academic leadership development.

PAID proposals should include a plan for independent, external evaluation that provides objectives, benchmarks, and indicators of progress that will inform reviewers of the proposers' understanding of essential factors for judging accountability, both quantitative and qualitative. Activities of various scales are welcome; budgets are expected to be appropriately scaled to the size and complexity of the institution and/or proposal. The ADVANCE Program welcomes creative uses of cyberinfrastructure for enabling and enhancing PAID projects.

#### IT-Start Awards

Institutions that seek to undertake institutional transformation must first understand what transformation is required, which is

often informed by data collection and analysis, climate surveys, and review of institutional policies and practices. Development of an evidence-based approach to addressing the factors that result in the under-representation of women in academic science and engineering careers is a key factor in successful proposals. NSF recognizes that many institutions lack the administrative and professional staff infrastructure to undertake a comprehensive review and analysis of institutional data needed before developing a proposal for institutional transformation. IT-Start awards are intended to support this catalytic groundwork at institutions which are not able to dedicate resources to this critical preliminary work, in order to ensure that a wide variety of institutions participate in ADVANCE, including institutions with various scopes, sizes, experiences and perspectives, for example (but not limited to): primarily undergraduate institutions, teaching intensive colleges, community colleges, Minority-Serving Institutions, Tribal Colleges and Universities, Historically Black Colleges and Universities, Hispanic-Serving Institutions, as well as women's colleges.

A wide range of activities can be undertaken as part of an IT-Start project: data collection on STEM faculty at the institution, including indicators such as salaries, faculty recruitment and retention, faculty applicant pools, tenure and promotion outcomes; identification of resources to assist with recruitment, such as national pool data by discipline; review of institutional policies and their usage regarding work and life issues, climate surveys, and any other tools or indicators that capture the institution's current environment. Based on the results of these activities, the project team should be able to determine and demonstrate the need for institutional transformation, and formulate the specific goals.

These projects are intended to perform basic groundwork for developing a full proposal for institutional transformation, but receiving an IT-Start award is not a pre-requisite for the submission of an Institutional Transformation proposal. It is anticipated that a successfully completed IT-Start project can serve as a springboard for embarking on a full-scale institutional transformation - with or without NSF funding.

#### Institutional Transformation Awards

Despite some progress toward realizing gender-neutral attitudes, policies, and practices in academe, women scientists and engineers continue to be significantly underrepresented in some science and engineering fields and underrepresented in senior positions in science and engineering in general in the Nation's colleges and universities. There is increasing recognition that the lack of women's full participation at the senior level of academe is often a systemic consequence of academic culture. To catalyze change that will transform academic environments in ways that enhance the participation and advancement of women in science and engineering, NSF seeks proposals for institutional transformation.

Institutional Transformation awards provide flexibility to proposing institutions to define and implement effective systemic approaches to increase the participation of women science and engineering faculty members; to promote their retention and advancement into the senior and leadership ranks; and to implement the changes necessary to institutionalize those approaches through changes to institutional policies and practices.

By supporting the groundwork necessary to transform institutional practices systemically, the Institutional Transformation Awards seek to create positive, sustainable, and permanent change in academic climates.

Projects may be directed at review and transformation of multiple departments or schools of science or engineering, or of an entire institution or group of institutions. Projects are encouraged to include all NSF-supported fields in the scope of project plans. The focus of ADVANCE is on activities that encourage the recruitment, retention, and promotion of women at the faculty level. Activities that enhance the participation of women students in science and engineering should not be the primary or major focus of proposals.

Institutional Transformation proposals must clearly state the conceptual framework for the proposed project, identify relevant research findings, and build on existing research and practice. Proposals should present data on the status of women at the institution in question and compare the data to national statistics, define a model that links the proposed interventions to the outcomes desired, and identify the scholarship that informs the model to be tested and the interventions. NSF anticipates that publicly available findings from earlier ADVANCE Program awards will be incorporated as appropriate into proposals for institutional transformation, and that research perspectives relevant to the issues ADVANCE seeks to address will be clearly reflected in the design of proposed projects.

Proposals should demonstrate the connection between the conceptual framework, the issues identified through analysis of institutional data, and the proposed plan (including the allocation of resources) so that reviewers will be able to understand what specific issues will be addressed over the course of the project, the assumptions about why those issues exist, and the ways in which the proposed interventions will address these issues.

Given the key role that departments play in the life of faculty, it is strongly recommended that proposals for institutional transformation include strategies for engaging department chairs or heads in professional development activities that will support their role in enhancing the climate for success in their departments.



Both formative and summative evaluations are required to monitor and to assess progress. Formative evaluation should be the basis for strengthening implementation over the course of the project and for annual reporting to NSF. Proposals should provide suggestions of objectives, benchmarks, and indicators of progress that will inform reviewers of the proposers' understanding of essential factors for judging accountability, both quantitative (indicators of women's representation at various academic ranks, and in recruitment and promotion pools; numbers of search committee members trained in practices for effective searches, for example) and qualitative (the process of change in organizational culture, experiences of academic climate).

Information about evaluation approaches is available at <http://www.nsf.gov/ehr/rec/infoeval.jsp>. Information about the indicator data that informs ADVANCE Institutional Transformation programs is available at the ADVANCE portal website at <http://research.cs.vt.edu/advance/index.htm>.

The institutional transformation leadership team must include appropriate social science expertise. This expertise will contribute to analysis and innovation of institutional policies and practices that are informed by current scholarly knowledge of gender issues and of organizational effectiveness.

Within institutional transformation proposals, attention to the issues associated with transitions between career stages is encouraged. Transitions associated with increased risk of falling behind or leaving the academic STEM career path entirely include, for example: movement from post-doctoral positions to tenure track faculty positions, re-entry to full time faculty positions following leave for dependent care, or the move to another institution so that both members of a dual-career couple can be employed in the same geographic area. Proposals might include the piloting or development of institutional arrangements that address faculty needs during such transitional periods.

Activities that focus on increasing the participation and advancement of women from underrepresented groups are encouraged. As indicated by the extremely low number of women of color and women with disabilities in academic science and engineering careers, different strategies may be required to address their low representation in science and engineering.

Institutional Transformation proposals must include a management plan that details how project activities will be organized and implemented. Responsibilities for the management, staffing, and resource allocation of the program; for administering the award in accordance with NSF policies and the terms of the grant or cooperative agreement; for serving as the liaison between the site and a national network of ADVANCE sites; and for arranging for external evaluation of the project's activities must be clearly described. ADVANCE strategies require that principal investigators commit sufficient time to engaging a broad range of allies and participants in the work of institutional transformation, and proposals should be clear as to the level of effort PIs will commit to the project.

Successful proposals will also provide clear evidence of institutional readiness to provide necessary administrative functions in support of the project, for example, appropriate office space and clear access to institutional leadership. Proposals should include evidence of cooperative relationships with key administrative offices (e.g. Human Resources, Institutional Research). Institutions are encouraged to provide evidence that the challenges of administering a project that spans various administrative units have been considered. Proposals should describe plans for ensuring sustainability of the efforts past the term of the award.

The program encourages dissemination of knowledge gained about institutional transformation to organizations and institutions that can implement reforms based on what has been learned. Since the goal of the program is to contribute to a national knowledge base, it is important to show that the investigator is aware of appropriate channels -- in particular, specific peer-reviewed journals and publications, as well as web sites and professional association conferences -- and is committed (including allocating resources) to make sure that the investment in the project leads to this contribution and that peers in the community will benefit. The ADVANCE Program welcomes creative uses of cyberinfrastructure for enabling and enhancing the outcomes from Institutional Transformation projects.

In addition to conducting the work outlined in their proposals, principal investigators are expected to attend annual ADVANCE principal investigator meetings, typically in the Washington, DC area. These meetings will enable awardees to develop into a community of researchers, establish connections and networks, share project results, and discuss issues of common interest. Proposers are expected to include in their proposal budgets the costs for one to two team members to participate in these annual meetings.

Awards are for up to five years. Additional reporting requirements apply for Institutional Transformation awards.

Background Information:

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### III. AWARD INFORMATION

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NSF expects to make up to 10 IT-Start awards, with durations of up to two years and total budgets of approximately

\$200,000 each, for a total of approximately \$2M for the IT-Start portfolio. NSF expects to award up to 20 PAID awards at various award sizes totaling up to \$5M for the PAID portfolio of awards. NSF expects to award approximately 8 Institutional Transformation awards, at various award sizes, totaling up to \$6M for the Institutional Transformation portfolio of awards. Pending availability of funds, NSF anticipates having approximately \$13,000,000 available for support of the ADVANCE portfolio.

#### **IV. ELIGIBILITY INFORMATION**

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##### **Organization Limit:**

Proposals may only be submitted by the following:

- **Institutional Transformation and IT-Start**

Institutional Transformation proposals may be submitted by academic institutions of higher learning in the U.S., its territories or possessions, or the Commonwealth of Puerto Rico, that award degrees in a field supported by NSF. Partnerships involving industry, government, professional societies and other not-for-profit organizations are encouraged but not required; however, in the case of partnerships, the lead partner organization must be an academic institution of higher learning and must accept overall management responsibility for the activity. Government organizations (other than academic institutions of higher learning) are not eligible to apply, but may participate in partnerships when the lead partner organization is an academic institution of higher learning with overall management responsibility for the activity. Partner organizations and institutions must be based in the U.S., its territories or possessions, or the Commonwealth of Puerto Rico.

Organizations that have received NSF ADVANCE Institutional Transformation awards are not eligible to apply for another institutional transformation award or for an IT-Start award.

##### **Partnerships for Adaptation, Implementation and Dissemination**

Partnerships for Adaptation, Implementation and Dissemination proposals may be submitted by: academic institutions of higher learning that award degrees in a field supported by NSF; professional societies; or other not-for-profit organizations. Submitting institutions and organizations must be based in the U.S., its territories or possessions, or the Commonwealth of Puerto Rico. Government organizations (other than academic institutions of higher learning) are not eligible to apply, but may participate in partnerships when the lead partner organization is an academic institution of higher learning with overall management responsibility for the activity. Partner institutions and organizations must be based in the U.S., its territories or possessions, or the Commonwealth of Puerto Rico.

##### **PI Limit:**

None Specified

##### **Limit on Number of Proposals per Organization: 1**

Organizations may submit only one Institutional Transformation proposal or one IT-Start proposal. There is no limitation on the number of PAID proposals.

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

None Specified

##### **Additional Eligibility Info:**

## V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

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### A. Proposal Preparation Instructions

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**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](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](mailto: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](mailto: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.

### B. Budgetary Information

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**Cost Sharing:** Cost sharing is not required by NSF in proposals submitted to the National Science Foundation.

### C. Due Dates

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

December 06, 2007

Institutional Transformation Planning Grants (IT-Start)

December 06, 2007

Institutional Transformation (IT)

January 17, 2008

Partnerships for Adaptation, Implementation and Dissemination (PAID)

### D. FastLane/Grants.gov Requirements

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- **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](mailto: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/CustomSupport>. 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](mailto: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

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

### A. NSF Merit Review Criteria

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

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgements.

**What is the intellectual merit of the proposed activity?**

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

**What are the broader impacts of the proposed activity?**

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

NSF staff will give careful consideration to the following in making funding decisions:

#### ***Integration of Research and Education***

One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

#### ***Integrating Diversity into NSF Programs, Projects, and Activities***

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

#### **Additional Review Criteria:**

In addition to the standard NSF merit-review criteria, reviewers of ADVANCE proposals will consider the following questions as relevant:

#### **Partnerships for Adaptation, Implementation and Dissemination Awards:**

- Is there appropriate expertise represented in the proposal to support ongoing learning and analyses about the effectiveness of the policies and practices at different institutional types and sizes?

If previously funded through ADVANCE only:

- Is there clear evidence of progress toward sustainability of project results?

#### **IT-Start Awards**

- Are the proposed activities likely to lead to a clear understanding of the current status of women STEM faculty in the proposing institution, and to identify specific barriers, if any, to their recruitment, retention and advancement?

#### **Institutional Transformation Awards:**

- Is there evidence of institutional readiness to support necessary data collection and faculty participation in the proposed effort? What other evidence is there of institutional support?
- Is there evidence that the institution is committed to making use of the research findings to make transformative changes in processes and procedures?
- Is it clear how success will be assessed?

## **B. Review and Selection Process**

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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 date of receipt. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

## VII. AWARD ADMINISTRATION INFORMATION

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### A. Notification of the Award

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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

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An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); \* or Federal Demonstration Partnership (FDP) Terms and Conditions \* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

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

**Special Award Conditions:** Institutional Transformation awards will be made as cooperative agreements. There will be a site visit in the third year of the award period for Institutional Transformation awards.

### C. Reporting Requirements

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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.

For Institutional Transformation Awards, awardees will be required to submit annual reports on progress and plans that will be used as a basis for performance review to determine the level of continued funding. To support this review, and management of the institutional transformation activities undertaken, awardees will be required to develop a set of management goals and performance indicators for submission annually to NSF. These reporting requirements will be included in the cooperative agreement that is binding between the awardee institution and the NSF.

For all other ADVANCE Awards, standard NSF reporting requirements apply.

## VIII. AGENCY CONTACTS

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General inquiries regarding this program should be made to:

- Jessie DeAro, Program Director for ADVANCE, 815.23, telephone: (703) 292-5350, email: [jdearo@nsf.gov](mailto:jdearo@nsf.gov)
- Laura Kramer, Program Director for ADVANCE, 815.11, telephone: (703) 292-8575, email: [lkramer@nsf.gov](mailto:lkramer@nsf.gov)

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: [fastlane@nsf.gov](mailto:fastlane@nsf.gov).
- Victoria Smoot, 815, telephone: (703) 292-4677, email: [vsmoot@nsf.gov](mailto:vsmoot@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](mailto:support@grants.gov).

## IX. OTHER INFORMATION

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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>.

## ABOUT THE NATIONAL SCIENCE FOUNDATION

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

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

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

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

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

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

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

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

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
  
- **For General Information** (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](mailto:pubs@nsf.gov)
  - or telephone: (703) 292-7827
  
- **To Locate NSF Employees:** (703) 292-5111

## PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

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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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