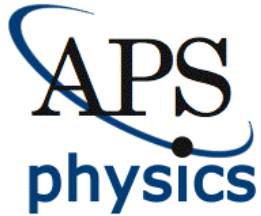


New Faculty Workshop

*28 October 2018
College Park, MD*

Discovering the Resources for Solving Problems

*Monica Plisch
Director of Education and Diversity
American Physical Society*



APS Policy Statements

Goal: Advocate for physicists, and the broader community

Topics: Education

Ethics and Values

Human Rights

Internal Policy

National Policy

Education Statements:

Undergraduate Research Statement

K-12 Education Statement

Career Options for Physicists

Advocacy for Science Education

Improving Education for Professional Ethics, Standards and Practices

Assessment and Science

Research in Physics Education

Coming soon: Physics GRE

URL: www.aps.org/policy/statements



American Association of **Physics Teachers**
Enhancing the understanding and appreciation of physics through teaching

Recent AAPT Policy Statements:

- Computational Physics
- Research Experiences for Undergraduates
- Research in Physics Education
- Teacher Education in Physics
- Safe Classrooms

Read more at aapt.org/Resources/policy

AIP Statistical Research Center - reports on the trends in education and employment of physicists and related scientists.

www.aip.org/statistics

The representation of women among physics bachelors and PhDs.

[See the flyer](#)



Browse data by topic



High School



Employment & Careers



Undergraduate Education



Women



Graduate Education



Minorities



Faculty



International



PhD Plus 10



Astronomy

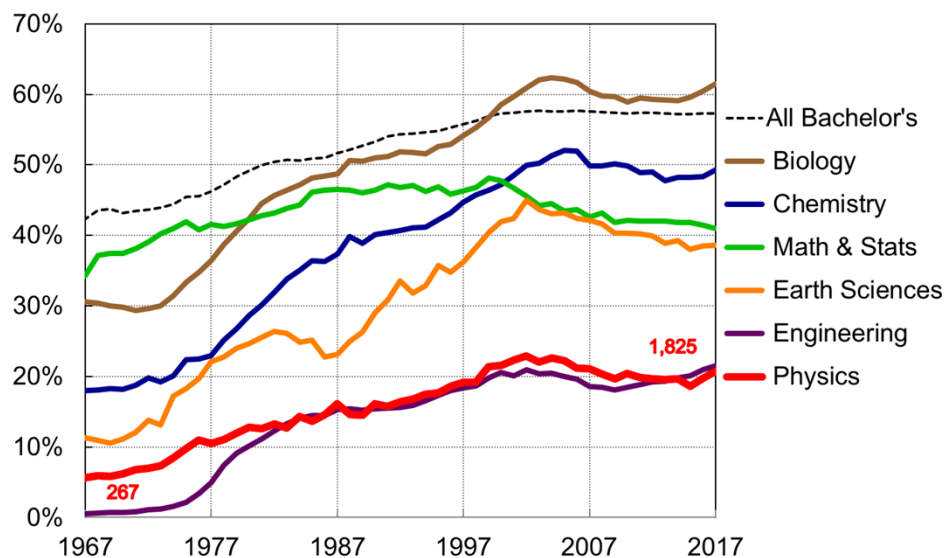
APS Education Statistics

Goal: Provide graphs and statistics on physics degrees

Strategy: Analyze IPEDS data and make results available in several formats. Collections include trends in degrees (all levels), women in physics, and minorities in physics. Compare Your Institution shows institution-specific data in comparison with national averages.

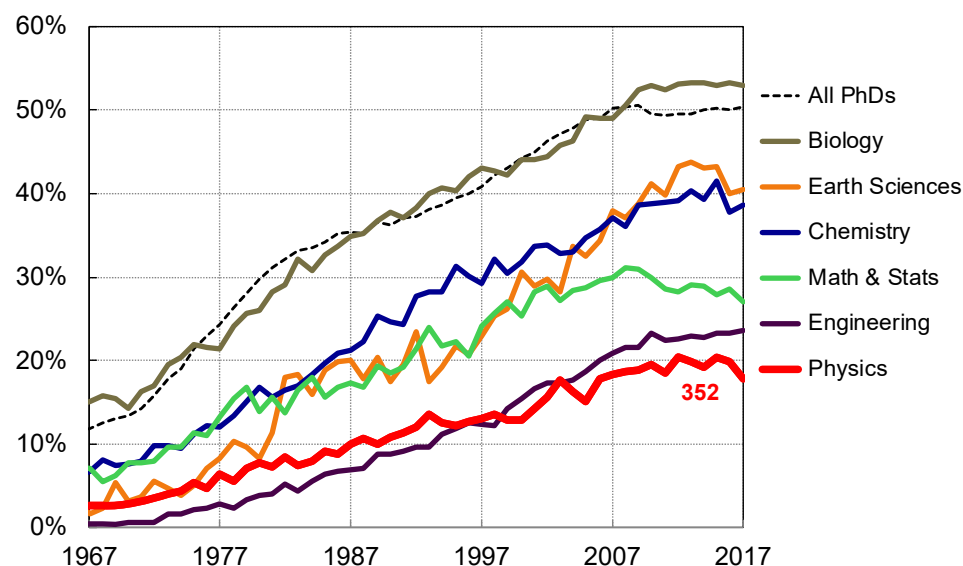
URL: www.aps.org/programs/education/statistics/

Participation of women in STEM bachelor's degrees

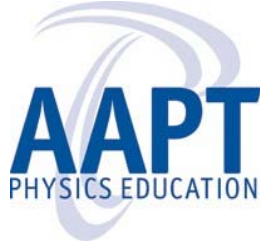
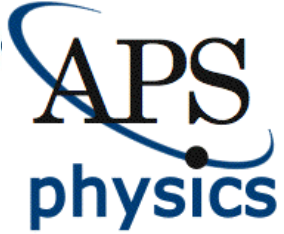


Source: IPEDS and APS

Participation of women in STEM doctoral degrees



Source: IPEDS and APS



National Reports

Goal: Provide effective practices and recommendations on topics relevant to physics departments

SPIN-UP: Increase number of majors – www.aps.org/programs/education/undergrad/faculty/spinup/spinup-report.cfm

T-TEP: Improve teacher education – www.phystec.org/webdocs/TaskForce.cfm

Phys21: Enhance career readiness of majors – www.compadre.org/Phys21

LGBT+: Improve climate for LGBT physicists – www.aps.org/programs/lgbt/

GradEd: Improve graduate education – www.aps.org/programs/education/graduate/conf2013/report.cfm

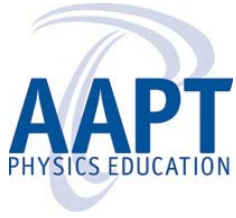
Effective Practices for Physics Programs (EP3) Project

Goal: Develop a working document to guide departmental review, assessment, and improvement

Strategy: National task force to design, write, vet, and disseminate a collection of effective practices and a guide for self-evaluation suitable for departmental review. The project will also train physics program leaders and reviewers in how to use the Guide through workshops and online communities.

Contact: Theodore Hodapp, hodapp@aps.org

Support: American Physical Society, NSF: 1738311, 1747563



Undergraduate Curriculum Taskforce White Papers

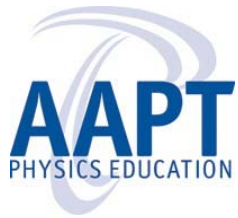
Product: AAPT recommendations for the Undergraduate Physics Laboratory Curriculum

Product: AAPT recommendations for Computational Physics in the Undergraduate Physics Curriculum

Source: Both available on your USB drive

Contact: Ernie Behringer, ebehringe@emich.edu

URL: www.aapt.org



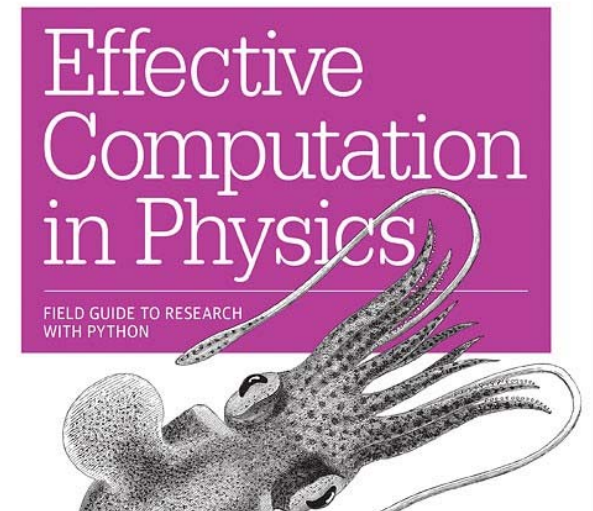
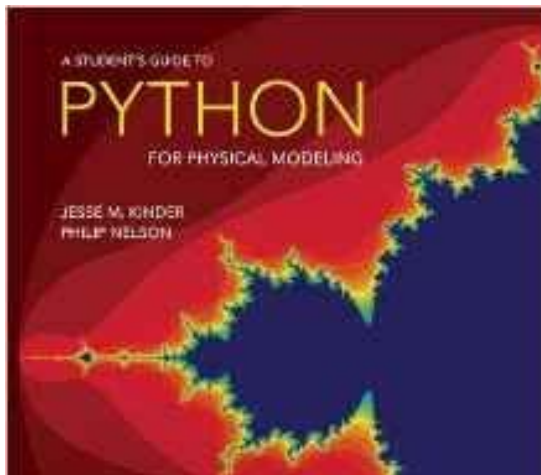
Partnership for Integrating Computation into UG Physics

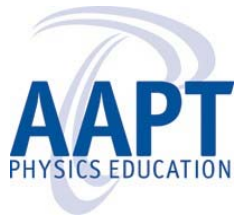
Goal: Survey of the current usage of computational work in undergraduate physics programs. Annual Computational Physics Faculty Development Workshop. Computational Physics workshops at AAPT section meetings, and APS and AAPT national meetings

Contact: Bob Hilborn, rhilborn@aapt.org

URL: www.compadre.org/picup

Support: NSF: 1432363, 1524963, 1505278





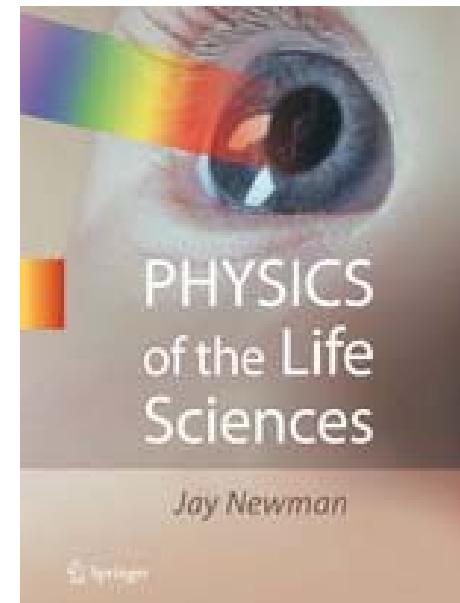
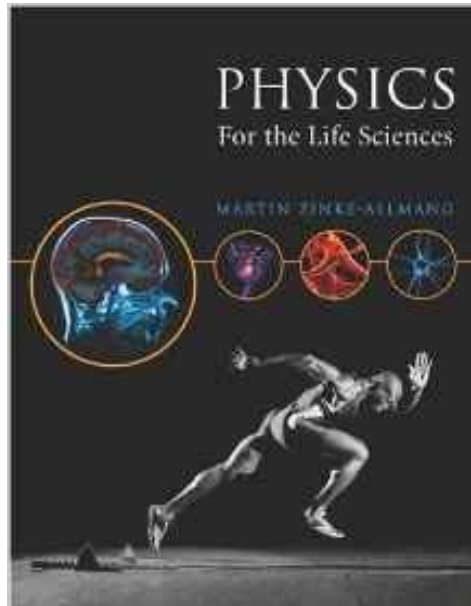
Living Physics Portal: Physics for the Life Sciences

Goal: Transformative web site for sharing, testing, and disseminating materials for IPLS and related courses. Being developed by AAPT and eight colleges and universities. Up and running by late-2018

Contact: Bob Hilborn, rhilborn@aapt.org

URL: www.compadre.org/ipls/

Support: NSF: 1624185





SOCIETY OF PHYSICS STUDENTS



Society of Physics Students (SPS) is open to all interested in physics and astronomy. 800+ chapters at two- & four-year institutions. www.spsntional.org

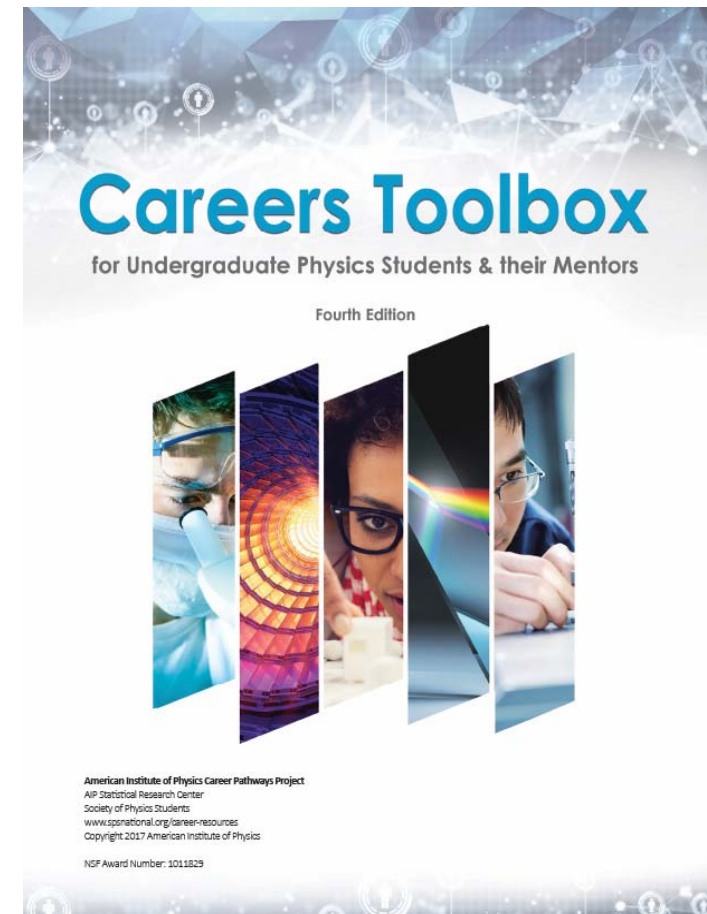
Director: Brad Conrad

National Initiatives & Local Impacts

- For undergraduates and their mentors
- Transform students → professional community

Professional development:

- Internships / Networking
- Communication skills / Leadership
- Career Toolbox



Goal: Provide a careers-oriented hallway slideshow for recruitment

Strategy: Slideshow comes out twice per semester and features profiles of physicists in industry, national labs, and other non-academic (mostly) careers; focus on individuals without PhDs (students already get information on academic careers); editable to include local information; hundreds of slides available

Contact: Crystal Bailey, bailey@aps.org

URL: www.aps.org/careers/insight

PHYSICIST PROFILE


Kate McAlpine (Physics BS)
 Science Writer and Physics Rapper
 CERN—Geneva, Switzerland

Why Physics?

Kate began her adventure with Physics at Michigan State, where she studied to be a science writer.

Since then, Kate has been at the Large Hadron Collider (LHC) doing outreach writing, and managing the news website for ATLAS (one of the experiments running on the LHC).

Kate is also responsible for the infamous "LHC Rap", which has gained worldwide notoriety through the internet!



"My goal is to explain scientific topics in a way that is relevant, interesting, and understandable," she says. "While accuracy is serious business, the science should still be fun."

25 SECONDS OF PHYSICS

The Physics of Yoga

Many people associate physics with complex technologies and far-out discoveries—but did you know physics is also an essential principle in yoga?

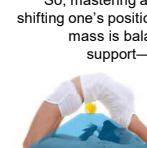
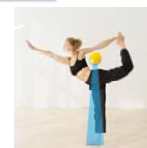
For every object, there is a point in space where you can imagine all of its mass is concentrated. This point is called the "center of mass" of the object.



In order for a yoga pose to be stable, the yogi's center of mass must sit directly above the yogi's point of contact with the ground—as though it was a heavy ball sitting on a support.

As a person moves, their center of mass shifts around in space.

So, mastering a pose involves carefully shifting one's position so that their center of mass is balanced over their point of support—and that takes physics!





Council on Undergraduate Research

Goal: Advocating for faculty's role in providing undergraduate research opportunities for students

Strategy: Develop faculty networks, develop tools and resources that support faculty, assess impact of undergraduate research, advocate and pilot new ways to engage students in research

Contact: Terry Oswalt (ERAU), terry.oswalt@erau.edu

URL: www.cur.org



Physics Research Mentor Training Seminar

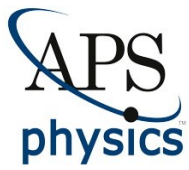
Goal: Help research mentors improve their mentoring skills

Strategy: Provide a guidebook and materials to facilitate a 10-week seminar for physics researchers. Includes guidance on how to run workshops, directed readings, and strategy tips

Contact: Monica Plisch, plisch@aps.org

URL: www.aps.org/link/mentor-training





Education & Diversity

APS Conferences for Undergraduate Women in Physics (CUWiP)

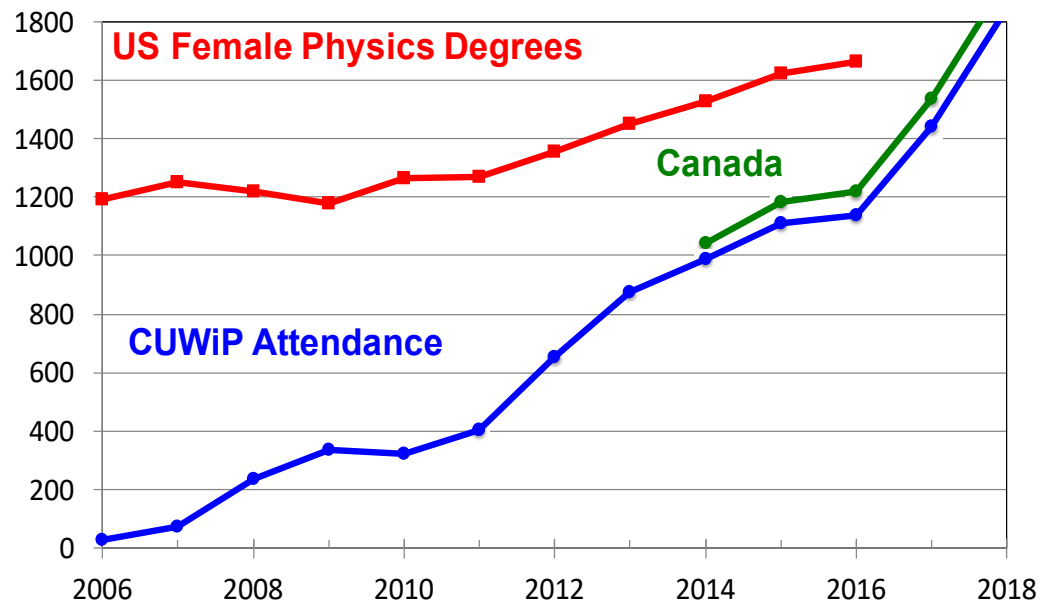
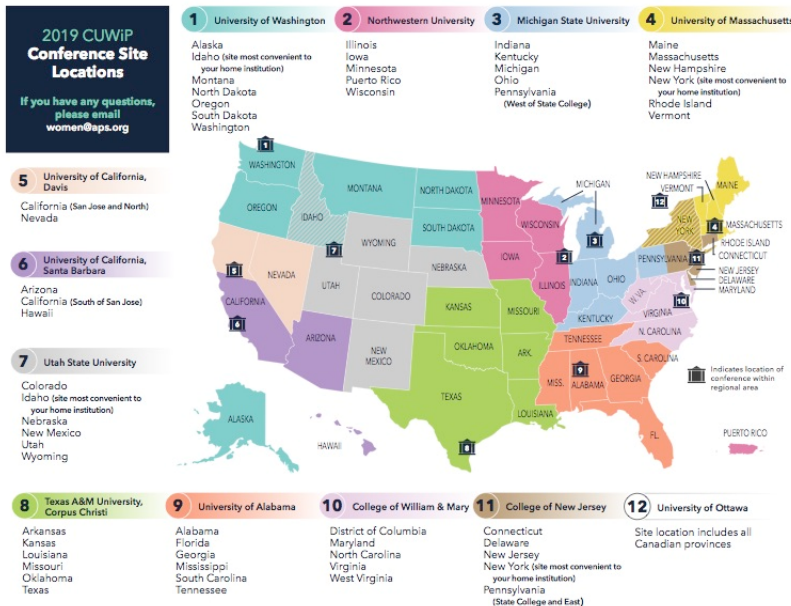
PROMOTING PEOPLE IN PHYSICS

Goal: Three-day regional conferences for undergraduate physics majors, to help women continue in physics by providing them with information about graduate school, professional career advice, and networking opportunities with other women in physics

Contact: women@aps.org

Support: NSF: 1346627, 1622510; DOE: DE-SC0011076

URL: www.aps.org/cuwip



Women in Physics Groups

Goal: Improve recruitment and/or retention of women in physics (WiP)

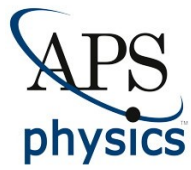
Strategy: Provide mini-grants (up to \$1,000) to build, improve, or sustain WiP groups; collect and share ideas on activities

Examples: Workshops on careers, communication, negotiation, leadership, dealing with bias, other skills; high school or middle school classroom visits; lab tours or field trips; research expos; book club or journal club; group lunches, dinners, or social events

Contact: women@aps.org

URL: www.womeninphysics.org





Education
& Diversity

PROMOTING PEOPLE IN PHYSICS

APS National Mentoring Community

Goal: Increase the number of African American, Hispanic American, and Native American undergraduates obtaining physics bachelor's degrees

Strategy: Connect students with local faculty mentors and provide support and resources. Emergency financial aid fund to mentees (BEAM Fund). National recognition of mentoring service (coming).

Contact: David May nmc@aps.org

URL: www.aps.org/nmc



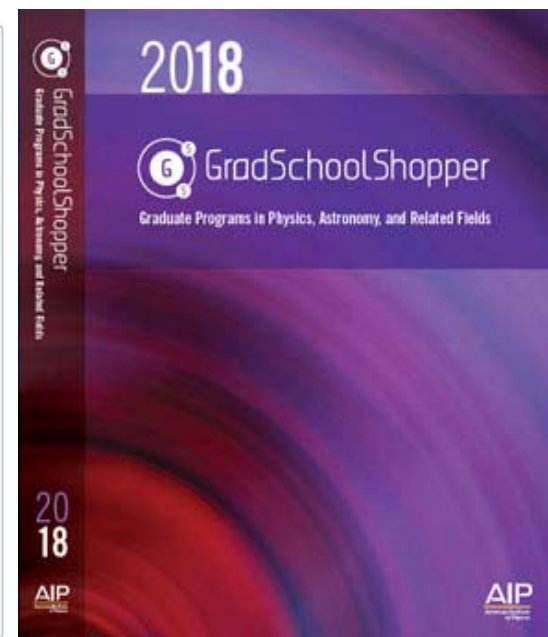
Only global graduate program network exclusively dedicated to the physics, astronomy and the physical sciences.

- Students create profiles to reference later
- Compare saved schools
- Advertise your program
- Print and online

Compare my saved schools

Select All

<input type="checkbox"/>	Wayne State University – Physics and Astronomy	<input type="button" value="✕ Remove"/>
<input type="checkbox"/>	Clark University – Physics	<input type="button" value="✕ Remove"/>
<input type="checkbox"/>	Tulane University – Physics Phd Program, Department Of Physics And Engineering Physics	<input type="button" value="✕ Remove"/>
<input type="checkbox"/>	Cornell University – Physics	<input type="button" value="✕ Remove"/>
<input type="checkbox"/>	University of Illinois at Urbana-Champaign – Physics	<input type="button" value="✕ Remove"/>



APS Bridge Program

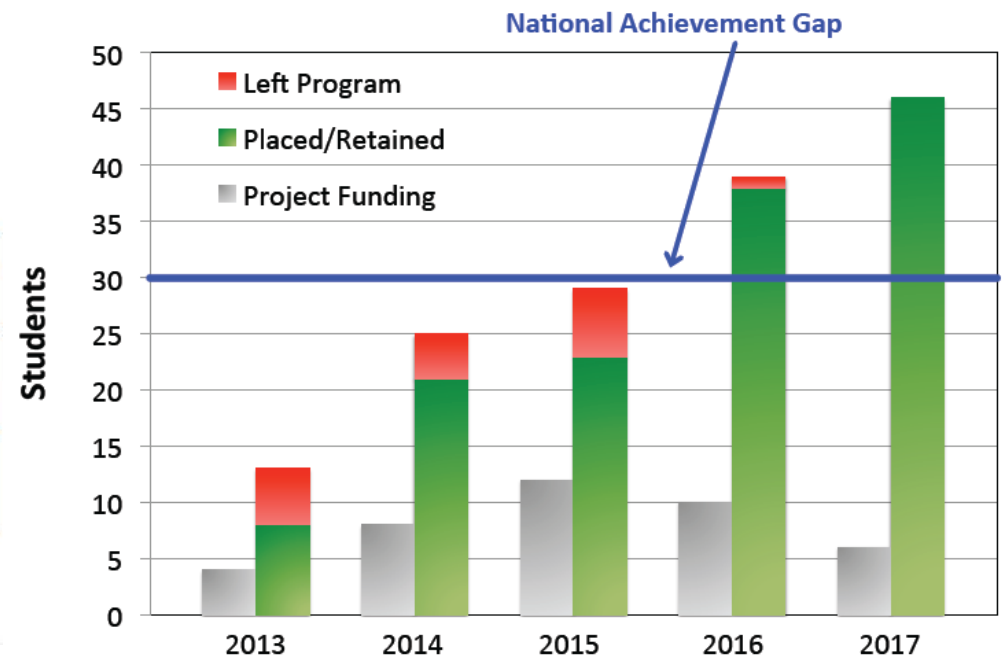
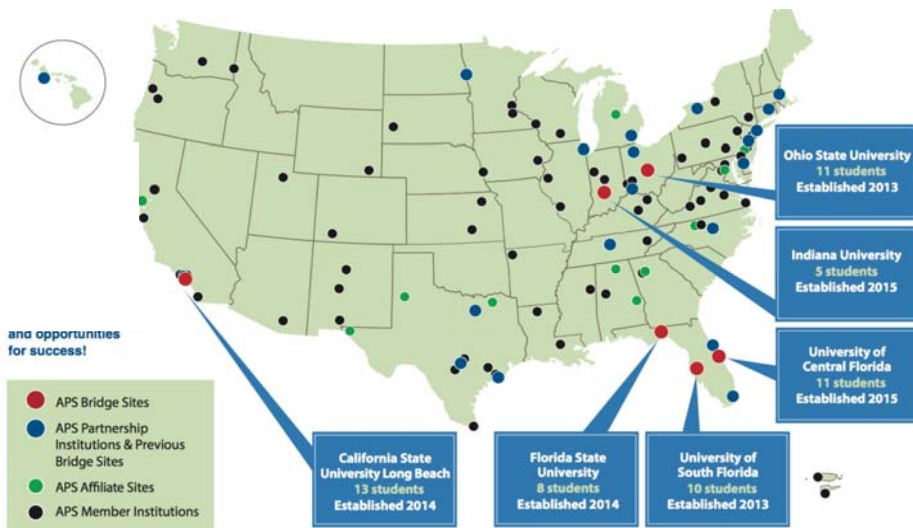
Goal: Increase the number of underrepresented (URM) students earning a PhD in physics or astrophysics

Strategy: Collect applications from URM students not admitted, and make available to departments. Provide best-practices in admissions, mentoring, retention and support

Contact: Erika Brown, brown@aps.org

URL: www.apsbridgeprogram.org

Support: NSF-0958333, 1143070



Climate Site Visits for Women and Minorities

Goal: Improve the climate for underrepresented individuals in physics departments

Strategy: 1-2 day site visits resulting in a formal report to the chair; 1-year follow up; focus on Research Universities, National Laboratories, Scientific Collaborations; 79 visits over last 25 years; best-practices in hiring, retention, climate, etc. available on the website; led by the APS Committee on the Status of Women in Physics (CSWP) and APS Committee on Minorities (COM)

Contact: women@aps.org

URL: www.womeninphysics.org



Professional Skills Development Workshops

Goal: Improve the negotiation and communication skills for women

Strategy: 1-day workshop at national APS meetings; facilitation by nationally recognized leaders in negotiation and communication strategies

Contact: women@aps.org

Support: NSF-0347210, 0752540, 1012585, 1419913

URL: www.womeninphysics.org



Gender Bias in Physics: An International Forum

Learning from Experiences of Gender Bias in Physics



Who: Women and people who are gender and sexual minorities

What: An online space to share experiences, find resources, and report responses to bias

Why: Gender bias in physics means that many talented physicists end up leaving the field. We need to ensure that all physicists feel welcome.

Visit:

genderbias.compadre.org



eAlliances: Mutual Mentoring

Goal: Enable women in physics and astronomy departments (particularly those who are isolated) to create their own eAlliance, a peer mentoring group of other women physicists or astronomers who share similar characteristics.

Contact: eAlliances@aapt.org

URL: ealliances.aapt.org

Support: NSF: 1500529



Physics Teacher Education Coalition (PhysTEC)

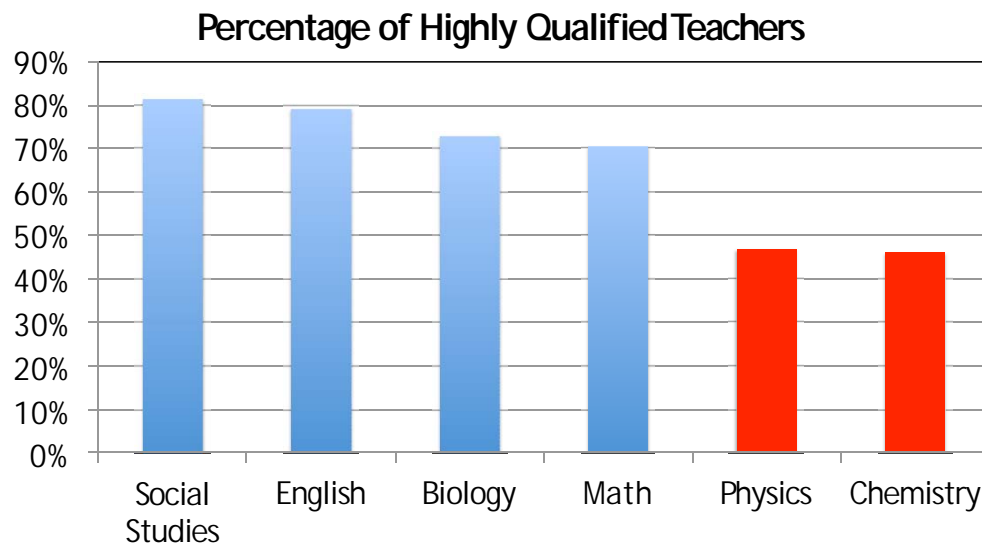
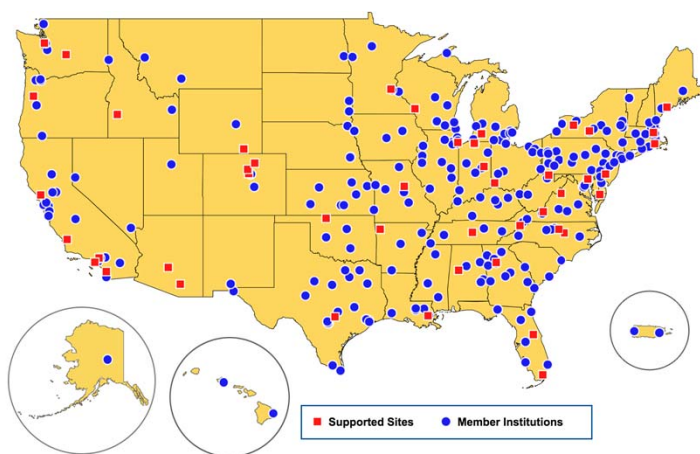
Goal: Increase the number of highly qualified high school physics teachers;
Build a national coalition of universities engaged in this work

Strategy: Encourage and support physics departments to work proactively
to recruit and educate future teachers. Provide best-practices and advocate
for successful strategies (national meeting: 2-3 March 2019, Boston)

Contact: Monica Plisch, plisch@aps.org

Support: NSF-0108787, 0808790, 1646913, 1719518, 1707990

URL: www.phystec.org





STEP UP 4 Women

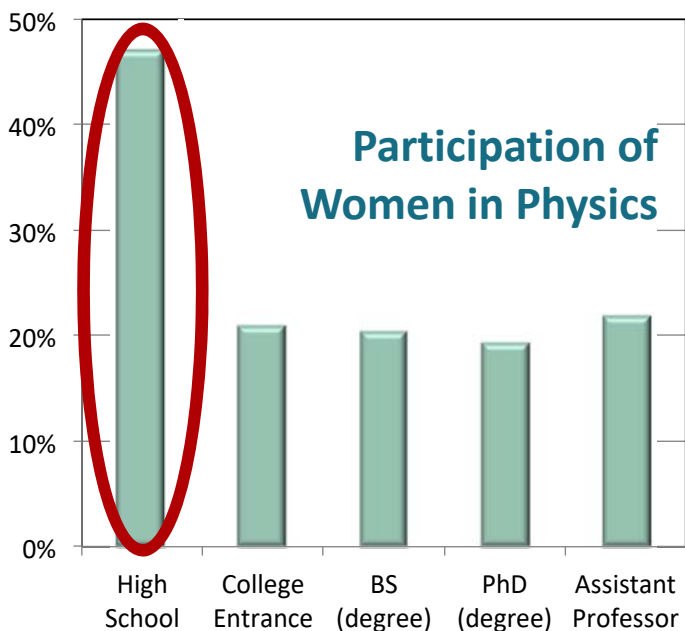
Goal: Close the gender gap in undergraduate physics degrees

Strategy: Enlist large numbers of high school physics teachers to directly recruit women to pursue a physics degree

Contact: Kathryne Sparks Woodle, woodle@aps.org

Support: NSF: 1720810, 1720869, 1720917, 1721021

URL: www.stepup4women.org



Goal: Build excitement in populations beyond the physics/astronomy community for physics and science

Strategy: Mini-grants for outreach (\$10,000); comic books, posters, and science kits for middle school classrooms (PhysicsQuest); blogs and social media posts on “cool” science

Contact: Becky Thompson, thompson@aps.org

URL: www.physicscentral.org

