APS Bridge Program: Changing the Face of Graduate Education

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Participation of Underrepresented Minorities (URM) in Physics

~35 more PhDs/year would close the gap

Source: US Census, IPEDS, AIP, and APS
• **Recruit** students not accepted to graduate programs
• **Place students in Bridge Programs** (6):
  • For students who demonstrate potential but underprepared
• **Place students at Partnership Institutions** (32):
  • “COM approved” programs
  • Students directly admitted to doctoral program
• **Monitor** student/site progress
• **Research**
• **Disseminate / Advocate**
Bridge Program Practices

- Admission decisions ("holistic" criteria)
- Financial support (timing)
- Coursework (induction advising critical, allow advanced undergrad courses, alternative plan)
- Progress monitoring (timing, tutors if needed)
- Multiple mentors (intervention, peer involvement)
- Research (appropriate match)
APS Bridge Program Achievement

URM PhDs reach same fraction as undergrad degrees

<table>
<thead>
<tr>
<th>Year</th>
<th>Left Program</th>
<th>Placed/Retained</th>
<th>Project Funding</th>
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<td>2013</td>
<td>3</td>
<td>4</td>
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<td>2018</td>
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<td>9</td>
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**Where are Bridge students placed?**

- Alabama, Huntsville  
- Alabama, Tuscaloosa  
- Auburn  
- Ball State  
- Bowling Green  
- Bryn Mawr  
- Cal State Long Beach  
- Cal State Los Angeles  
- Central Florida  
- Central Michigan  
- Chicago  
- Cincinnati  
- Columbia  
- Connecticut  
- Dartmouth  
- Delaware State  
- DePaul  
- Duluth  
- Embry-Riddle  
- Emory  
- Fisk-Vanderbilt  
- Florida State  
- George Washington  
- Hawaii  
- IIT  
- Indiana  
- Kansas  
- Missouri  
- North Dakota State  
- Ohio State  
- Princeton  
- Rochester  
- San Francisco State  
- TAMU Commerce  
- Texas Tech  
- UCLA  
- UH Clear Lake  
- UNC Chapel Hill  
- UT Arlington  
- UT Austin  
- UT El Paso  
- UT San Antonio  
- Virginia  
- Wake Forest
“Honestly, the best moment of being a bridge student was when I became one. I had applied to many schools, and I was rejected from every single one. Someone reminded me about this program; I had seen it a long time ago and I was like, yeah, I have this in my back pocket in case I need it. But, you know, I was so delusional when it came to graduate admissions because, you know, you forget that you are competing with students globally ...So, it was the most exciting time [when] ...I was selected.”
Some reasons students are not admitted/do not apply

• Low physics GRE scores
• Students apply to too few or wrong places
• Students feel unprepared (low self-efficacy)
• Inadequate preparation in undergraduate program
• Economic circumstances
• Faculty have limited time to evaluate applications
• Application materials do not tell a predictive story
• Faculty lack awareness of admissions research
• More…
Physics GRE:
Impact of Cutoff Scores

- Fraction (White) = 0.44
- Fraction (Hispanic) = 0.34
- Fraction (Black) = 0.09
- Fraction (Asian) = 0.61
IGEN Goals

• **Bridge:** Increase the fraction of students from underrepresented groups who complete doctoral degrees in the physical sciences to match the levels of undergraduate degrees awarded.

• **Inclusive practices:** Catalyze the adoption of evidence-based inclusive practices, especially in graduate education, that reduce inequities in doctoral completion for underrepresented groups and benefit all students.

• **Research:** Conduct research and propagate results that distill scalable effective practices in inclusive graduate education and institutional change within the physical sciences.

• **Transitions:** Establish sustained, cross-sector partnerships within and among critical stakeholders that support the advancement of underrepresented students from undergraduate through professional employment.