

**MEMORANDUM TO MEMBERS AND CONSULTANTS OF THE NATIONAL SCIENCE BOARD**

**SUBJECT:** Major Actions and Approvals at the October 13-14, 2004 Meeting

This memorandum will be made publicly available for any interested parties to review. A more detailed summary of the meeting will be posted on the National Science Board (NSB, the Board) public Web site within 10 business days. A comprehensive set of NSB-approved Open Session meeting minutes will be posted on the Board's public Web site following its December 2004 meeting.

Major actions and approvals at the 382<sup>nd</sup> meeting of the Board included the following (not in priority order):

1. The Board approved the minutes for the Open Plenary, Executive Closed Plenary, and Closed Plenary Session of the August 2004 meeting of the NSB ([http://www.nsf.gov/nsb/meetings/2004/0804/minutes\\_0804.pdf](http://www.nsf.gov/nsb/meetings/2004/0804/minutes_0804.pdf)).
2. The Board approved a resolution to close portions of the upcoming December 15-16, 2004 NSB meeting dealing with staff appointments, future budgets, pending proposals/awards for specific grants, contracts, or other arrangements, and those portions dealing with specific Office of the Inspector General investigations and enforcement actions, or agency audit guidelines (NSB-04-143) (Attachment 1).
3. The Board concurred that planning for Advanced LIGO is sufficiently advanced and the intellectual value of the project sufficiently well demonstrated to justify consideration by the Acting Director and the National Science Board for funding in FY 2007 or a future NSF budget request. The Board approved the resolution with the understanding that the existing LIGO Program will collect at least a year's data of coincident operation at the science goal sensitivity before initiating facility upgrades to the new Advanced LIGO technology.
4. The Board authorized the Acting Director, at his discretion, to make an award to the University of Illinois at Urbana-Champaign for the support of *Cyberinfrastructure in Support of Research: A New Imperative*. Further, the Board requested the Acting Director to present to NSB, in mid-2005, a plan for high performance computing at NSF that describes how the three NSF funded centers (SDSC, PSC, NCSA) will cooperate and how each of them will inter-operate and relate to the emerging investments in cyberinfrastructure.

5. The Board authorized the Acting Director, at his discretion, to make an award to the San Diego Supercomputer Center (SDSC) for the support of *Delivering Cyberinfrastructure: From Vision to Reality*. Further, the Board requested the Acting Director to present to NSB, in mid-2005, a plan for high performance computing at NSF that describes how the three NSF funded centers (SDSC, PSC, NCSA) will cooperate and how each of them will inter-operate and relate to the emerging investments in cyberinfrastructure.
6. The Board approved for publication the report, *Broadening Participation in Science and Education Faculty* (NSB-04-41) (Attachment 2).
7. At the request of NSF, the NSB Audit and Oversight Committee recommended, and the full Board approved for implementation early in 2005, a revision to the current Board policy on cost sharing to eliminate NSF program specific cost sharing requirements and require only the statutory cost sharing of 1 percent.
8. The Board requested that NSF begin implementing the general principals of the jointly developed provisional report on new procedures for setting priorities for large research facility projects supported by the National Science Foundation.



Michael P. Crosby  
Executive Officer

Attachment 1: NSB-04-143  
Attachment 2: NSB-04-41

September 3, 2004

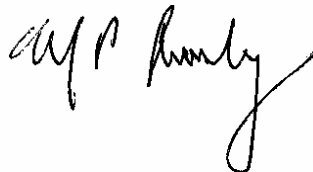
**MEMORANDUM TO MEMBERS AND CONSULTANTS OF THE NATIONAL SCIENCE BOARD**

**SUBJECT:** Closed Session Agenda Items for December 15-16, 2004 Meeting

The Government in the Sunshine Act requires formal action on closing portions of each Board meeting. The following are the closed session agenda items anticipated for the December 15-16, 2004 meeting.

1. Staff appointments
2. Future budgets
3. Grants and contracts
4. Specific Office of Inspector General investigations and enforcement actions

A proposed resolution and the General Counsel's certification for closing these portions of the meetings are attached for your consideration.



Michael P. Crosby  
Executive Officer

Attachments

PROPOSED  
RESOLUTION  
TO CLOSE PORTIONS OF  
383rd MEETING  
NATIONAL SCIENCE BOARD

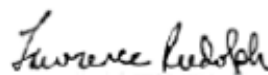
RESOLVED: That the following portions of the meeting of the National Science Board (NSB) scheduled for December 15-16, 2004 shall be closed to the public.

1. Those portions having to do with discussions regarding nominees for appointments as National Science Board members and National Science Foundation (NSF) staff appointments, or with specific staffing or personnel issues involving identifiable individuals. An open meeting on these subjects would be likely to constitute a clearly unwarranted invasion of personal privacy.
2. Those portions having to do with future budgets not yet submitted by the President to the Congress.
3. Those portions having to do with proposals and awards for specific grants, contracts, or other arrangements. An open meeting on those portions would be likely to disclose personal information and constitute a clearly unwarranted invasion of privacy. It would also be likely to disclose research plans and other related information that are trade secrets, and commercial or financial information obtained from a person that are privileged or confidential. An open meeting would also prematurely disclose the position of the NSF on the proposals in question before final negotiations and any determination by the Director to make the awards and so would be likely to frustrate significantly the implementation of the proposed Foundation action.
4. Those portions having to do with specific Office of the Inspector General investigations and enforcement actions, or agency audit guidelines.

The Board finds that any public interest in an open discussion of these items is outweighed by protection of the interests asserted for closing the items.

## CERTIFICATE

It is my opinion that portions of the meeting of the National Science Board (NSB) or its subdivisions scheduled for December 15-16, 2004 having to do with nominees for appointments as NSB members and National Science Foundation (NSF) staff, or with specific staffing or personnel issues or actions, may properly be closed to the public under 5 U.S.C. § 552b(c) (2) and (6); those portions having to do with future budgets may properly be closed to the public under 5 U.S.C. § 552b(c) (3) and 42 U.S.C. 1863(k); those portions having to do with proposals and awards for specific grants, contracts, or other arrangements may properly be closed to the public under 5 U.S.C. § 552b(c) (4), (6), and (9) (B); those portions disclosure of which would risk the circumvention of a statute or agency regulation under 5 U.S.C. § 552b(c) (2); and those portions having to do with specific Office of the Inspector General investigations and enforcement actions may properly be closed to the public under 5 U.S.C. § 552b(c) (5), (7) and (10).



Lawrence Rudolph  
General Counsel  
National Science Foundation



# **National Science Board Report**

## **Broadening Participation in Science and Engineering Faculty**

### **Background**

Education has always been vital to the success of individuals and the science and engineering enterprise. In the technology- and knowledge-based economy of the 21<sup>st</sup> century, science, technology, engineering, and mathematics (STEM) education is also an investment in the United States' collective future as a nation and as a society. For decades, the United States has excelled in building and sustaining institutions of higher education that attract science and engineering talent from all over the world. The Nation has done less well in encouraging and developing the mostly untapped potential of underrepresented minorities, women, and persons with disabilities to contribute to STEM research and education. Developing this potential will lead to expanded opportunities for individuals as well as improving national competitiveness and prosperity.

To address these concerns, the National Science Board (NSB, the Board) Committee on Education and Human Resources (EHR) hosted a group of distinguished panelists to participate in a workshop entitled, "Broadening Participation in Science and Engineering Research and Education" on August 12, 2003. The workshop was very well attended by people concerned with diversity in U.S. academic institutions and the workforce. The workshop had two objectives: first, to celebrate the progress that American universities have made in bringing diversity to science and engineering; and second, to identify strategies for further increasing the diversity of the nation's science and engineering workforce. The workshop was designed specifically to address U.S. underrepresented minorities. NSB's recent publication, *The Science and Engineering Workforce / Realizing America's Potential* (NSB-03-69), explores science, technology, engineering, and mathematics workforce issues more broadly.

## **National Science Board Selected Findings and Recommendations**

Based on workshop presentations and subsequent discussions by the EHR Committee and the full Board, selected findings from the workshop proceedings and recommendations for action are presented below. While we recognize that there may be many more issues of concern to the public, we focus our recommendations on issues specifically addressed by the speakers at the workshop. Moreover, rather than dwell on the obvious national shortcomings, our objective was to identify “best practices” programs that have been shown to be effective in enhancing diversity.

### **National Science Board Selected Findings<sup>1</sup>**

1. The percentage of tenure-track faculty from underrepresented minority groups at post-secondary institutions is significantly lower than the percentage of students from underrepresented minority groups at these institutions.
2. Low numbers of underrepresented minority science and engineering faculty impede the recruitment and retention of underrepresented minority students in science and engineering programs.
3. The number of underrepresented minority students who pursue graduate study in science and engineering fields lags significantly behind undergraduate minority participation.
4. Encouraging and facilitating the movement of students from undergraduate to graduate and post-doctorate levels will expand the pool of science and engineering faculty candidates from underrepresented groups.
5. Best practices have been identified for programs that successfully broaden participation at the undergraduate level. Hands-on research experience at the undergraduate level has a positive influence on decisions to pursue a graduate degree in science and engineering.
6. Faculty diversity at post-secondary institutions can be achieved with thoughtfully conceived and executed programs for recruiting and retaining science and engineering faculty from underrepresented minority groups. Target of opportunity faculty search programs are examples that involve the university president, provosts, deans, department heads, and senior faculty who clearly signal that faculty diversity is a high priority and that it must be pursued aggressively with clear expectations and meaningful incentives and rewards.

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<sup>1</sup> Specific examples and discussion supporting the findings can be found in the proceedings of the workshop, *National Science Board Workshop Proceedings: Broadening Participation in Science and Engineering Research and Education (NSB-04-72)*.

## **National Science Board Recommendations**

- A. Explore the feasibility of establishing a public database identifying recent science and engineering Ph.D. recipients to facilitate the recruiting of minority faculty at post-secondary institutions.
- B. Explore the feasibility of expanding NSF programs to facilitate the progression of bachelor-level science and engineering students to advanced degrees, post-doctorates, and the professoriate. Examples of NSF programs that address this goal include, but are not limited to, Research Experiences for Undergraduates (REU), Louis Stokes Alliances for Minority Participation (LSAMP), and Research Alliances for Graduate Education and the Professoriate (AGEP). While the workshop did not specifically address K-12 STEM education, the Board reaffirms our commitment that broadening participation in K-12 STEM education is an important part of our mission. Without broadening participation at the K-12 level, the pool from which future faculty will be drawn would be limited.
- C. Develop NSF programs that provide incentives and rewards to institutions that pursue or have implemented creative organizational strategies to advance underrepresented minorities into the professoriate, using legally permissible strategies.
- D. Encourage NSF staff to work closely with staff in other research-intensive agencies, such as the National Institutes of Health, to identify and disseminate best practices and effective incentive programs. An example of such cooperation is the Education and Workforce subcommittee of the Committee on Science of the National Science and Technology Council in the White House.
- E. Disseminate information on research results and experiences with diversity programs through periodic publications.