

**Witness Testimony of
Myron Campbell
Chair, Physics Department
The University of Michigan**

**Before the
House Science and Technology Committee
Research and Science Education Subcommittee**

**Hearing on
Women in Academic Science and Engineering**

October 17, 2007

Introduction

Chairman Baird, Ranking Member Ehlers and members of the Subcommittee, thank you for the invitation to testify today. It is an honor for me to be able to contribute to the discussion of women in physics, and talk about the necessity of removing barriers to allow any member of our society to contribute to our nation's real and pressing needs in science and technology.

I joined the University of Michigan in September 1989 as an Assistant Professor. Prior to coming to Michigan I worked eight years at the University of Chicago, and prior to that I was a graduate student at Yale University. I was promoted to Associate Professor after three years and to Professor in 1998. My area of research is High Energy Physics and I am co-author on over 300 scientific papers, mostly with the CDF collaboration. I was appointed Chair of the Physics Department in 2004.

Women in Physics

My own appreciation of the issues of women in physics and some of the barriers came about four years ago during an unsuccessful attempt to hire a female assistant professor. During this process I became aware that the issue was about more than just the number of female faculty; that there were real barriers and biases which made it more difficult for talented women to participate in science.

Activities at Michigan

Three and a half years ago I was appointed the Chair of the Physics Department. Shortly after becoming Chair I invited the Committee on the Status of Women in Physics (CSWP)¹, a committee of the American Physical Society (APS), to conduct a site visit to

¹ <http://www.aps.org/programs/women/index.cfm>

assess the climate for women in our department. Over the last seventeen years CSWP has visited and evaluated over forty institutions. The overall assessment from the site visit report was that the climate at Michigan for women in physics needs serious improvement. There were several key points from the report I have used to understand how to proceed:

- It is not the responsibility of the women in the Department to effect change. Improvements will have to be driven by the combined efforts of the senior faculty.
- Problems exist at all levels and areas, and there is not a single solution or ‘magic bullet’. Improvements will come from a large number of modest accomplishments.
- It’s not just about the numbers. A major problem is the climate and how the women are treated. Bringing in additional female faculty must be accompanied by improving the climate.
- All of the Department’s accomplishments – first rate research programs, excellent undergraduate and graduate education, and successful community outreach – are placed at risk by climate issues.

With these points in mind, we took specific steps to improve the environment for undergraduate students through renovation of our introductory courses and providing student-led study sessions for advanced courses. We are more closely monitoring the graduate students, and taking early intervention for students who might otherwise drop out of the program. We have changed some of the graduate program requirements to reduce the stress graduate students feel, without reducing our standards. We have taken steps to improve the climate for female faculty. We have also modified the way we conduct searches for new faculty – searches are now open across all subfields of physics represented in the department². This change has resulted in our department making offers to nine women over the last four years, although, only one accepted.

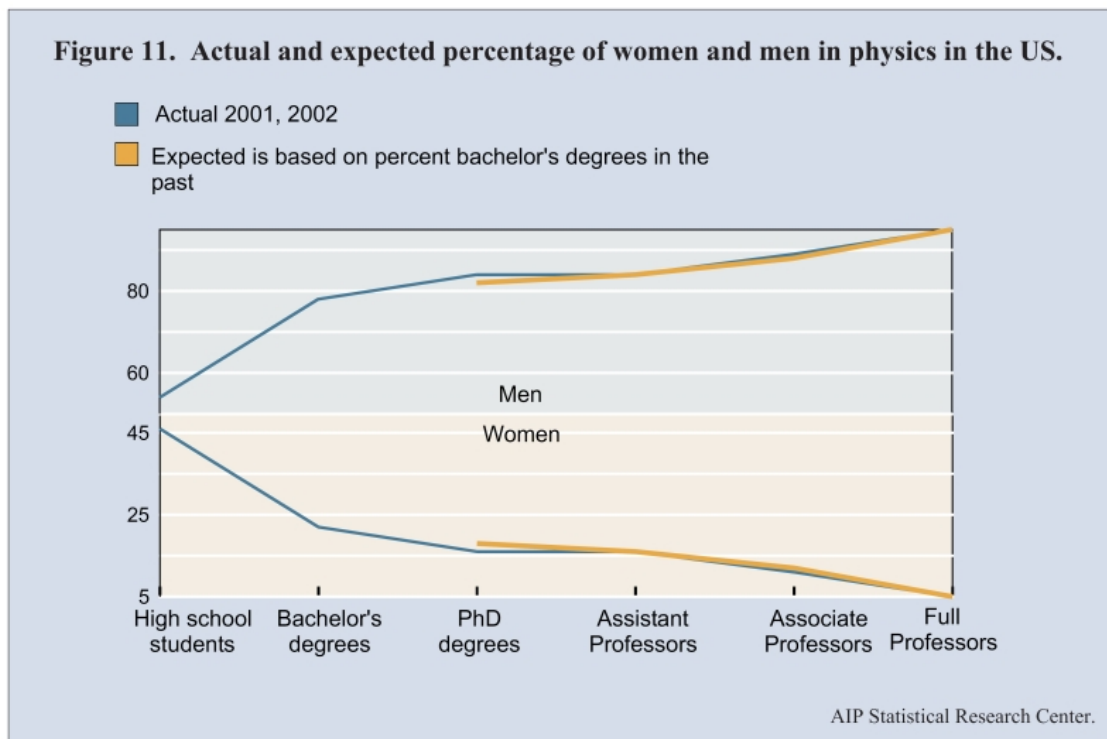
Much of this effort has been through Departmental and University initiative and support, along with support from funding agencies for programs such as ADVANCE. To increase the number of women in faculty ranks it is necessary to increase the number of women participating at all levels which lead to careers in science – high school, undergraduate education, graduate school, and postdoctoral positions. A key area of difficulty is the postdoctoral position, the transition from graduate student to assistant professor. One of the ways to create diversity in the workplace is to create a broad pool of applicants. The current practice for hiring postdocs runs counter to this – often a faculty member will select a postdoc from only a few candidates, since the work the postdoc is required to do is narrowly defined. The few institutions which have privately funded postdoctoral fellowships (Chicago, Caltech, Princeton, Berkeley, Harvard, MIT) are able to draw a large application pool, and have been successful at bringing in a talented and diverse group of postdocs.

² Advertisement in *Physics Today*, September 2007, page 101

I attended a workshop on gender equity³ held by the American Physical Society in May, 2006 where I shared some of my experiences with chairs and heads of other physics departments. The summary and recommendations from the workshop have been posted on the APS gender equity website. The department chairs attending the conference focused on four categories: Recruiting Students, Building a Respectful Environment, Faculty Hiring, and Faculty Retention. The consensus goal from the workshop was to double the number of women in physics over the next 15 years, which will require increasing the number of women working at all steps leading to a career in science.

Recommendations

I have several recommendations to the Subcommittee. The first is to encourage the NSF to continue the program *ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers*. I know firsthand this program has been of great benefit at the University of Michigan⁴. The practices, policies and procedures that have been developed at ADVANCE institutions should be integrated both into the NSF and other research and education institutions.



My second recommendation addresses the ‘pipeline issue’, as illustrated in the chart provided by the American Institute of Physics⁵. The figure shows the decline in the percentage of women at various ranks, and the prediction in yellow based on the number

³ <http://www.aps.org/programs/women/workshops/gender-equity.cfm>

⁴ <http://sitemaker.umich.edu/advance/home>

⁵ <http://www.aip.org/statistics/trends/highlite/women05/figure11.htm>

of bachelor's degrees awarded to women in the past. This chart shows that the pipeline explains the small numbers of women in physics and that the pipeline is the problem, highlighting the need for eliminating gender bias at every career stage. Universities such as Michigan can work on some stages of the pipeline on their own, for example promotion from assistant professor to associate professor, or improvement in undergraduate education. One of the findings of ADVANCE was that open, broad based, as opposed to narrow, searches provides a larger, more diverse pool of applicants. While our Department has been able to do this for graduate admissions and assistant professor searches, we have not been able to do this at the postdoctoral level. I recommend that NSF expand their Postdoctoral Fellowships program to include Physics, similar to the existing programs in Astronomy and Biology. Such a program would draw a large pool of applicants.

My third recommendation is to eliminate some of the barriers to women, especially women with young children, which is codified in OMB circular A-21⁶. Section J.32 on Meetings and Conferences should be modified to specifically allow for women to take infants or small children to conferences and the cost of childcare during the conference should be an allowable direct or F&A expense. Section J.53 in a similar way should allow for the travel costs associated with having small children be an allowable direct or F&A expense. Section J.42 on recruiting costs should be modified to recognize that attracting top talent, either male or female, now often requires spousal recruitment⁷, which should be either an allowed direct or F&A cost.

Conclusion

Thank you again for the opportunity to testify today. I hope I can continue to be of service on this issue. Advances in science and engineering require the talent, hard work, and ingenuity of a large and diverse workforce. Women represent about half of our entering undergraduates interested in science and engineering, yet they represent a much smaller fraction of our scientific workforce. We all must work to remove barriers.

⁶ <http://www.whitehouse.gov/omb/circulars/a021/a021.html>

⁷ “*Education in Nuclear Science*,” A report to the DOE/NSF Nuclear Science Advisory Committee, p4-15 (November 2004), http://www.sc.doe.gov/henp/np/nsac/docs/NSAC_CR_education_report_final.pdf