Workforce Diversity: Perspective from Physics and Related Professions
Percentage of Women Earning Undergraduate STEM Degrees

- Biology
- Chemistry
- Math & Stats
- Earth Sciences
- Physics
- Engineering
Percentage of Women Earning Graduate STEM Degrees

- Biology
- Geosciences
- Chemistry
- Math & Stats
- Engineering
- Physics
- All PhDs

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African American Bachelor Degrees

Sources: IPEDS Completion survey by race, US Census
Bachelor and PhD STEM Degrees

Source: IPEDS, US Census
High school classes taught by teacher with degree in the field

Source: Schools and Staffing Survey

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APS Conferences for Undergraduate Women in Physics

- Focus on professional development, networking, understanding pathways
- Attendance more than tripled since APS became involved
- Very good URM attendance
- Awarded 3-year grants from DOE, NSF for 2014-2016 conferences; applications pending to support 2017-2019
- 9 sites for 2016, 10 in 2017
- Inspired C-CUWiP, UK-CUWiP
- Coordination of Canadian site in 2017
- Directed research efforts to improve messaging to women sees positive changes
- National leadership group; Current chair: Kate Scholberg, Duke; Overseen by CSWP

Female Physics Degrees

CUWiP Attendance

APS Involved

2017 CUWiP conference site locations

1. Montana State University
   - Bozeman
   - Montana
2. University of California, Los Angeles
   - Los Angeles
3. University of Colorado, Boulder
   - Boulder, Colorado
4. University of Wisconsin, Madison
   - Madison, Wisconsin
5. Wayne State University
   - Detroit, Michigan
6. Princeton University
   - Princeton, New Jersey
7. Harvard University
   - Cambridge, Massachusetts
8. Virginia Tech
   - Blacksburg, Virginia
9. Rice University
   - Houston, Texas

If you have any questions, please email women@aps.org or call (301) 209-3231.
APS Conferences for Undergraduate Women in Physics

2017 Sites

- Harvard
- Montana State
- Princeton
- Rice
- UCLA
- University of Colorado
- University of Wisconsin
- Virginia Tech
- Wayne State
- McMaster (Ontario)


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APS Bridge Program: Project Goals

• Increase, within a decade, the number of physics PhDs awarded to underrepresented minority students to match the fraction of physics Bachelor’s degrees granted to these groups

• Develop, evaluate, and document sustainable model bridging experiences that improve the access to and culture of graduate education for all students, with emphasis on those underrepresented in doctoral programs in physics

• Promote and disseminate successful program components to the physics community

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Bridge Program Design: Underlying Themes

• Focus on underrepresented minorities (Hispanic American, African American, Native American)
• Base components on published scholarship and operational successes of similar programs
• Must have significant national impact
• Design program to avoid “rearranging the deck chairs”
• Bring unique position of professional society (APS) to bear on the problem
• Measurable outcomes must be immediately recognizable by an APS member as having significant value
APS Bridge Program: Key Features

- Recruiting through all graduate and undergraduate programs (178 doctoral, 84 masters, 512 undergraduate)

- **Bridge Sites:**
  - Year 1: Graduate or advanced undergraduate courses, introduction to grad-level research, active mentoring, progress monitoring, social integration into grad school (APS funds)
  - Year 2: Take 1st year grad courses, apply to PhD program, research underway (Department funds)

- **Ancillary Students (Partnership Institutions):**
  - 16 APS “COM approved” Partnership Institutions; national recognition of program
  - ~50 graduate programs look at “other” applications, recruited additional 14 students in 2016
  - No direct support for students, some travel support possible
  - APS monitors progress of **all students**; conducts research
Bridge Sites and Partnership Institutions

- Admission decisions (criteria, process)
- Financial support (timing, amount)
- Coursework (induction advising critical, allow advanced undergrad coursework)
- Multiple Mentoring (timing, intervention)
- Progress monitoring (coursework, tutors if needed, research “fit”)
- Community (induction, socialization)
- Research (appropriate match)
Institution Involvement

- **Member Institution (106) (any institution)**
  Free; receive information / updates; reduced fees for APS-BP conferences

- **Partnership Site (16) (graduate only)**
  APS COM approval process; recommended site for Bridge Fellows (and others) to attend; demonstrate effective practices in graduate student support

- **Bridge Site (6) (graduate only)**
  Receive significant funding from APS; build sustainable program; prepare 2+ students each year for graduate study; significant institutional commitment
• Member Institutions
  • 106 in 36 states
• Partnership Institutions
  • 16 in 14 states
• Bridge Sites
  • Pre-existing: 4
  • APS: 6
  • Developing: 4
Bridge Program Achievements

- 24% Female (All: 20%)
- 92% URM (All: 6%)
  - 64% Hispanic
  - 24% African American
  - 5% Native Peoples
- 88% Retention (All: 60%)
Physics GRE: Impact of Cutoff Scores

Source: ETS
Percentage of Women in Physics

Sources: NCES/IPEDS, AIP-SRC, HERI