

Promoting Diversity at the Graduate Level in Mathematics: A National Forum

MSRI

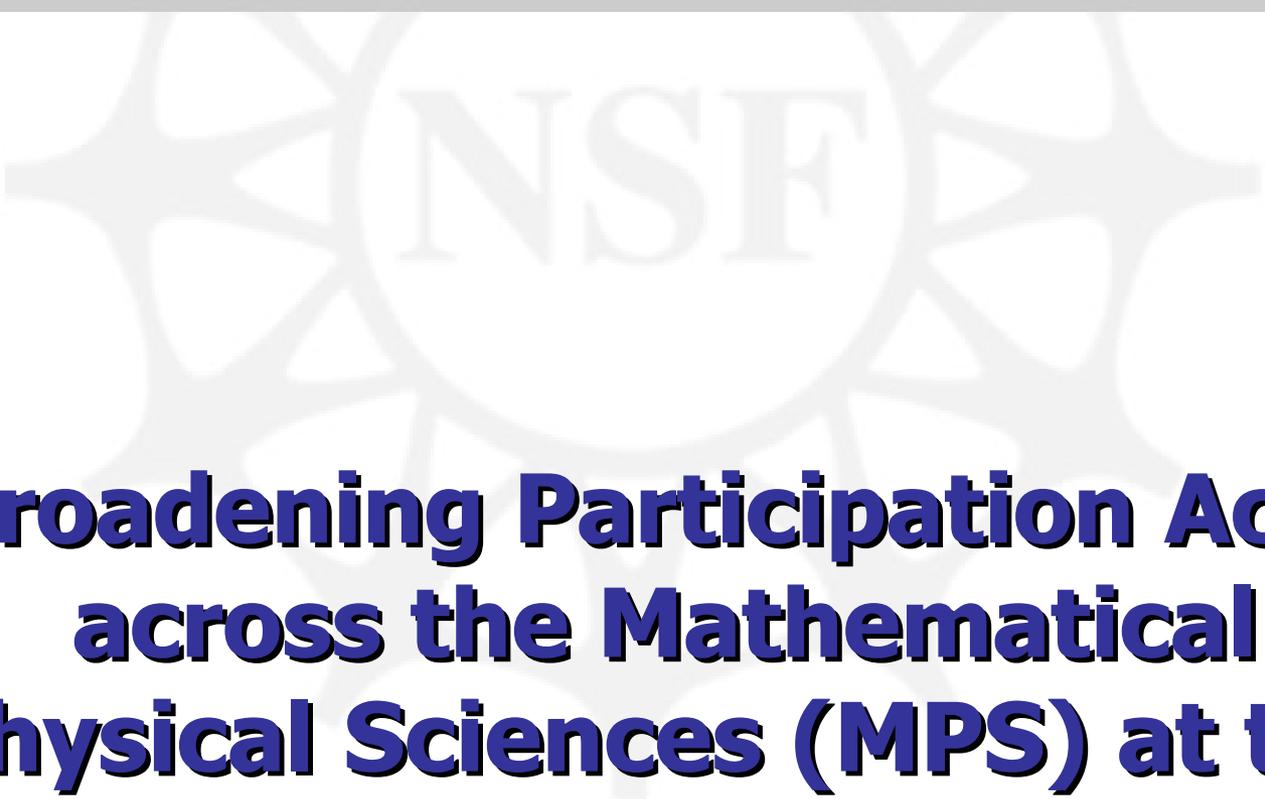
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What is Broadening Participation?

- NSF defines broadening participation in terms of individuals from under-represented groups as well as institutions and geographic areas that do not participate in NSF research programs at rates comparable to others.
 - Includes women, underrepresented minorities, and persons with disabilities
 - Can depend on scientific community



**Broadening Participation Activities
across the Mathematical and
Physical Sciences (MPS) at the NSF**



MPS Broadening Participation Group

- Formed in April 2008
- Provides a forum for MPS Program Officers to discuss broadening participation and contribute to NSF-wide activities
 - Share best practices
 - Explore new ideas
 - Explore the benefits of a potential MPS strategic plan

MPS-funded Workshops for Department Chairs (and others)

- Chemistry Workshop on Gender Equity
- Physics Workshop on Gender Equity
- Materials Science and Engineering Workshop on Gender Equity
- Chemistry Workshop on Under-represented Minorities
- Others in planning stages (people with disabilities)
- **And this one!!**

MPS Participation in NSF-wide Programs

Direct Broadening Participation:

- ADVANCE
- EPSCoR
- Research in Undergraduate Institutions

Workforce Development with BP Emphasis

- Research Experiences for Undergraduates
- Integrative Graduate Education and Research Traineeship Program (IGERT)

Science and Technology Centers

Some Activities in the Mathematical Sciences

- Enhancing the Mathematical Sciences Workforce in the 21st Century (EMSW21):
 - VIGRE
 - Mentoring through Critical Transition Points (MCTP) – 21 awards so far to diverse group of institutions
- Workforce – unsolicited proposals
- Mathematical Sciences Institutes – more on this in a moment
- Conferences/special meetings

Adding Emphasis to Existing Programs

- Require diversity discussion in Physics Frontiers Centers proposals and awards
- Require diversity plans for Materials Research Science and Engineering Centers (MRSEC)
- **Require diversity plans for Mathematical Sciences Research Institutes**
- Require diversity plans for Center for Chemical Innovation (CCI) and Chemical Bonding Centers (CBC)
- Require diversity plans for CHE Instrumentation proposals and awards

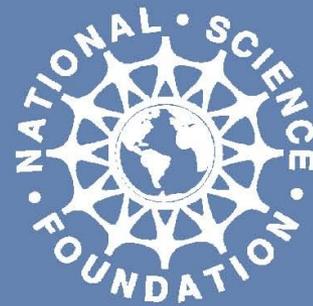
Mathematical Sciences Research Institutes

(from solicitation NSF 08-565)

- A plan reflecting the proposed institute's approach to increasing diversity, broadening participation, and encouraging involvement of underrepresented groups; a description how this plan will be implemented; and an outline how its outcomes will be measured. This section is not to exceed 3 pages total.

A vertical strip on the left side of the cover features a close-up photograph of red-painted structural steel beams, likely part of a bridge or large industrial structure, set against a clear blue sky.

Broadening Participation at the National Science Foundation: A Framework for Action



August 2008

A large, faint watermark of the National Science Foundation logo is visible in the bottom right corner of the page.

NSF Framework for Broadening Participation

- Preparing a diverse, globally engaged science, technology, engineering, and mathematics (STEM) workforce;
- Integrating research with education, and building capacity;
- Expanding efforts to broaden participation from underrepresented groups and diverse institutions across all geographical regions in all NSF activities; and
- Improving processes to recruit and select highly qualified reviewers and panelists.

http://www.nsf.gov/od/broadeningparticipation/framework_report.jsp

From the NSF perspective

Provide training for staff on NSF priorities and mechanisms for broadening participation and workforce development, including topics such as outreach approaches, reviewer selection, and mitigation of implicit bias in the review process.*

* "A Framework for Action"

Solicitation Language

- ▶ 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.

Merit Review Criterion – Broader Impacts

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?

Dear Colleague Letters

- ▶ CHE, DMR, and DMS all have Dear Colleague Letters that specifically address Broader Impacts in their communities
- ▶ These letters can be found on the Division Websites

From the NSF Perspective

Increase the diversity of scientists and other STEM experts who review NSF proposals by initiating the development of a searchable reviewer system with accurate demographic data, encouraging reviewers to provide demographic data, cultivating additional reviewer sources, and encouraging NSF staff to use a more diverse reviewer pool.*

- One note – this must be done with consideration of the burden on reviewers who are members of underrepresented minorities – the onus is on NSF to find more of these reviewers, not to overburden the ones already in the system.

* "A Framework for Action"

Overall Vision

- Broadening participation through education and outreach activities associated with NSF awards.
- Broadening participation amongst principal Investigators
- Broadening participation in the review process

Deborah Lockhart – Why diversity matters

- Deborah is executive officer, Division of Mathematical Sciences, NSF
- Works with direct broadening participation programs
- EPSCoR – program which helps states that do not receive traditional NSF funding (states such as Miss, Wyoming, Maine, etc.). – Helps these states promote research development.
- NSF provides grants to schools from non-PhD programs to help students get research experience at the undergrad level
- Integrative Graduate Education and Research Traineeship Program (IGERT) – promotes workforce development with BP emphasis; promotes research experience for undergraduates
- VIGRE – puts faculty and students together for mentoring; getting enough faculty to make a cultural difference.
- Mentoring through Critical Transition Points – has given 21 awards so far to diverse group of institutions that promote mentoring.
- NSF looks at unsolicited proposals – send in your suggestions
- Math-Science Institutes – NSF requires that you add diversity plans for all math/science proposals. Include a plan for the implementation and for data collection.