University of South Florida

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APS Bridge Program

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Director of Education and Diversity
08.2 JOINT DIVERSITY STATEMENT
(Adopted by APS, NSBP, NSHP in 2008)

To ensure a productive future for science and technology in the United States, we must make physics more inclusive. The health of physics requires talent from the broadest demographic pool. Underrepresented groups constitute a largely untapped intellectual resource and a growing segment of the U.S. population.

Therefore, we charge our membership with increasing the numbers of underrepresented minorities in physics in the pipeline and in all professional ranks, with becoming aware of barriers to implementing this change, and with taking an active role in organizational and institutional efforts to bring about such change. We call upon legislators, administrators, and managers at all levels to enact policies and promote budgets that will foster greater diversity in physics. We call upon employers to pursue recruitment, retention and promotion of underrepresented minority physicists at all ranks and to create a work environment that encourages inclusion. We call upon the physics community as a whole to work collectively to bring greater diversity wherever physicists are educated or employed.
Minorities in Higher Education

- College Age Population: ~1.5M
- All Bachelor Degrees: ~200k
- Physics Bachelor Degrees: ~450
- Physics Doctoral Degrees: ~35
- Physics Faculty: ~12
African American Undergraduate Majors

US College-Age African American Population

- Biology
- Chemistry
- Engineering
- Math & Stats
- Physics
- Earth Sciences

1995 2000 2005 2010

- 172
- 149
Hispanic Undergraduate Majors

US College-Age Hispanic Population

- Engineering
- Biology
- Chemistry
- Math & Stats
- Earth Science
- Physics

1995 2000 2005 2010

105 273

www.APSBridgeProgram.org

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9-10% of BS degrees in physics are granted to underrepresented minorities

52 PhDs awarded to minorities in 2010

Sources: IPEDS Completion survey by race, US Census
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.
Key Personnel

Steering Committee
• J.D. Garcia (Arizona)
• Yolanda George (AAAS)
• Wendell Hill (UMCP)
• Anthony Johnson (UMBC)
• Ramon Lopez (UT Arlington)
• Steve McGuire (Southern)
• Cherry Murray, chair (Harvard, APS President 2009)
• Luz Martinez-Miranda (President, NSHP)
• Paul Gueye (President, NSBP)
• Bernadette Cogswell (Vanderbilt Grad Student)
• Ximena Fernández (Columbia Grad Student)

Architect’s Council
• Keivan Stassun (Fisk/Vanderbilt)
• Cagliyan Kurdak (Michigan)
• Marcel Agüeros (Columbia)
• Ed Bertschinger (MIT)

APS Staff
• Theodore Hodapp
• Brian Beckford (Project Manager)
• Arlene Modeste Knowles
• Bushraa Khatib (Project Coordinator)
• Monica Plisch
APS Bridge Program: Key Components

- Recruiting through graduate programs across the US (now 100+ institutions, representing 70% of all doctoral students)
- Spend 1-2 years in a “Bridging program”
  - Take advanced UG or entry-level graduate coursework
  - Graduate-level research
  - Demonstrate ability to do independent research and succeed in graduate-level coursework
  - Receive coaching on preparing graduate admissions package (letters, GRE, statements)
  - Accepted into doctoral program
- Receive mentoring in doctoral program (especially in first years)
- Research into barriers; disseminate successful program elements
- Build a national coalition of departments committed to improving participation
Existing Bridge Programs in Physics

- Fisk / Vanderbilt
- Columbia University
- University of Michigan
- MIT
Bridge Sites

- Recruitment (APS, and institution)
- Admission decisions (how, what criteria)
- Financial support (how much, and timescale)
- Multiple Mentoring (who, how interactions work)
- Community (induction, socialization)
- Coursework (advising, physics and other courses)
- Research (appropriate matching)
- Progress monitoring (coursework, tutors if needed, research “fit”)
- Application coaching (GRE, statements, schools)
Student Eligibility

- Bachelor’s degree in physics or closely related discipline
- US citizen or permanent resident
- Either:
  - Did not apply to graduate program this year
  - Applied but was not accepted
- Be committed to improving diversity in physics
- Meet individual requirements of the institution

Students may not be currently enrolled or have an existing physics graduate degree
Getting Involved

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

• **Partnership Site** (Doctoral granting institutions)
  APS COM approval process; recommended site for Bridge Fellows (and others) to attend; demonstrate effective practices in graduate student support

• **Bridge Site** (MS or PhD granting)
  Receive significant funding from APS; build sustainable program; prepare 2+ students each year for graduate study; significant institutional commitment

www.APSBridgeProgram.org
Project Progress

• Bridge Site Selection
  • 24 Applicants
  • 7 Selected for full Proposals
  • 2 Sites will be awarded (end of April)

• Student Recruitment
  • 50 current applicants

• Summer Meeting

• Admissions Study
27 – 29 June, American Center for Physics

- Bridge students, current a prospective bridge sites, interested faculty, researchers, NSF program officers
- Jim Duderstadt (former president of the University of Michigan)
- Logistics of running project components
- Larger issues surrounding minority participation in physics (admissions, GRE, mentoring, Implicit Bias, Stereotype Threat, etc.)

- Registration: apsbridgeprogram.org/conferences/
GRE Quantitative Scores

Source: ETS, "Factors that can influence performance on the GRE General Test 2006-2007"

GRE Quantitative scores for US Citizens
Admissions Bias?

![Bar chart showing GRE scores and Graduate GPA for males and females before and after graduate admission.](chart)

- **Subject Test**
  - Before Graduate Admission
  - After Graduate Admission

- **GRE Scores for Physics**
  - Male: 640
  - Female: 580

- **Graduate GPA**
  - Male: 3.6
  - Female: 3.7

Source: PhD Recipients from Oregon State University