Department Chairs Workshop

9 June 2018
College Park, MD

Other Programs and Resources

Theodore Hodapp
American Physical Society
Director of Project Development
Senior Advisor: Education and Diversity
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: 8-10 Feb 2018)

**Contact:** Monica Plisch, plisch@aps.org

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

**URL:** www.phystec.org
**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 (Meeting: 16-18 Nov 2018)

**Contact:** Erika Brown, brown@aps.org

**URL:** www.apsbridgeprogram.org

**Support:** NSF-0958333, 1143070

**PhDs reach same fraction as undergrad degrees**

Students

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APS Conferences for Undergraduate Women in Physics (CUWiP)

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 (Next events: 18-20 Jan 2019)

Contact: women@aps.org

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

URL: www.aps.org/cuwip

![Graph showing CUWiP Attendance and US Female Physics Degrees from 2006 to 2018.]
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
Society of Physics Students

**Goal:** Support the professional development of undergraduate physics majors

**Strategy:** Sigma Pi Sigma – the physics honor society; leadership opportunities; department cohesion; scholarships; internships; outreach awards; undergrad research; conferences

**Strategy:** Careers Toolbox

**Contact:** Brad Conrad, bconrad@aip.org

**URL:** www.spsnational.org
Public Outreach

**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
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: Monica Plisch nmc@aps.org

URL: www.aps.org/nmc

Conference: 16-18 Nov 2018 (Google / Stanford)
Grad School Shopper

**Goal:** Provide information on physics / astronomy graduate programs

**Strategy:** Online resource with data, and comparisons

**Contact:** Yolanda Matthews, ymatthews@aip.org

**URL:** gradschoolshopper.com
**Physics InSight Slideshow**

**Goal:** Provide a careers-oriented hallway slideshow for recruitment

**Strategy:** Slideshow comes out ~2x/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

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**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."

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**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!
National Reports

**Goal:** Provide best-practice advice on topics relevant to improving and supporting 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
**Goal:** Provide data to help faculty and departments understand the national picture and make comparisons

**AIP SRC:** Comprehensive data on faculty, students, careers, and diversity – [www.aip.org/statistics](http://www.aip.org/statistics)

**APS:** Graphics, data, and presentation-ready slides using national sources to inform departments on students, women, minorities, and trends; comparison tool to rank your department – [www.aps.org/programs/education/statistics](http://www.aps.org/programs/education/statistics)

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**Physics Bachelors 1 Year Later**

Source: IPEDS

- **All STEM:** 7,430 Recent Degree Recipients
- **Physics:**
  - Workforce: 48%
  - Percent:
    - Private Sector: 26%
    - High School Teaching: 6%
    - College & University: 4%
    - Active Military: 3%
    - Government: 2%
    - Other: 2%
    - Unemployed, Seeking: 1%

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Portal: Introductory 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 mid-2018

**Contact:** Bob Hilborn, rhilborn@aapt.org

**URL:** www.compadre.org/ipls/

**Support:** NSF: 1624185
Partnership for Integrating Computation into UG Physics

**Goal:** Survey of the current usage of computational work in undergraduate physics programs (report available early 2017). 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
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
CSWP Site Visits to Improve the Climate 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
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
Moore Foundation Fundamental Physics Innovation Awards

**Goal:** Stimulate ideas on innovative ways in which emerging technologies can be used to address pressing problems in fundamental physics

**Strategy:** Provide mini-grants (Lectureships [$2k], Visitors [$5-10k], Convening Awards [$25-75k]); rolling submission, quarterly review/award

**Examples:** Supports bringing people together to share and produce new ideas to explore innovative ways to probe fundamental physics

**Contact:** mooreawards@aps.org

**URL:** www.aps.org/programs/innovation/moore