

# Centers of Research Excellence in Science and Technology (CREST)

**CREST Centers and Supplements, HBCU Research Infrastructure for Science and Engineering (HBCU-RISE), and Small Business Innovation Research (SBIR) Diversity Collaboration Supplements**

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## Program Solicitation

**NSF 07-526**

***Replaces Document(s):***

**NSF 06-510**



**National Science Foundation**

Directorate for Education & Human Resources  
Division of Human Resource Development

Directorate for Engineering  
Industrial Innovation and Partnerships

### **Letter of Intent Due Date(s) (required):**

February 05, 2007

HBCU-RISE

February 05, 2007

CREST

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

April 09, 2007

CREST

April 09, 2007

HBCU-RISE

### **Full Proposal Target Date(s):**

March 07, 2007

SBIR/STTR Diversity Collaboration Supplements (Spring 2007 Proposal Submissions)

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## **REVISION NOTES**

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](#) or via the [NSF FastLane](#) system.

The current solicitation addresses new CREST proposals, supplements to existing CRESTs, HBCU-RISE and a diversity collaborative component for eligible CREST/HBCU-RISE awardees co-funded by NSF's SBIR/STTR program in the Directorate for Engineering. Prospective applicants are also asked to review in particular the expanded requirements for Letters of Intent in this solicitation.

## SUMMARY OF PROGRAM REQUIREMENTS

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### General Information

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#### Program Title:

Centers of Research Excellence in Science and Technology (CREST)  
and HBCU Research Infrastructure for Science and Engineering (HBCU-RISE)

#### Synopsis of Program:

The Centers of Research Excellence in Science and Technology (CREST) program makes resources available to enhance the research capabilities of minority-serving institutions through the establishment of centers that effectively integrate education and research. CREST promotes the development of new knowledge, enhancements of the research productivity of individual faculty, and an expanded presence of students historically underrepresented in STEM disciplines. Awards are offered as new centers, supplements to existing centers, proposals for the CREST Historically Black Colleges and Universities Research Infrastructure for Science and Engineering (HBCU-RISE) initiative, or supplements to CREST/HBCU-RISE-eligible awardees for diversity collaboration in projects co-funded with NSF's Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) programs, which are administered by NSF's Directorate for Engineering.

#### Cognizant Program Officer(s):

- Victor Santiago, Program Director, CREST, 815 N, telephone: (703) 292-4673, fax: (703) 292-9018, email: [vsantiag@nsf.gov](mailto:vsantiag@nsf.gov)
- James Powlik, Program Director, CREST, 815N, telephone: (703) 292-4681, fax: (703) 292-9018, email: [jpowlik@nsf.gov](mailto:jpowlik@nsf.gov)
- Toni Edquist, Program Assistant, CREST, 815 N, telephone: (703) 292-4649, email: [tedquist@nsf.gov](mailto:tedquist@nsf.gov)
- Kesh Narayan, Program Director, SBIR/STTR, 590N, telephone: (703) 292-7076, fax: (703) 292-9057, email: [knarayan@nsf.gov](mailto:knarayan@nsf.gov)
- Juan Figueroa, Program Director, SBIR/STTR, 590N, telephone: (703) 292-7054, fax: (703) 292-9057, email: [jfiguero@nsf.gov](mailto:jfiguero@nsf.gov)

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

- 47.041 --- Engineering
- 47.076 --- Education and Human Resources

### Award Information

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

**Estimated Number of Awards:** 20 to 30 - Up to 5 CREST center Cooperative Agreements, up to 10 CREST supplements, up to 5 HBCU-RISE standard grants, and up to 10 CREST SBIR/STTR supplements, pending the availability of funds

**Anticipated Funding Amount:** \$12,500,000 - \$5,000,000 for CREST centers (\$1,000,000 1st year commitments), \$1,000,000 for CREST supplements and \$5,000,000 for HBCU-RISE grants. Up to \$750,000 from CREST and \$750,000 from SBIR for co-funded SBIR/STTR supplements

## Eligibility Information

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### Organization Limit:

- **CREST** - CREST proposals are invited from minority-serving institutions of higher education in the United States. This denotes institutions that have enrollments of 50% or more of members of minority groups underrepresented among those holding advanced degrees in science and engineering fields: Alaskan Natives, African Americans, American Indians, Hispanic Americans, and Native Pacific Islanders. Preference will be given to institutions with demonstrated strengths in NSF-supported fields, as evidenced by a developing capacity to offer doctoral degrees in one or more science, technology, engineering, or mathematics disciplines. Institutions must also demonstrate a willingness and capacity to serve as a resource center in one or more research areas, as well as possess a demonstrated commitment and track record in enrolling and graduating minority scientists and engineers, and strong collaborations in the proposed field of research. Priority consideration will be given to science and engineering disciplines or research areas where minorities are significantly underrepresented.
- **HBCU-RISE** - HBCU-RISE proposals are invited from Historically Black Colleges and Universities that offer doctoral degrees in science, technology, engineering and mathematics disciplines.
- **SBIR /STTR** - SBIR/STTR proposals are invited from CREST institutions.

### PI Limit:

Principal investigators for CREST, HBCU-RISE and SBIR/STTR awards must be United States citizens or nationals, or permanent resident aliens of the United States. PIs must also be employed by a CREST, HBCU-RISE or SBIR/STTR-eligible institution.

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

Only one CREST center proposal may be submitted per eligible institution. An institution may have only one active CREST award, irrespective of focus area. Institutions that have had two prior, consecutive CREST awards may not re-compete in the CREST centers competition. New research teams from former awardee institutions may submit proposals in disciplinary areas that are completely different from those of the previous award(s). Only one HBCU-RISE proposal may be submitted per eligible institution. An institution may have only one active HBCU-RISE award.

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

Eligible individuals may be listed as the principal investigator or co-principal investigator on only one CREST or HBCU-RISE proposal.

## Proposal Preparation and Submission Instructions

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### 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.

- **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 Application Guide is available on the Grants.gov website and on the NSF website at: <http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf/>)

**B. Budgetary Information**

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

**C. Due Dates**

- **Letter of Intent Due Date(s) (required):**

February 05, 2007

HBCU-RISE

February 05, 2007

CREST

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

April 09, 2007

CREST

April 09, 2007

HBCU-RISE

- **Full Proposal Target Date(s):**

March 07, 2007

SBIR/STTR Diversity Collaboratiion Supplements (Spring 2007 Proposal Submissions)

**Proposal Review Information Criteria**

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**Merit Review Criteria:** National Science Board approved criteria apply.

**Award Administration Information**

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

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

## 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 Division of Human Resource Development (HRD) has primary responsibility within NSF for broadening participation by all individuals in science and engineering. HRD programs reflect NSF's commitment to developing the resources of the scientific and technological community as a whole and ensuring an adequately trained research and development workforce. To meet the challenges presented by the nation's ever-increasing needs in science and technology, CREST and HBCU-RISE support efforts to strengthen the science and engineering research and education capabilities of minority-serving institutions. In doing so, these programs help to fulfill an important outcome goal of the NSF Strategic Plan: cultivating a world-class, broadly inclusive science and engineering workforce and expanded scientific literacy of all citizens.

HRD programs, including Gender in Science and Engineering, Research in Disabilities Education, Tribal Colleges and Universities Program, Historically Black Colleges and Universities Undergraduate Program, Louis Stokes Alliances for Minority Participation, Alliances for Graduate Education and the Professoriate, and Centers of Research Excellence in Science and Technology, provide coordinated and integrated approaches to developing and leveraging individual talents and institutional infrastructures. Managed synergistically, these programs enable successful transitions from associate and baccalaureate-level study to the attainment of masters and doctoral degrees and substantially increase the number of underrepresented minorities, women, and persons with disabilities well prepared for the science and engineering research, education, and workforce of the future.

## II. PROGRAM DESCRIPTION

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This solicitation requests proposals for: (1) new CREST centers; (2) supplements for partnerships applied to existing CREST awards; (3) HBCU Research Infrastructure for Science & Engineering (HBCU-RISE) proposals; and (4) supplements for diversity collaboration for projects co-funded with NSF's Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) programs, which are administered by NSF's Directorate for Engineering.

1. **CREST centers.** CREST center proposals seek to integrate education and research in an effective manner. In particular, CREST promotes the development of new knowledge, enhancements of research productivity by faculty, and increased diversity in science and engineering disciplines. CREST provides multi-year support for eligible minority-serving institutions that demonstrate a strong research and education base, a compelling vision for research infrastructure improvement, as well as a comprehensive plan with the necessary elements to achieve and sustain national competitiveness in a clearly defined and focused area of science or engineering research. CREST center awards are typically 60-month Cooperative Agreements of up to \$5 million. These funds are used to support science and technology infrastructure improvements identified by the institution as being critical to its future research and development competitiveness.

Proposal Structure: CREST proposals consist of the center proposal and its associated research subprojects. The center proposal includes discussion of the applicant's overall plan for improving the status of science and engineering research and training and for increasing participation in science and engineering by a diverse student population, as codified by the center's unifying theme or focus. This center overview should present a clear explanation of the proposed improvement plan from a scientific, educational and administrative or fiscal point of view. The center proposal must also contain a succinct project summary, which provides an overview of the proposed activities and clearly delineates the National Science Board criteria of Intellectual Merit and Broader Impacts.

Research Subprojects: The project summary also describes the synergy anticipated by the choice of at least 3 but no more than 5 subprojects. Each proposed subproject will contain all the elements of a standard NSF research proposal but will also contain a copy of the center project summary described above. Each subproject proposal must be complete and will be independently evaluated following the standard NSF merit review process and NSB criteria. In addition, each subproject proposal will contain a one-page Subproject Relevancy Statement summarizing the subproject's importance to the overall proposal plan, including synergy with the other subproject proposals, and showing how it supports the overall goals and objectives of the center proposal.

Expectations for CREST Proposals: (i) In addition to progress reports required annually via NSF's FastLane system, awardees will be expected to contribute reports on project participants, publications, outreach efforts, patents, proposals, leveraged funding efforts and similar data to the CREST data collection system. Awardees may also expect site visits and reverse site visits by NSF-appointed evaluators per the particular terms of the award's Cooperative Agreement. Midpoint (30th- to 48th-month) reviews of awardees' progress are also typical. (ii) Each center should describe an evaluation plan to track progress and strengthen cooperative efforts. In addition, each center will be required to participate in a program-level evaluation to assess outcomes and the program's contributions to advancing the science and engineering research and education capabilities of minority-serving institutions. CREST awardees must be prepared to serve as a resource center increasing the research competitiveness of scientists and engineers affiliated with the center. (iii) Faculty at other institutions who participate in CREST-supported research and contribute to the achievement of CREST project objectives are eligible for funding through the CREST center with which they are affiliated. (iv) Each center shall convene, at least annually, an external advisory group or committee. The advisors must include representatives from those served by the center (e.g., academic institutions, industry, state and local agencies, national laboratories) and reflect the diversity of participants inherent in the citizenry of the United States. The function of the external advisory group is to provide guidance and advice to the center as well as to ensure that the center's activities are consistent with its vision, goals and objectives. Those with a financial, institutional, or collaborative connection to the center may not serve as members of the external advisory group. (v) Each center shall also have an internal steering committee to include the PI, co-PIs and other applicable stakeholders.

2. **CREST supplements.** CREST supplements support the establishment or strengthening of partnerships and collaborations between CREST centers and nationally recognized research centers in areas of mutual research interest and high priority for the CREST institution. As with CREST center proposals, CREST supplements are designed to facilitate self-improvement. Responsibility for project development and execution rests with the proposing institution and the CREST project director. Support may be requested for activities that have a direct positive influence on the competitiveness of participating scientists and engineers and the quality of the institution's research and training. Supportable activities may include, but are not limited to: exploratory research projects; acquisition of materials, supplies, research equipment and instrumentation; hiring nationally competitive scientists and/or engineers; visiting scientists and engineers as short- or long-term consultants; faculty attendance at professional meetings and seminars; faculty sabbaticals and exchange programs; undergraduate and graduate research activities; development of outreach and other enhancement programs with neighboring institutions; and strengthening technical support personnel. The benefits to both parties in the proposed collaboration as a logical or

necessary augmentation of the existing CREST's activities must be clearly articulated.

3. **Historically Black Colleges and Universities Research Infrastructure for Science and Engineering (HBCU-RISE).** HBCU-RISE proposals support the development of research capability at HBCUs that offer doctoral degrees in science and engineering disciplines. Such activities include, but are not limited to: faculty release time, technical support for research, faculty professional development, acquisition or upgrading of research equipment, collaborative research efforts with partner universities and national laboratories. Supported projects must have a unifying research focus in one of the research areas supported by NSF, a direct connection to the long-term plans of the host department(s), the institutional mission, and plans for expanding institutional research capacity as well as increasing the production of doctoral students. HBCU-RISE funding may, for example, be used to support competitive levels of start-up funding for outstanding new faculty hires with research interests related to the project, or acquire key equipment and instruments, including high-performance computing and networking capabilities. HBCU-RISE support should not replace other available federal, state, or institutional resources and should add significant value to the existing institutional strategic plan. Each HBCU-RISE project should describe an evaluation plan to track progress and strengthen cooperative efforts. In addition, each project will be required to participate in a program-level evaluation to assess outcomes and the program's contributions to advancing the science and engineering research and education capabilities of minority-serving institutions. As with CREST proposals, each HBCU-RISE project shall convene, at least annually, an external advisory group or committee. The function of the external advisory group is to provide guidance and advice to the HBCU-RISE project director and to ensure that the project's activities are consistent with its vision, goals and objectives. Potential members of the project's external advisory group should be identified in the proposal.
  
4. **Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) supplemental funding for diversity collaborations.** SBIR/STTR supplements seek to promote partnerships between academe and the small-business community. In particular, SBIR/STTR Phase II grantees may partner with CREST/HBCU-RISE institutions with the intent of developing the scientific or engineering underpinnings of the SBIR Phase II technology. As such, it is important that the SBIR/STTR supplemental project be related to the research areas for which the institution is receiving CREST/HBCU-RISE support. For FY 2007, the target dates for these proposals are November 6, 2006 for early proposal submissions and March 7, 2007 for later proposal submissions. Inquiries and proposals to this track are not submitted to CREST but directly to SBIR/STTR in the Directorate for Engineering. See, for example, [http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5527&org=NSF](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5527&org=NSF) and [http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=13371&org=NSF](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13371&org=NSF) for details on SBIR/STTR.

#### **Additional Information**

Support may be requested for activities that positively impact the quality of research training and the research preparedness of graduate students in science and engineering. Multiple-investigator projects are encouraged. Collaborative efforts between universities, industry, other research universities or centers, and federal laboratories are encouraged. Projects should be designed to enable awardee institutions to enhance the integration of education and research.

CREST centers or supplement proposals may be organized around the development of individual scientists or engineers, one or more science or engineering departments or equivalent units, or interdisciplinary and multidisciplinary research areas. It is expected, however, that the CREST target group(s) will possess the potential to achieve national research competitiveness over the five-year implementation period. In identifying the members of this target group, NSF expects that the proposing institution strongly encourages participation by underrepresented minorities, women, and persons with disabilities. Whether the proposed activity is considered competitive will be determined by merit review of the appropriateness and relevance of the improvement strategies to CREST program goals.

Project activities supported by NSF may also include cooperative efforts between the applicant institution and industry, federally funded laboratories, or other national, state, local, or regional research and development institutions. An institution's CREST request may include support for academic, state, for-profit, and non-profit organizations. It may also include individuals employed by such organizations both inside and outside the CREST institution. Cooperative programs among eligible institutions as well as cooperative programs between eligible institutions and other other entities are eligible for CREST support. CREST-supported projects must contribute to and support the achievement of CREST objectives outlined in the synopsis for this solicitation. CREST funding must add substantial, measurable value to the existing science and technology research capability in areas of high institutional priority and demonstrate strong potential to generate sustained non-CREST funding from federal, state, or private-sector sources. In addition, all activities carried out under a CREST award are subject to the restrictions concerning eligible science and engineering disciplines and activities detailed in the NSF Grant Proposal Guide.

### III. AWARD INFORMATION

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CREST award instruments, duration, and amounts vary among the CREST program components.

- Up to five **CREST centers** awards (new centers and renewals with their respective research subprojects) are anticipated in the current review cycle. CREST center awards are for 60 months at up to \$1,000,000 annually (i.e., a maximum of \$5,000,000). Center awards are made as Cooperative Agreements. The progress and plans of each center will be renewed by NSF annually, prior to approving continued NSF support. A CREST center nearing the completion of its initial five years of funding may submit a competing renewal proposal for an additional five years of support. The renewal proposal will undergo merit review alongside proposals for new CREST centers. Accordingly, the existing centers' achievements and future plans will be evaluated comprehensively relative to progress and direction and weighed against the competition for available program funds. Merit review will determine if the center is meeting its goals and objectives as originally proposed as well as the goals and objectives of the CREST program. Centers successful in passing this review will be renewed for another five years, commencing at the beginning of the sixth year. Renewed centers will continue to be monitored by NSF at least every 18 months. Centers that do not pass this review may have their level of funding reduced or may be terminated. Individual centers may not receive more than 10 years of CREST support.
- Up to 10 **CREST supplements** will be made for a maximum amount of \$100,000 per supplement, in amounts that vary with need and are subject to the availability of funds. A supplement will be an amendment to the existing Cooperative Agreement.
- Up to five **HBCU-RISE awards** will be made during this award cycle. Awards will not exceed \$1,000,000 during a three-year period. HBCU-RISE awards will be managed through standard grants. An institution may only have one active HBCU-RISE award.
- Up to 10 **CREST SBIR/STTR supplements** will be made during this award cycle. Up to five of these awards will be for eligible CREST institutions and up to five of these awards will be for eligible HBCU-RISE institutions. A supplement will be an amendment to the existing Cooperative Agreement. SBIR/STTR award amounts will not exceed \$150,000 in NSF support.

The estimated CREST, HBCU-RISE and SBIR/STTR budgets, number of awards and average award size and duration are subject to the availability of funds.

### IV. ELIGIBILITY INFORMATION

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#### Organization Limit:

- **CREST** - CREST proposals are invited from minority-serving institutions of higher education in the United States. This denotes institutions that have enrollments of 50% or more of members of minority groups underrepresented among those holding advanced degrees in science and engineering fields: Alaskan Natives, African Americans, American Indians, Hispanic Americans, and Native Pacific Islanders. Preference will be given to institutions with demonstrated strengths in NSF-supported fields, as evidenced by a developing capacity to offer doctoral degrees in one or more science, technology, engineering, or mathematics disciplines. Institutions must also demonstrate a willingness and capacity to serve as a resource center in one or more research areas, as well as possess a demonstrated commitment and track record in enrolling and graduating minority scientists and engineers, and strong collaborations in the proposed field of research. Priority consideration will be given to science and engineering disciplines or research areas where minorities are significantly underrepresented.
- **HBCU-RISE** - HBCU-RISE proposals are invited from Historically Black Colleges and Universities that offer doctoral degrees in science, technology, engineering and mathematics disciplines.
- **SBIR /STTR** - SBIR/STTR proposals are invited from CREST institutions.

#### PI Limit:

Principal investigators for CREST, HBCU-RISE and SBIR/STTR awards must be United States citizens or nationals, or permanent resident aliens of the United States. PIs must also be employed by a CREST,



HBCU-RISE or SBIR/STTR-eligible institution.

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

Only one CREST center proposal may be submitted per eligible institution. An institution may have only one active CREST award, irrespective of focus area. Institutions that have had two prior, consecutive CREST awards may not re-compete in the CREST centers competition. New research teams from former awardee institutions may submit proposals in disciplinary areas that are completely different from those of the previous award(s). Only one HBCU-RISE proposal may be submitted per eligible institution. An institution may have only one active HBCU-RISE award.

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

Eligible individuals may be listed as the principal investigator or co-principal investigator on only one CREST or HBCU-RISE proposal.

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## **V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS**

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

**Letters of Intent (required):**

Letters of intent are required for CREST and HBCU-RISE full proposals but not for CREST supplement proposals. CREST supplements are expected to abide fully with the information required by FastLane for supplemental proposals. SBIR/STTR diversity collaboration proposals are submitted directly to the SBIR/STTR program following the guidelines of that program solicitation.

CREST/HBCU-RISE letters of intent should not be considered draft proposals or pre-proposals. CREST program staff will not provide feedback on the appropriateness or quality of proposals or encourage full proposals on the basis of the letter of intent. The letter of intent should be submitted via the letters of intent module in FastLane, specifying either CREST or HBCU-RISE and completing as much of the FastLane letter of intent template as applicable. Further, the letter of intent should indicate the lead institution and principals of the proposed work, including self certification that the lead institution complies with the program's conditions for PI and institutional eligibility detailed in the Eligibility Information section of this solicitation. The letter of intent should also contain sufficient details for each research subproject (discipline, subdiscipline, specialty or focus area) to permit identification of appropriate technical reviewers, but not a lengthy description of the research, education and operational plans of the proposed center.

**Eligible parties intending to submit a full proposal to CREST or HBCU-RISE for FY 2007 are strongly encouraged to attend one of the regional CREST proposal preparation seminars scheduled for fall 2006. A number of potential applicants may attend, but only registered attendees can be accommodated. Registration is free but attendees are expected to cover the cost of their travel to the seminar venue and any local accommodation expenses. Contact the CREST staff listed in this solicitation to register your attendance in one or more of these one-day seminars, to be held in conjunction with the current portfolio of CREST awardees.**

**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:

- SPO Submission is Required when submitting Letters of Intent
- A Minimum of 0 and Maximum of 4 Other Senior Project Personnel are allowed
- A Minimum of 0 and Maximum of 4 Other Participating Organizations are allowed
- Research Area 1 is Required when submitting Letters of Intent
- Research Area 2 is Required when submitting Letters of Intent
- Research Areas 3-5 is Required when submitting Letters of Intent
- Submission of multiple Letters of Intent are Not 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](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).

**CREST Centers:**

Proper Institutional Review Board (IRB) documentation or certification on the use of human subjects, vertebrate and invertebrate animals, and outcomes of prior NSF support, as applicable, by the principals of the proposed center should be included with the proposal at the time of submission, or the absence of such documentation explained. Failure to self-declare in this manner may result in the proposal's decline or return without review.

Research Subprojects: The narrative of the center proposal is limited to 15 pages; informative, but concise individual subproject narratives of up to 15 pages each are allowed, but lengths of no more than 5 to 10 pages each are strongly recommended. The subproject proposals are inserted, successively, in the Special Information and Supplementary Documents section of the center proposal. For Grants.gov users, supplementary documents should be attached in Field 11 of the R&R Other Project Information Form.

**For additional guidance and information about proposal structure, please refer to Section II of this solicitation.**

**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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- **Letter of Intent Due Date(s) (required):**

February 05, 2007

HBCU-RISE

February 05, 2007

CREST

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

April 09, 2007

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April 09, 2007

- **Full Proposal Target Date(s):**

March 07, 2007

SBIR/STTR Diversity Collaboration Supplements (Spring 2007 Proposal Submissions)

#### **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/CustomerSupport>. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: [support@grants.gov](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.

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**B. Review and Selection Process**

Proposals submitted in response to this program solicitation will be reviewed by Adhoc Review or Panel Review.

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

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

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

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

and Agreements Officer does so at their own risk.

## VII. AWARD ADMINISTRATION INFORMATION

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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 *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=gpm](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpm).

### 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.

## VIII. AGENCY CONTACTS

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General inquiries regarding this program should be made to:

- Victor Santiago, Program Director, CREST, 815 N, telephone: (703) 292-4673, fax: (703) 292-9018, email: [vsantiag@nsf.gov](mailto:vsantiag@nsf.gov)

- James Powlik, Program Director, CREST, 815N, telephone: (703) 292-4681, fax: (703) 292-9018, email: [jpowlik@nsf.gov](mailto:jpowlik@nsf.gov)
- Toni Edquist, Program Assistant, CREST, 815 N, telephone: (703) 292-4649, email: [tedquist@nsf.gov](mailto:tedquist@nsf.gov)
- Kesh Narayanan, Program Director, SBIR/STTR, 590N, telephone: (703) 292-7076, fax: (703) 292-9057, email: [knarayanan@nsf.gov](mailto:knarayanan@nsf.gov)
- Juan Figueroa, Program Director, SBIR/STTR, 590N, telephone: (703) 292-7054, fax: (703) 292-9057, email: [jfigueroa@nsf.gov](mailto:jfigueroa@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).
- Toni Edquist, Program Assistant, CREST, 815 N, telephone: (703) 292-4649, fax: (703) 292-9018, email: [tedquist@nsf.gov](mailto:tedquist@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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	The National Science Foundation, 4201 Wilson Boulevard, Arlington, Virginia 22230, USA Tel: (703) 292-5111, FIRS: (800) 877-8339   TDD: (800) 281-8749					Last Updated: 11/07/06 <a href="#">Text Only</a>