

Women in physics in the United States: recruitment and retention

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Summary

Although the numbers of women in physics in the US at all levels have been increasing, the fraction of women involved in physics is still low.

The issue of women in physics, as well as the broader issue of women in all science, technology, engineering, and math fields (STEM), is receiving coverage in the media and increasing attention from the general public.

Efforts to improve the recruitment and retention of women in physics in the US span a wide range of activities, from encouraging girls to consider a future in STEM to professional development for female academic physicists.

Here, we show data collected by the American Institute of Physics on students and faculty, descriptions of some of the programs for physicists in the US, and examples of media reports and programming.

Expanding Your Horizons Conferences

Early interventions are critical for encouraging girls to consider careers in STEM.

EYH are one-day conferences for girls aged 12 to 18, begun in 1976 and now held annually in about 85 cities in 37 US states and several other countries.

Engage girls in interesting and fun **hands-on** activities designed and led by women STEM professionals who share their enjoyment of their work.

Evaluations show that attending an EYH sparks girls' interest in and overcomes their prejudices about STEM subjects.

See poster and talk by Cherrill Spencer



Girls testing their hand-made telescopes at an EYH workshop

Conferences for Undergraduate Women in Physics

Three-day regional conferences for undergraduate physics majors.

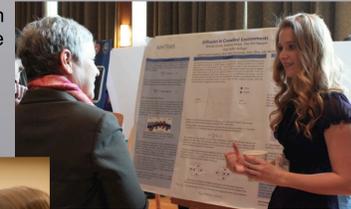
2008 – one site and 29 participants
2014 – eight sites and 1100 participants (about 25% of female undergrad physics majors in the US)

Networking and meeting other female physicists to combat isolation.

Provide information on graduate school, careers in physics, research, women in physics, lab tours, and a student poster session.

See talk by Susan Blessing

Poster session Penn State



Networking at U. Maryland



Common keynote speaker at Florida State

Professional Skills Development Workshops for Women Faculty

Held at national meetings of the American Association of Physics Teachers and the American Physical Society.

Provide professional development and support in navigating careers in physics.

Information on gender differences in views on competition, strategies for engaging in successful negotiations, and suggestions for dealing with difficult people in the workplace.

Mass Media

"Why are there still so few women in science?,"
New York Times, October 2013

Solvay Conference 1927



"Why Aren't More Girls Attracted To Physics? Girls are more likely to take high school physics if they see women in their communities working in science, technology, engineering and math, a new study finds"
National Public Radio, August 2013



TV program with bright, curious girls putting science and engineering to work in their everyday lives.
Public Broadcasting System

"We Know Physics is Largely White and Male, But Exactly How White and Male is Still Striking"
Smithsonian.com, July 14, 2014



"White, Asian men rule the roost at Twitter"
USA Today, July 24, 2014

"Jesse Jackson: Tech diversity is next civil rights step"
USA Today, July 29, 2014

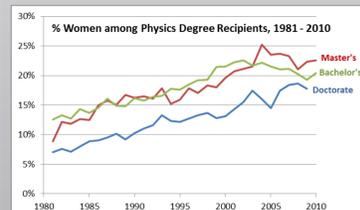
"Voices: Top tech execs need to speak up on diversity"
USA Today, July 31, 2014

Physics Education Research and Gender Issues

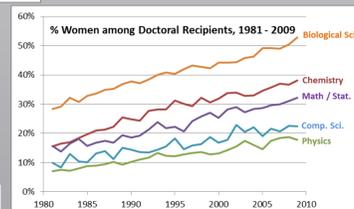
PER gender studies investigate why female students choose to study or pursue careers in physics and how to help them be successful, including self-efficacy, physics identity, psychological interventions, classroom dynamics, pedagogical strategies, and other factors.

Data on Women in the US

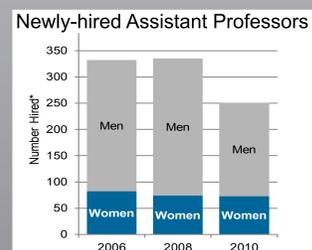
From the American Institute of Physics



The fraction of female physics degree earners has leveled off in the past five years, although the number of degree earners is increasing.



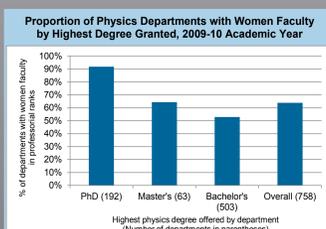
The fraction of female physics PhD earners is well below those of biology and chemistry.



Although overall hiring is down, the number of new female assistant professors has remained approximately constant since 2006.

Two-thirds of US physics departments award only bachelor's degrees; they award about 42% of such degrees each year; 70% of them average 5 or fewer degrees per year.

Only about half of them have a female faculty member who can serve as a role model.



US Government

White House Council on Women and Girls

Created by Presidential Executive order in March 2009. Ensures that each federal agency takes the needs of girls and women into account in their policies, programs, and legislation.

Provides fact sheets and resources on women and girls including those in STEM.

Enforces Title IX (prohibits gender discrimination at educational institutions receiving federal funding)

Supports mentoring programs for women in STEM at Department of State, Department of Energy, and NSF.

Supports workplace flexibility programs, including the Career-Life Balance Initiative (NSF) and the NIH Family-Friendly Policies (National Institutes of Health).

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