APS Leadership Convocation

29 January 2016
Washington, DC

APS Education and Diversity Programs

Theodore Hodapp
American Physical Society
Director of Education and Diversity
Education and Diversity

Committees:
• Education
• Status of Women in Physics
• Minorities

Units:
• FEd
• FGSA
• GPER

Staff:
• Michelle Campbell
• Geraldine Cochran
• Renee Michelle Goertzen
• Theodore Hodapp
• Asmaa Khatib
• Arlene Modeste Knowles
• Monica Plisch
• Deanna Ratnikova
• Susan Sargent
• Kathyne Woodle
Departmental Programs

• PhysTEC
• APS Bridge Program
• Conferences for Undergraduate Women in Physics (CUWiP)
• National Mentoring Community

• New Faculty Workshops (Jun)
• Physics chairs meeting (Jun)
• REU site leaders (Oct)
• Professional skills development workshops (Mar, Apr, Oct)
• Graduate education conference (Feb 2017)

• Advocating for physics education
• Childcare at meetings
• Mentoring seminar materials
• Ethics case studies
Programs for Units

• Childcare grants (Ratnikova)
• Fellows, prizes, awards (COM, CSWP)
• Sessions:
  • Education (COE, FEd)
  • Diversity (CSWP, COM, Bouchet/MGM award winners)
• Workshops:
  • Mentoring (Plisch, Woodle)
  • Professional skills development (Goertzen)
• Documenting unit diversity (Plisch, Knowles)
• Talks:
  • Educating high school teachers
  • Graduate admissions and the GRE
  • Physics demographics
  • Education research highlights
Source: IPEDS Completion Survey

www.aps.org/programs/education/statistics
Hispanic American Bachelor Degrees

Sources: IPEDS Completion survey by race, US Census
African American Bachelor Degrees

Sources: IPEDS Completion survey by race, US Census
Percentage of Women in Physics

Source: IPEDS
URM Physics PhDs to Minority Population

US College-age minority population

- BS
- PhD

Only ~30 students!

63 PhDs on average

Sources: IPEDS Completion survey by race, US Census
High school classes taught by teacher with degree in the field

Source: Schools and Staffing Survey
High School Students Studying Physics

Source: AIP Statistical Research Center
PhysTEC Project Outcomes

*Number of physics certifications averaged over 319 institutions in 15 states. Note that all PhysTEC teachers are more highly qualified than the minimum standard in most states.
APS Bridge Program: Key Features

- **Recruit** through graduate programs (unaccepted students), undergrad programs (promising students)
- **Establish** Bridge Sites (6):
  - Year 1: Advanced undergraduate or grad courses, introduction to grad-level research, active mentoring, progress monitoring, social integration into grad school *(Project funds)*
  - Year 2: Take 1st year grad courses, apply to PhD program, research underway *(Department funds)*
- **Place** additional students (at Partnership Institutions):
  - 46 graduate programs looked at “other” applications (2015), recruited additional students; No direct support, some travel
  - “COM approved” Partnership Institutions; national recognition of program
- **Monitor** student/site progress
- **Research**
- **Disseminate** / **Advocate**
Bridge Program Achievements

- 6 Bridge Sites
  - 5 promised
  - 2+ now self funded
- 95% retention rate
  - 60% is average for physics
- Increasing by ~30/year answers national need
- Growing interest by departments and students
- Member Institutions
  - 92 in 36 states
- Partnership Institutions
  - 16 in 12 states
- Bridge Sites
  - Pre-existing: 4
  - APS: 6
  - Developing: 4
Program Components

• Approved by APS Council: November 2014
• Launched April 2015
• Goal: Increasing the number of URM students who receive undergraduate degrees in physics
• Pairing faculty and URM students
• 95 mentors; 41 mentees paired
• Annual conference (21-23 October 2016) – in conjunction with REU Site Leaders meeting, Houston, TX
• Planned: scholarship funds distributed via mentors
• Planned: recognition of mentoring

Register: www.aps.org/nmc
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
- Inspired C-CUWiP, UK-CUWiP
- Possible addition of Canadian sites in 2017
- Directed research efforts to improve messaging to women sees positive changes
- National leadership group; Current chair: Mette Gaarde, LSU; Overseen by CSWP
Physics GRE: Impact of Cutoff Scores

- Fraction (White)
- Fraction (Hispanic)
- Fraction (Black)
- Fraction (Asian)

- 0.09 (Black)
- 0.34 (Hispanic)
- 0.44 (White)
- 0.61 (Asian)

Scores: 400, 500, 600, 650, 700, 800, 900, 1000
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Enhancing Diversity in Graduate Education

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.