



## **General Programmatic Terms and Conditions (PTCs) for the Science and Technology Centers Program (STC) Cooperative Agreements (NSF 08-580)**

1. **Key Personnel:** Except for the Principal Investigator(s) (PIs) or Co-PIs identified in this award, requests to make any changes to personnel, organizations, and/or partnerships specifically named in the proposal, that have been approved as part of this award, shall be submitted in writing to the cognizant NSF Program Official for approval prior to any changes taking effect. Requests for prior approval of changes to the PI(s) must be submitted through FastLane for review by the cognizant NSF Program Official and approval by an NSF Grants Officer.
2. **Program Description:** The Science and Technology Centers (STC): Integrative Partnerships program supports innovative, potentially transformative, complex research and education projects that require large-scale, long-term awards. STCs conduct world-class research through partnerships among academic institutions, national laboratories, industrial organizations, and/or other public/private entities, and via international collaborations, as appropriate. They provide a means to undertake important investigations at the interfaces of disciplines and/or fresh approaches within disciplines. STC investments support the NSF vision of advancing discovery, innovation and education beyond the frontiers of current knowledge, and empowering future generations in science and engineering.

Centers provide a rich environment for encouraging future scientists, engineers, and educators to take risks in pursuing discoveries and new knowledge. STCs foster excellence in education by integrating education and research, and by creating bonds between learning and inquiry so that discovery and creativity fully support the learning process.

NSF expects STCs to demonstrate leadership in the involvement of groups traditionally underrepresented in science and engineering at all levels within the Center. To achieve their diversity objectives, STCs are expected to involve individuals from underrepresented groups as members of the Center faculty, and as students actively engaged in Center activities. STCs are strongly encouraged to form meaningful, substantive and long-term partnerships with minority-serving institutions, women's colleges and institutions that primarily serve students with disabilities, thereby providing formal connections with

institutions that serve large populations of underrepresented students interested in STEM.

Centers undertake activities that will facilitate knowledge transfer, i.e., the mutual exchange of scientific and technical information among the Center partners and others with the objective of disseminating and utilizing knowledge broadly in multiple sectors.

To date, five competitions have been held to establish NSF Science and Technology Centers. The first two competitions, one in the late 1980's and one in the early 1990's, led to the establishment of 25 Science and Technology Centers, which are no longer funded as NSF centers. A third competition for Science and Technology Centers: Integrative Partnerships was held in 1999 and resulted in five new Centers. A fourth competition resulted in six new Centers in 2002. The fifth and most recent competition, in FY 2005, added six centers.

Additional information on the STC Program is available at the following NSF web page: [http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5541&org=OIA](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5541&org=OIA).

3. **Project Governance:** The Awardee will ensure that an efficient and effective STC governing structure is in place throughout the award period to support all critical or significant STC activities. Among the governing components will be the:
- Awardee serving as the Lead Institution,
  - STC Director,
  - STC Management Team, and
  - External Advisory Committee (EAC)

4. **Governing Responsibilities:** The Awardee will ensure efficient and effective management and implementation of all Center responsibilities by the governing components throughout the award period. The Awardee serves as the Lead Institution in the STC and works with the STC Director to ensure the success of the overall program. The Awardee, with support from the STC Director and STC management team, is responsible for planning, operating, and managing the day-to-day activities of the STC including, but not limited to:

- Managing, staffing, allocating resources, and overseeing general operations of the STC in accordance with plans submitted to and approved by NSF;
- Assuring that the responsibilities of the STC are met by a management team led by the Center Director and as agreed to by NSF;
- Notifying and gaining approval from NSF for any changes to key personnel or substantive changes in the level of effort of key personnel;
- Developing a document that encompasses both Strategic and

Implementation plans (referred to as a Strategic and Implementation Plan) and submitting it to NSF in draft form prior to receipt of an award and finalizing that plan within ninety (90) days of the effective date of this CA. The Plan must include statements about the vision, mission, organizational structure, and management and performance goals and indicators of success. It must also include completion timelines, milestones, and deliverables for the five-year award period. The Plan is to be updated annually, building on the accomplishments of the past year and responding to evolving challenges faced by the STC. Goals must include, but need not be limited to:

- a) Maintaining the unifying STC intellectual theme as proposed with attention to how the STC's thrust areas are to be integrated with each other and across participating institutions;
- b) Integrating STC educational activities into a coherent program with well defined goals, including the relationship of the STC's education and research with other community programs;
- c) Integrating the research, education and knowledge transfer components into a coherent program;
- d) Increasing participation of and providing research and educational opportunities to United States citizens, nationals, and lawfully admitted permanent residents, especially women and members of underrepresented groups who are undergraduate and graduate students, postdoctoral researchers, industrial fellows, faculty members from all colleges and universities, and others in the activities of the STC and STC sub-awardees; encouraging them to pursue careers in science and engineering; identifying actions that will enhance and ensure ethnic/racial diversity throughout the life of the STC;
- e) Maximizing knowledge transfer both at the Lead Institution and among partners, including industry, government, colleges and universities and the public (Knowledge transfer activities involve the mutual exchange of scientific information with the goal of applying the knowledge to the operations or activities of the groups sharing the information and may be accomplished in a variety of ways.);
- f) Assuring that a robust and substantive plan is in place for diversity of STC staff and participants at the Lead Institutions and partner sites (Attention must be paid to diversity in filling administrative/management, research, and education positions of the STC at the senior as well as at lower levels.);
- g) Assuring effective management of the STC, including mechanisms for integrating individual researchers and institutions into a cohesive STC, focusing STC activities, selecting and integrating related research projects, allocating funds and equipment across all STC activities and among partners, and facilitating the involvement

- of other scientific and educational groups (When the allocation of funds among the STC's participants involves an internal proposal and review process, the review criteria used by the STC should be consistent with the first two criteria (intellectual merit and broader impact) listed in the STC Program Solicitation (NSF 08-580));
- h) Assuring that the disposition of rights to intellectual property created at the STC is consistent with NSF policy. The Intellectual Property Rights Agreement is to be submitted to NSF with the draft Strategic and Implementation Plan prior to the award start date. This agreement is to also address knowledge transfer and significant intellectual exchanges with other groups.
  - i) Assuring the implementation of a program of ethics training within the cross-disciplinary and multi-institutional context of the STC for its staff and its sub-awardee staff, including faculty, visiting faculty, industrial fellows, postdoctoral researchers, and graduate and undergraduate students with training topics to include the nature of the research, methodologies used, ownership of research and ideas, and roles and responsibilities regarding intellectual property; and
  - j) Assuring continued operation of the STC and its programs in the event of the absence or loss of key personnel and developing thorough procedures for succession and back up of personnel.
- Establishing an External Advisory Committee (EAC) to provide guidance, advice, and oversight for all the STC's activities, consistent with its vision, goals, and objectives. The EAC charter must be included in the Strategic and Implementation Plan and any changes to the charter must be communicated to the cognizant Program Officer. The EAC membership must, at a minimum:
    - a) Meet at least annually,
    - b) Include representation from a wide variety of disciplines (e.g. science, engineering, education) from constituencies served by the STC, e.g. academic institutions, industry, state and local agencies, national laboratories,
    - c) Display the diversity of the United States citizenry in its membership, and
    - d) Not include members with financial, institutional, or collaborative connection(s) to the STC.
  - Ensuring the STC Director serves as the liaison between the STC and the National Network of STC Directors and works within the Network to address common goals, problems and opportunities, and facilitate personnel and resource exchanges, support integrated partnerships, and ensure cooperation among Centers toward:

- a) Fostering balance among and integration of research, education, and knowledge transfer activities, while avoiding duplication of effort across all STCs;
  - b) Facilitating interactions to address research, education, and management issues and opportunities that transcend individual Center capabilities;
  - c) Serving as the Liaison with private sector, state, local, and national laboratories to identify needs and opportunities and to plan joint implementation strategies, workshops, and
  - d) Preparing educational materials designed to enhance public understanding of science, engineering, technology, and educational advances that serve society.
- Ensuring all awardee-partner institutions function together as an integrated whole, with shared research, education and knowledge transfer goals and ensuring excellence in management and expedience in resolution of all issues and concerns among all the sub-awardees.

5. **Reporting Requirements:** The Awardee will provide ad hoc and regular reports as designated by the NSF cognizant Program Officer and as required by the STC Program. The Awardee will submit all required reports via FastLane using the appropriate reporting category. For any type of report not specifically mentioned in FastLane, the Awardee will use the "Interim Reporting" function to submit reports. The Awardee will ensure that the STC Director meets all reporting requirements with content, format and submission timeline that are agreed by NSF and the STC Director.

Detailed information on the reporting requirements is posted on the NSF STC Program Website:

[http://www.nsf.gov/od/oia/programs/stc/reports/2009revised\\_reportingrequirements.pdf](http://www.nsf.gov/od/oia/programs/stc/reports/2009revised_reportingrequirements.pdf)

6. **Awardee Support of Ongoing Management and Oversight:** The Awardee will ensure full commitment and cooperation among the governing structure components, and all project staff during all ongoing NSF project management and oversight activities. The Awardee will ensure availability of all key partners during any desk or on-site review as well as timely access to all project documentation. Furthermore, the STC Director and key personnel will participate actively in cross-Center meetings, appropriate workshops organized by NSF, and annual meetings of the National Network of STC Directors.