

# How to make your Ph.D. program more diverse - Lessons learned from the APS Bridge program

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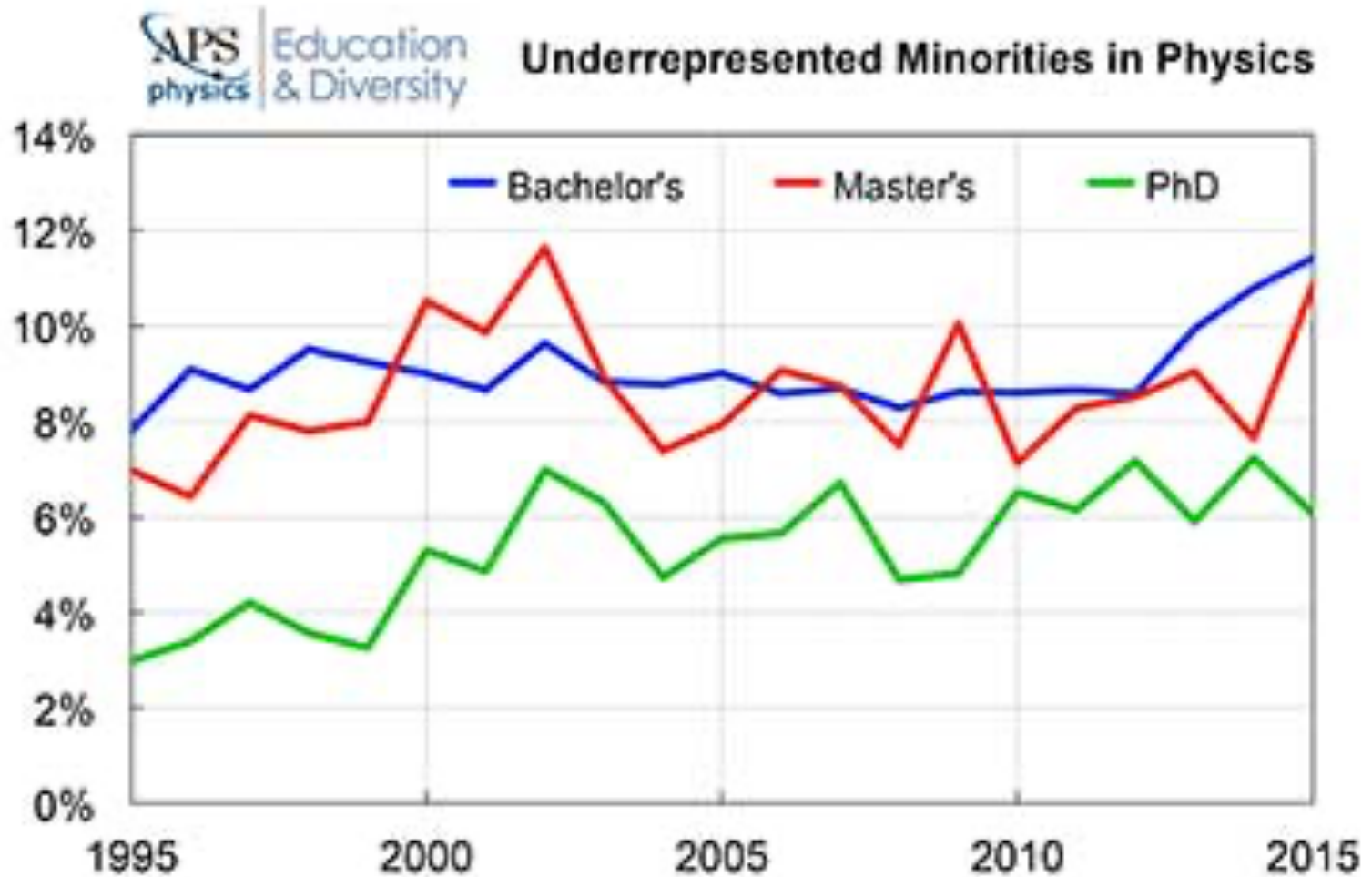
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# Outline

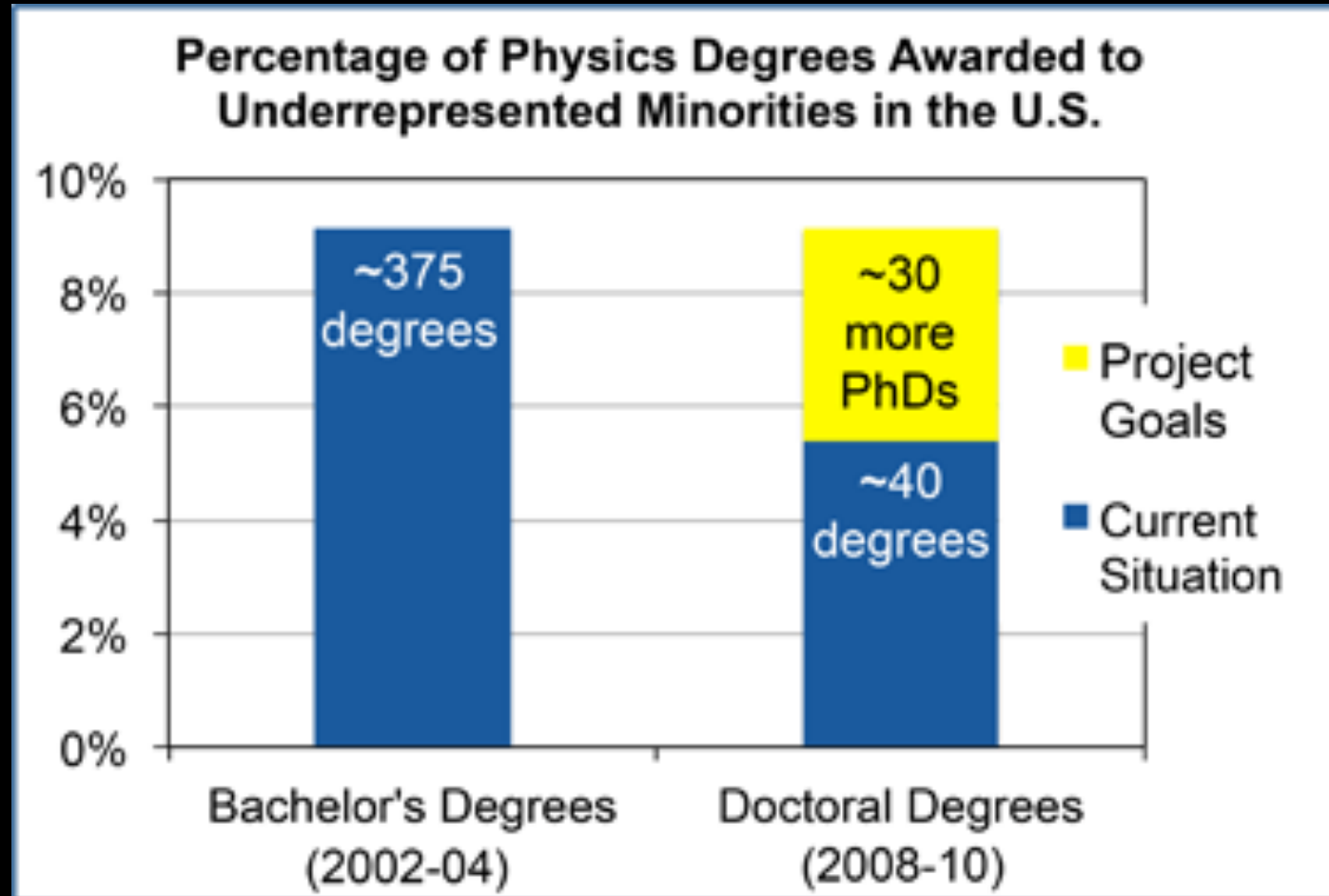
- The numbers
- The response – The APS Bridge Program
- Best Practices for building a more diverse graduate student body
- What we did at UTA
- The IGEN program and AGU
- Some Lessons Learned

# The Issue



Source: National Science Foundation and APS

# Increase the fraction of URM students going to Ph.D. programs. An achievable goal?



# The APS Bridge Program: Goals

- Increase, within a decade, the fraction 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

[apsbridgeprogram.org](http://apsbridgeprogram.org)

# Key Issues for URM grad students (Chari and Potvin, APS; Cochran et al., 2017, PERC; ++)

- Worries about GPA and GRE
- Financial support and pressure to a job
- Research opportunities
- Navigating the system
- Retention – Mentoring, Qualifying exam

# The APS Bridge Program: Structure

- Clearing house for student applications
- Development of Best Practices
- Bridge sites with APS funding
- Partnership sites without funding, but access to student applications
- National Advisory Board and collaboration with NSHP and NSBP
- Annual Bridge Program conference

# The APS Bridge Program: Some Best Practices

- Admissions – broader, more holistic
- Build department support
- Physics Graduate Student Organization
- Mentoring and Advising
- Research engagement and monitoring
- Student professional development



## URM PhDs reach same fraction as undergrad degrees

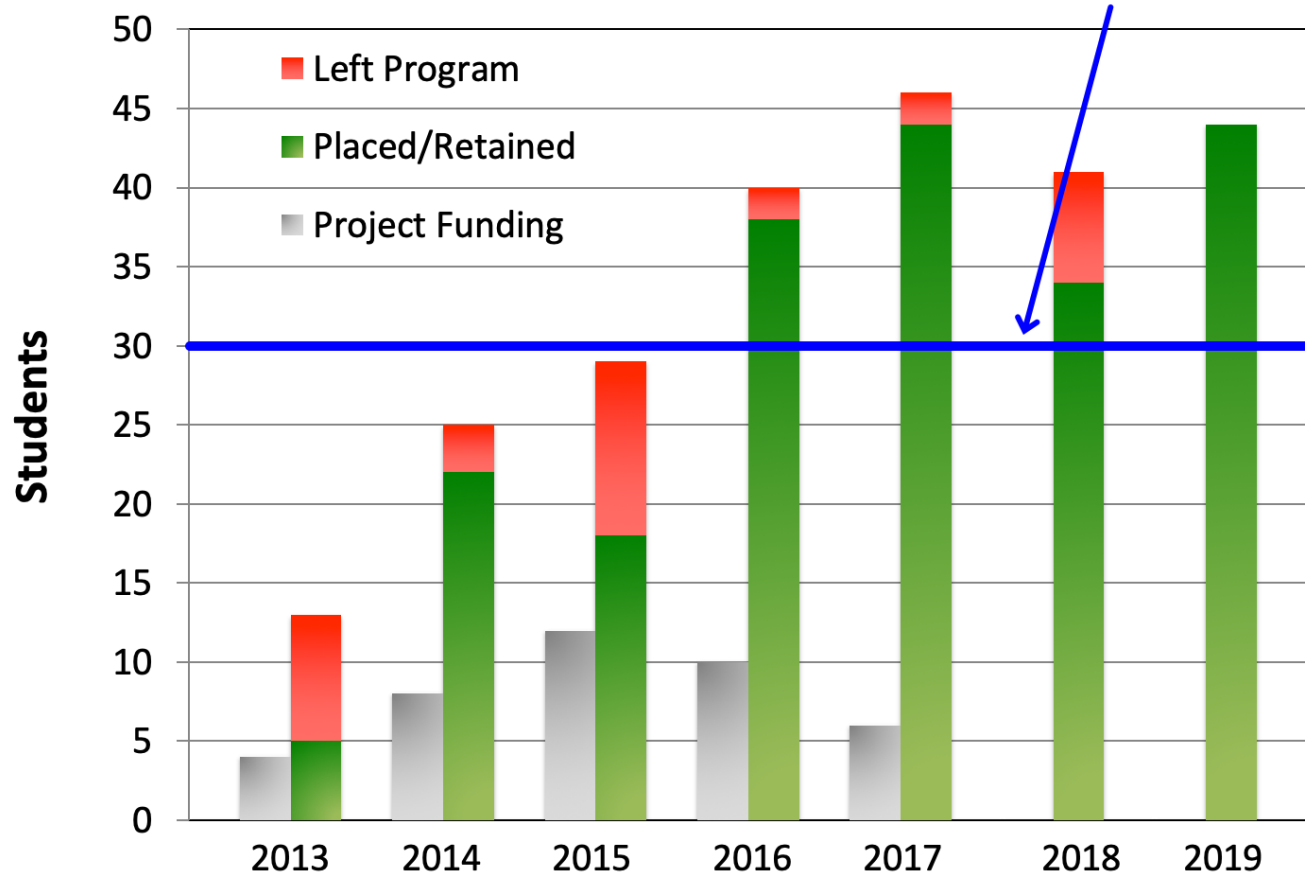


Figure 1: **Placement of Bridge Students over the life of the project.** Green bars represent students who are still part of the program, while red represents students who have left. The gray bars represent the number of students funded by the APS Bridge Program in a given year. The blue line highlights the additional PhDs needed each year for the fraction of PhDs awarded to URM to come to parity with the fraction of URM Bachelor degrees.

# UTA Physics graduate admissions

- We get about 130 applicants per year, mostly from outside the US, and the bulk from India and Nepal.
- We have an incoming class of about 10-12, and we try to maintain >50% US students.
- We typically have a 2/3 acceptance rate for our offers.
- Currently we have 60 graduate students (28% women), 32 US and 28 international.
- Of the 32 US students, 9 (28%) are women and 7 (22%) are URM students.

# Our graduate admissions

- We use GRE (general only), GPA, previous research experience, and letters as the primary data for selection.
- Best of all is when we have a recommendation from someone known to us.
- Biggest concern is that students be able to pass our qualifying exam and maintain the 85% success rate in the program.
- Typically about 1/3-1/2 of an incoming class is directly recruited.

# Recruiting efforts

- Visits to schools where faculty have personal connections, especially MSIs.
- Recruit at meetings with large number of undergrad students (APS section meetings, SACNAS/NSHP, NSBP).
- MOU with UTEP to ease the transition of students (they can take our qualifying exam there).
- Joint Ph.D. program with UT Brownsville (now UT Rio Grande Valley).
- The key is to build long-term relationships with faculty at places where you want to recruit.

# Cultural issues for Hispanic students

- Hispanic students have a strong familial connection.
- This often keeps them from leaving home to take advantage of either REU or Grad school opportunities.
- They often have little social capital to draw on.
- Building a personal bridge to these students is very important.

# Partnership with APS

## IGEN and AGU

- In 2015, UTA became the first partnership institution in the APS Bridge Program
- We used this as leverage to get one additional GTA slot specifically for an APS Bridge student.
- APS has a new project, IGEN, to expand the model to other disciplines. AGU and AAS are partners.

# Lessons learned

- It is possible to recruit and retain URM students, but you need to be deliberate about it.
- Building relationships with faculty at MSIs will be key for space physics.
- Find a way to shift the system. Go to the APS Bridge Program site or the IGEN site and find out what you could do.