

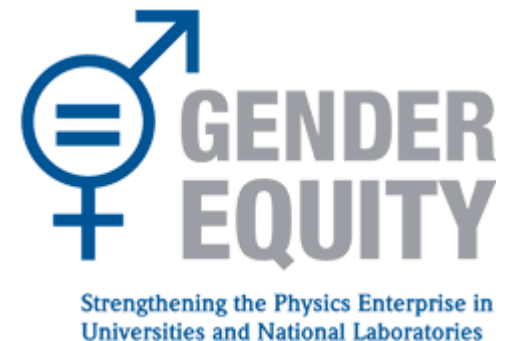
Report from the CSWP Gender Equity Conference

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Prepared for the **Women in Science and Engineering Workshop**
Thomas Jefferson National Accelerator Facility
Newport News, VA November 16, 2009

Outline:

- The Gender Equity Conference
- Recommendations
- Conversations on Gender Equity



Gender Equity Conference: Strengthening the Physics Enterprise in Universities and National Laboratories



**Sponsored by the APS
Committee on the Status of
Women in Physics with
support from NSF and DOE
May 6-8 2007**

Topics:

- Defining the Issues
- Equity and Bias
- Challenges and Opportunities
- Recommendations to Increase Recruitment, Hiring, Retention, and Promotion
- Training the Next Generation
- Challenges and Opportunities for the Funding Agencies



Physics Department Chairs from 50 major research universities, representatives from over a dozen national labs plus representatives of several funding agencies attended.

Defining the Issues:

Continued growth in US productivity depends on continued growth in STEM sector

Over 50% of productivity increase over past half century ascribed to science and technology.

From 1965 to 1995 the size of the US science and technology workforce grew from 11% to 15%.

The census bureau projects that by 2050, the percentage of the potential workforce in the US comprised of white males will drop from 38% to 26%.

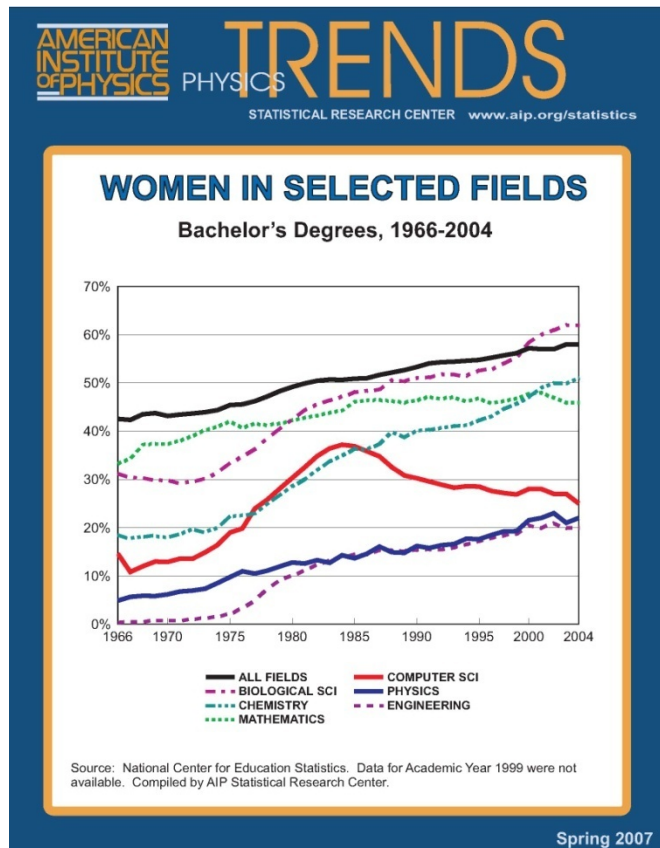
Currently most STEM degrees other than in biological sciences are earned by white males.

To maintain an adequate science and technology workforce, we must increase participation by under-represented groups: women, Hispanics, African-Americans.



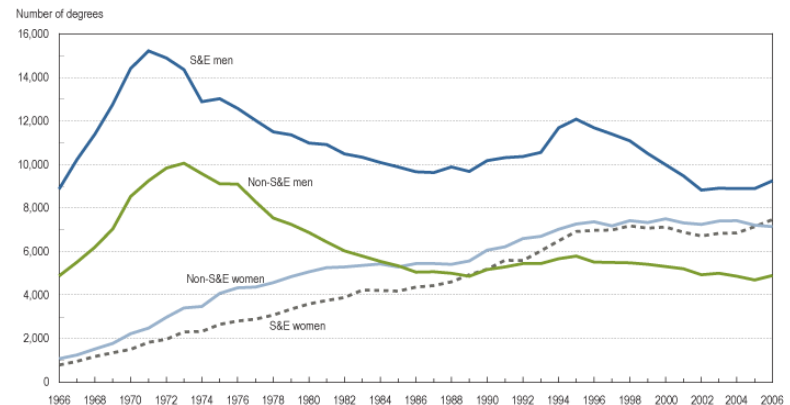
Arthur Bienenstock, past president of APS, showed that the needs for educated STEM workers can only be met by increasing participation by women and under-represented minorities.

Defining the Issues: Growth Trends in Science and Technology



Participation by women is rising in most STEM fields—physics and engineering are still well behind biology and chemistry

Doctoral degrees awarded in S&E and non-S&E fields to U.S. citizens and permanent residents, by sex: 1966–2006

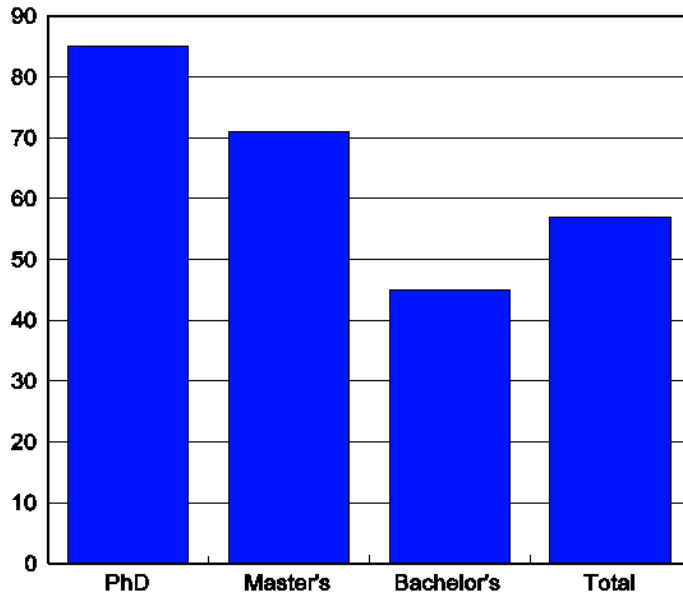


SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates, 1966–2006.

Growth in science and engineering doctorates since 1985 is from increased participation by women

Defining the Issues: Equity in the Academy

**Percent of physics departments with women faculty in
professorial ranks, 2006**



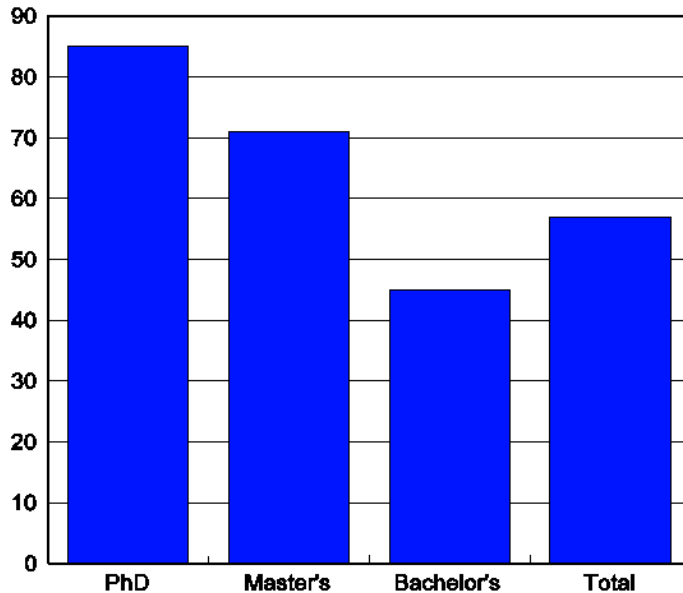
AIP Statistical Research Center, 2006 Academic Workforce Survey.

Most PhD granting institutions now have at least one or more women in the physics faculty.

As of 2006, 43% of all physics departments had no women faculty

Defining the Issues: Equity in the Academy

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Women disproportionately populate non-tenure track faculty positions.

Women faculty percentage is higher at bachelor and masters granting institutions

Percent of faculty positions in physics held by women.

	1998	2002	2006
Academic Rank			
Full Professor	3	5	6
Associate Prof.	10	11	14
Assistant Prof.	17	16	17
Instructor/Adjunct	N/A	16	19
Other ranks	13	15	12
Type of Department			
PhD	6	7	10
Master's	9	13	16
Bachelor's	11	14	19
OVERALL	8	10	13

AIP Statistical Research Center, 2006 Academic Workforce Survey.

Defining the Issues: What is holding women back?

Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering

A report by the National Academy of Science, 2007

The over arching conclusion of this report is that women in science and engineering are held back from achieving their full potential, not by a lack of drive or talent, but by unintentional biases and by institutional structures that hinder their advancement.



Alice Agogino, UC Berkely, an author of this report, stressed the impact of department and laboratory leadership on successful recruitment and retention

Equity and Bias:

Exploring Unintended Bias

- ❑ Virginia Valian, Hunter College: Ingrained cultural perceptions about gender play a strong role in how women are regarded and treated in the physics community.
- ❑ Schemas are tools used in the human brain for efficient storage and retrieval of information important to survival- a shorthand summary of observations- they encode stereotypes and presumptions into mental images
- ❑ If one has stored an image of a physicist as a male, overly focused on research to the exclusion of all else, then the tendency is to give greater credence to those who fit the inner image.
- ❑ This adds up over time to an advantage for the traditional candidate in hiring and promotion decisions.
- ❑ It is critical that search committees, compensation committees, tenure committees, be trained to recognize and counteract these unintended biases
- ❑ Example: letters of recommendation use different terms for different candidates, e.g. independent vs team player.

Challenges and Opportunities

The problem:

- ❑ Caretakers fear that they are perceived as less serious; Fear that co-workers see them as shedding responsibility.
- ❑ May take unreasonable steps to avoid such perceptions:
 - Not taking adequate time off for childbirth
 - Missing school functions
 - Not taking advantage of tenure clock policies

Solutions:

- ❑ Make childbirth policies “opt out” rather than “opt in”
- ❑ Encourage all genders to be open about caretaker responsibilities



Robert Drago, Penn State University, described the negative perception of caretaker responsibilities and the “bias avoidance” phenomenon.

Challenges and Opportunities

Recruitment:

- Identify potential candidates early

Hiring:

- Train search committees
- Broadly define job description
- Pay attention to the two body problem

Retention:

- Improve climate
- Networking
- Implement Effective Policies

Promotion:

- Make promotion process transparent
- Effective mentoring



Ana Mari Cauce, University of Washington,
Pat Falcone, Sandia National Laboratories
Myron Campbell, University of Michigan,
Mildred Dresselhaus, MIT
Mary Ann Mason, Berkeley
participated in a panel discussion: “Challenges to Institutions; Recruitment and Hiring, Retention and Promotion”

Recommendations to Increase Recruitment, Hiring, Retention, and Promotion

Patricia Rankin, University of Colorado:

- Change must be both top down and bottom up
- Workshops for women to improve negotiation, networking, and communication skills are essential
- Commitment to institutional improvement by senior management also necessary

Sue Rosser, Georgia Tech:

- Advance grants are an important tool in increasing participation and advancement women in science and technology



Attendees joined breakout sessions over lunch to discuss issues of recruitment, hiring, retention and promotion

Recommendations to Increase Recruitment, Hiring, Retention, and Promotion

Laurie McNeil, University of North Carolina:

- Use innovation to deal with two body problem—try pooling with nearby institutions

Natalie Roe, Lawrence Berkeley Laboratory:

- Use broadly defined job descriptions to increase candidate pool
- Have formal mentoring program for junior employees
- Increase transparency around evaluation and promotion process



Panel members summarize the results from the break out sessions, add information about successful programs

Training the Next Generation

Establishing a healthy climate for women students

Barbara Whitten:

- Increase recruitment of women majors
- Have student study lounges for majors
- Improve quality of introductory courses
- Promote community events for students: SPS, pizza lunches with faculty, using majors as tutors

Howard Georgii:

- Meet with the women students and pay attention to their needs



Meg Urry, Yale, joins Barbara Whitten, Colorado College, Howard Georgii, Harvard and Keiven Stassun, Vanderbilt (not pictured) to discuss best practices for students.

Training the Next Generation

Meg Urry (standing in for Marc Kastner of MIT):

- MIT provides childcare accommodation for graduate students
- Women students have a dedicated lounge area and monthly dinner courtesy of a generous alumna
- Women graduate students pair with undergraduates to provide mentoring
- Women graduate students participate in recruitment of new graduate students

Keiven Stassun:

- Vanderbilt partners with HBCU Fisk University to seamlessly move — Fisk masters students into doctoral programs at Vanderbilt
- Effective for increasing participation of both men and women in physics



Challenges and Opportunities for the Funding Agencies

Pat Dehmer:

The government is committed to fighting discrimination

The funding agencies are concerned with future shortfalls in the STEM workforce

Judith Sunley:

NSF has a long track record for encouraging increased participation for women in science and engineering.

Advance grants to university programs are designed to increase participation

NSF tracks gender information in the grant process



Nora Berrah, conference chair, introduced Judith Sunley, NSF, and Pat Dehmer, DOE to discuss commitment of the US government to increase participation by women and minorities in science and engineering fields

Challenges and Opportunities for the Funding Agencies

Make grant process more family friendly:

- Increase length of grant period to cut paperwork
- Provide extensions for maternity coverage
- Provide mechanism for dealing with maternity for post-doctoral students
- Provide for child-care needs with grant related travel

Eliminate gender and racial bias in grant decision process

Educate students early in grant application process:

- Bring post-doctoral students into grant review process
- Encourage graduate students to participate in grant preparation



Arthur Bienenstock moderates a panel comprised of Erich Roling of DOE, Joe Dehmer, W. Lance Hayworth, and G. Wayne van Citters, all of NSF who discussed how the funding agencies can help

Recommendations

30 recommendations were generated and are included in the final report, available at <http://www.aps.org/programs/women/workshops/genderequity/upload/genderequity.pdf>

“Constant collection and monitoring of data to chart equity progress, coupled with attention family friendly policies, subtle biases in promotion and tenure processes, and support from top leadership are needed for women to advance in academic science.”
Sue Rosser, Georgia Tech

“If you make all your women students and faculty feel more valued by your speech and actions—including speaking up for family friendly practices—and if you publically chastise those that make demeaning or snide comments, you will find the rewards are great.” Judy Franz, APS

“Spreading best practices through workshops makes the environment better for everyone, not just women.” Patricia Rankin, University of Colorado



Sherry Yennello summarized the recommendations generated by the participants

“The best thing you can do for your students—male and female—is to become a feminist.” Howard Georgii, Harvard University

Going Forward: Gender Equity Conversations

A program to facilitate internal discussion in physics departments of gender equity issues and solutions has been initiated with NSF funding.

The goal is to have the faculty and staff formulate solutions that will fit within the culture of the department. By having departments take ownership of the problems, effective change is more likely.

Teams comprised of 2 or 3 physicists travel to the physics department/national labs to facilitate internal discussion on gender equity in their institution.

Visits are at the invitation of the institution.

The department deploys a host committee, comprised of the department chair, an advocate for improvement who can take ownership of the process, and a department member who understands the culture of the department.

Gender Equity Conversations

The Process

After an initial consultation between the visiting and host committee (joint committee) meets with a cross section of people from all groups in the department: staff, undergraduates, graduates, post-docs, and faculty. These participate in an exercise to determine what are the challenges to women thriving in physics in a.) the department, b.) the university, and c.) the broader community. Discussion and summary by the participants distills this into a list of challenges to be addressed.

The joint committee meets in turn with staff, undergraduates, graduate and post doctoral students, then faculty to solicit solutions to the challenges raised.

The joint committee meets with faculty to brainstorm what solutions can be implemented in the department. Cultural impediments to change are explored.

The joint committee prepares a list of action items to be pursued by the department, and prepares notes on the meeting.

Gender Equity Conversations

The Program so Far

- Three visits this fall. Three pending. Fifteen are planned by the end of CY2010.
- The perceived challenges at each institution are different.
 - Family friendly issues dominated at one location.
 - Mentoring and advising was the major issue at another.
 - Civility and community issues also emerged.
- Visits have been enthusiastically received. By the end of the day, the process is clearly in the hands of the department.
- The host committees have all drafted a list of action items and committed to begin working on them.



Catherine Fiore, Sherry Yennello, Jarita Holbrook, Mike Thoenessen, and Patricia Rankin prepare for the first Gender Equity Conversations Visit

Acknowledgements

Organizing Committee

Nora Berrah, Co-chair, Western Michigan University

Arthur Bienenstock, Co-chair ,Stanford University

Kimberly Susan Budil , Lawrence Livermore National Laboratory

Catherine Fiore, Massachusetts Institute of Technology

Theodore Hodapp, American Physical Society

Patricia Rankin , University of Colorado

Claudia Megan Urry , Yale University

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Wendy Fuller Mora
National Science Foundation

Linda Blevins
US Department of Energy

Eric Rohlfig
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