

Insights into NSF's Approaches to Broadening Participation in Science and Engineering

Alice Hogan

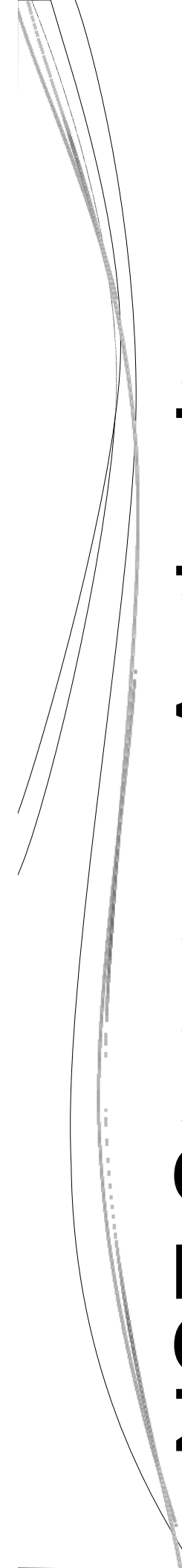
**Chief Administrative Officer, Asian University for Women
Founding Director, NSF ADVANCE Program**

Alice Hogan was the founding Program Director for ADVANCE at the National Science Foundation. ADVANCE is designed to address the under-representation of women in academic science and engineering, particularly at the senior ranks. Ms. Hogan worked with ADVANCE since its inception, first as Chair of the committee at NSF charged with design of the ADVANCE Program and then as Program Director. Prior to work with the ADVANCE Program, she was a senior program manager with NSF's Division of International Programs with responsibility for bilateral science and engineering grant programs with countries in the Asia Pacific region. She worked at the White House Office of Science and Technology Policy on a detail from the Foundation, and was responsible for coordinating science and technology efforts under Vice Presidential Commissions with Egypt and Ukraine, and for advising on science and technology programs with China and with the OECD. Prior to joining NSF in 1986, she worked in the National Oceanic and Atmospheric Administration in a variety of professional positions involving international operations, policy and research, including the development of the first cooperative projects between NOAA and China in 1979. Ms. Hogan was a Fellow in the Women and Public Policy Program at Harvard's Kennedy School of Government from 2003-2007. She holds degrees from Cornell University and the University of Michigan.



Insights into NSF Broadening Participation Goals

Alice Hogan, Chief Administrative Officer,
Asian University for Women;
Founding Director, NSF ADVANCE Program



NSF Statutory Authority

- NSF Act of 1950, as amended.
- Science and Engineering Equal Opportunities Act (Public Law 96-516). Amended 1998 to include persons with disabilities.

Science and Engineering Equal Opportunities Act

- NSF conducts - with full Congressional approval and participation - a comprehensive portfolio of educational programs that responds at all levels to the mandate of the Science and Engineering Equal Opportunity Act to assist the United States in the "full development and use of the science and engineering talents of men and women, equally, of all ethnic, racial, and economic backgrounds," as well as those talents of persons with disabilities. 42 U.S.C. §1885, et seq.

American Competitiveness

Initiative (ACI)

- **The American Competitiveness Initiative commits \$5.9 billion in FY 2007 to increase investments in research and development, strengthen education, and encourage entrepreneurship.**
- **Over 10 years, the Initiative commits \$50 billion to increase funding for research and \$86 billion for research and development tax incentives.**
- **The bedrock of America's competitiveness is a well-educated and skilled workforce.**

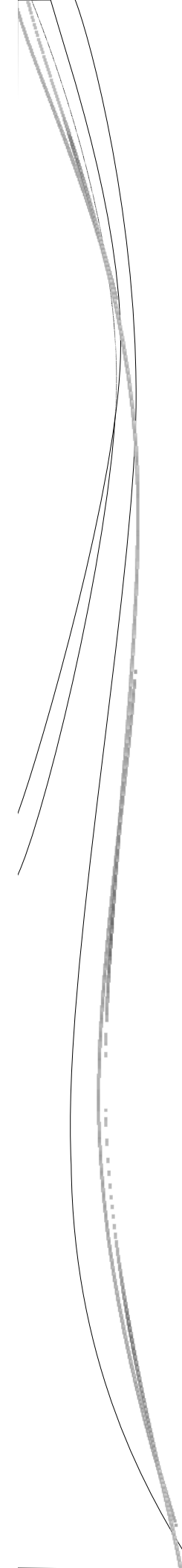
NSF's Strategic Plan 2003-2008

- NSF's investments in people enable the Foundation to meet its mission of promoting the progress of science, while facilitating the creation of a diverse, competitive and globally-engaged workforce of scientists, engineers, technologists and well-prepared citizens

NSF Strategic Plan 2006-

2011

- NSF is dedicated to the following:
- **Being broadly inclusive: seeking and accommodating contributions from all sources while reaching out especially to groups that have been underrepresented; serving scientists, engineers, educators, students and the public across the nation; and exploring every opportunity for partnerships, both nationally and internationally.**
- Investing in America's Future," NSF Strategic Plan 2006-2011. II. Mission and Core Values, p. 4.
- <http://www.nsf.gov/pubs/2006/nsf0648/nsf0648.jsp>



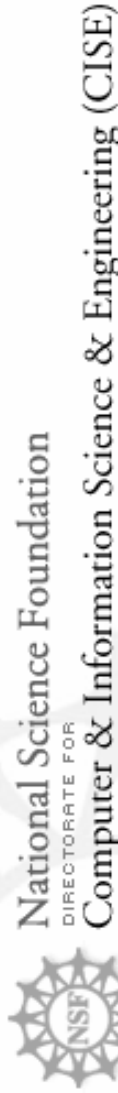
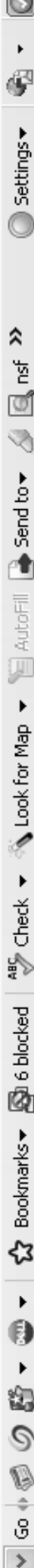
NSF Division of Chemistry

Strategies and Activities: During FY07 the Division of Chemistry (CHE) will undertake the following strategies and activities to broaden participation in chemistry:

- Hold a follow-up meeting to Gender Equity Workshop in FY07, at the April 2007 Council of Chemical Research Meeting.
- Sponsor a workshop on Under-Represented Minorities (URM) in FY07 to be modeled after the Gender Equity Workshop.
- Deliver presentations beginning in FY07 to CHE panels on bias in evaluations.
- Require a departmental plan for broadening participation in chemistry in the CRIF:MU (Chemistry Research Instrumentation and Facilities – Multiuser) competition beginning in FY08.
- Monitor CHE principal investigator (PI) demographics and engage in mentoring and other forms of outreach.
- Update progress and include diversity efforts in annual Division report.



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SEARCH

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Broadening Participation in Computing (BPC)

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PROGRAM GUIDELINES

[07-548 Solicitation](#)

DUE DATES

Full Proposal Deadline Date: May 21, 2008

SYNOPSIS

The Broadening Participation in Computing (BPC) program aims to significantly increase the number of U.S. citizens and permanent residents receiving post secondary degrees

Broadening Participation Research Initiation Grants in Engineering (BRIGE)

nsf.gov - Engineering (ENG) Funding - Broadening Participation Research Initiation Grants in Engineering - US National Science Foundation (NSF) - Mozilla Firefox

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http://www.nsf.gov/funding/pgm_summ.jsp?pmis_id=503160&org=ENG&from=home

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Broadening Participation Research Initiation Grants in Engineering (BRIGE)

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PROGRAM GUIDELINES

07-589 Solicitation

DUE DATES

Full Proposal Deadline Date: February 8, 2008

SYNOPSIS

With the goal of broadening participation to all engineers including members from groups underrepresented in the engineering disciplines, the Directorate for Engineering (ENG) at NSF offers a research initiation grant funding opportunity.

These grants are intended to increase the diversity of researchers who apply for and receive ENG funding to initiate research programs early in their careers, including those from under-represented groups, engineers at minority serving institutions, and persons with disabilities.

By providing these funding opportunities, ENG intends to further broaden participation of engineering researchers who share NSF's commitment to diversity in the following ways:

- Expand the population of role models who will interact with an increasingly diverse student population, the workforce of the future
- Increase the number of engineering researchers at minority serving institutions actively and competitively engaged in research as independent investigators, thereby creating new research opportunities for students from underrepresented

Engineering (ENG)

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ENG Organizations

- Chemical, Bioengineering, Environmental, and Transport Systems (CBET)
- Civil, Mechanical and Manufacturing Innovation (CMMI)

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CISE Computing Research Infrastructure (CRI)

- NSF encourages all proposers to address the full participation of women, minorities, and persons with disabilities in research and education activities. Examples of activities appropriate to CRI grants include a departmental effort to recruit students from underrepresented groups, collaboration with an institution that serves an underrepresented group, or development of infrastructure that provides access to persons with disabilities.

NSF Broadening Participation Working Group

- The Broadening Participation Working Group is charged to develop a plan that addresses the following elements:
- Increasing participation of underrepresented groups in NSF programs and activities, which includes defining existing baseline data;
- Increasing the representation of underrepresented minorities in the pool of reviewers for NSF proposals;
- Recruiting, hiring, and empowering highly qualified staff members who reflect the diversity of our community; and
- Implementation of the above, including recommendations on prioritizing action steps.

The ADVANCE Example

- Response by NSF Management to persistent underrepresentation of women at full professor level
- Legal issues with restricted eligibility programs
- MIT Report on the Status of Women
- Social Science Scholarship
- Data-driven
- Programs designed locally, tailored to specific institutions
- Evaluation

ADVANCE, continued

- Focus on institution rather than on individual
- Eligibility open to men and women
- Architecture of Inclusion (Susan Sturm, Columbia Law)
- Community of Practice
- Catalytic within NSF
 - Engineering Deans Workshop
 - Chemistry Chairs workshop
 - Physics Chairs and Lab Directors Workshop
 - Panel Briefings

Implications for NSF Reviews: Evidence-based strategies for breaking the cycle

- Increase conscious awareness of how schemas might bias evaluation
- Decrease time pressure and distractions in evaluation process
- Rate on explicit criteria rather than global judgments
- Point to specific evidence supporting judgments

Bauer & Baltes, 2002, *Sex Roles*, 47 (9/10), 465-476

Chemistry Research Instrumentation and Facilities: Departmental Multi-User Instrumentation (CRIF:MU)

- **Departmental Plan for Broadening Participation:** A departmental plan for broadening participation (maximum 3 pages) is required and must be included in the Supplementary Documents section of the proposal
- **Broadening Participation.** This section should address how the acquisition or upgrade of the requested instrumentation supports the departmental plan for broadening participation of underrepresented groups. While the departmental plan itself will not be assessed as part of the proposal review, it must be included as a supplemental document.



NSF and Broadening

Participation

- Required by Law
- Essential part of national strategy
- Both top-down and bottom-up
- Make or break for funding decisions
- Not just in the Education and Human Resource Directorate
- Embedded, pervasive, ubiquitous