

Bridge Program Meeting

11 October 2015

Miami, FL

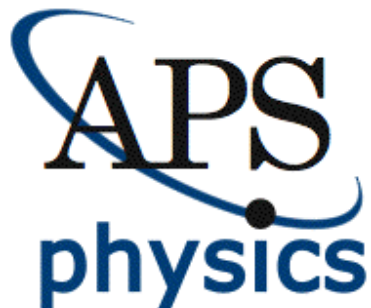
What is the APS Bridge Program ***Bridge Program Best Practices***

Theodore Hodapp

Director of Education and Diversity
American Physical Society

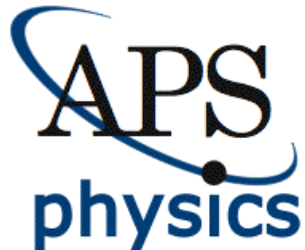
Brian Beckford

University of Michigan



Education and Diversity

Staff



- **Monica Plisch** (Assoc. Dir., PhysTEC)
- **Renee Michelle Goertzen** (Project Manager, PhysTEC, Research)
- **Kathryne Woodle** (Project Manager, NMC, Bridge Program, PhysTEC)
- **<OPEN>** (Project Manager, Bridge Program)
- **Arlene Modeste Knowles** (Diversity Liaison)
- **Deanna Ratnikova** (Committees, CUWiP)
- **Michelle Campbell** (Coord., PhysTEC)
- **Asmaa Khatib** (Coord., Bridge Program)
- **Susan Sargent** (Coord., NMC, PhysTEC)

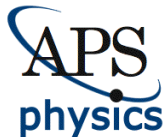
Leadership / Oversight

National Advisory Committee

- J.D. Garcia (Arizona)
- Yolanda George (AAAS)
- Paul Gueye (NSBP)
- Wendell Hill (UMCP)
- **Anthony Johnson (Chair, UMBC)**
- **Brittany Kamai** (Grad student)
- Ramon Lopez (UT Arlington)
- Luz Martinez-Miranda (NSHP)
- James Mathis (Grad student)
- Steve McGuire (Southern University)
- **Ritchie Patterson** (Cornell)

Funding

- NSF (PHY, DMR, HRD)
- APS



Architect's Council

- Marcel Agüeros (Columbia)
- Ed Bertschinger (MIT)
- Andreas Bill (CSU Long Beach)
- Simon Capstick (Florida State)
- Cagliyan Kurdak (Michigan)
- Garrett Matthews (USF)
- Jon Pelz (Ohio State)
- Talat Rahman (UCF)
- Keivan Stassun (Fisk/Vanderbilt)
- Jon Urheim (Indiana)

Research / Assessment

- Geoff Potvin (FIU-Research advisor)
- Rachel Scherr (SPU-Project evaluator)
- Postdoc **<OPEN>**

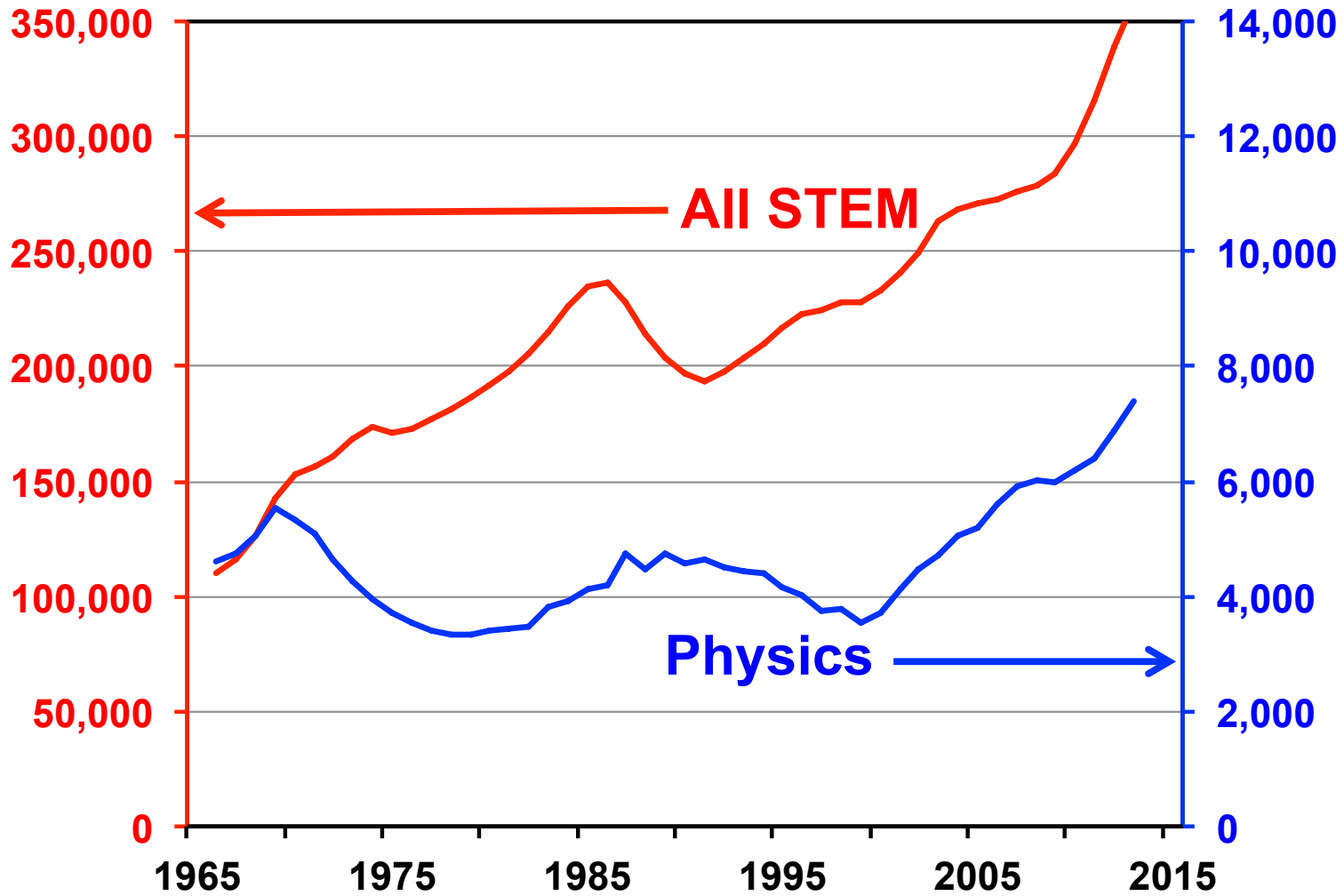
8.2 JOINT DIVERSITY STATEMENT

(Adopted by Council on November 16, 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.

Physics / STEM Bachelor Degrees

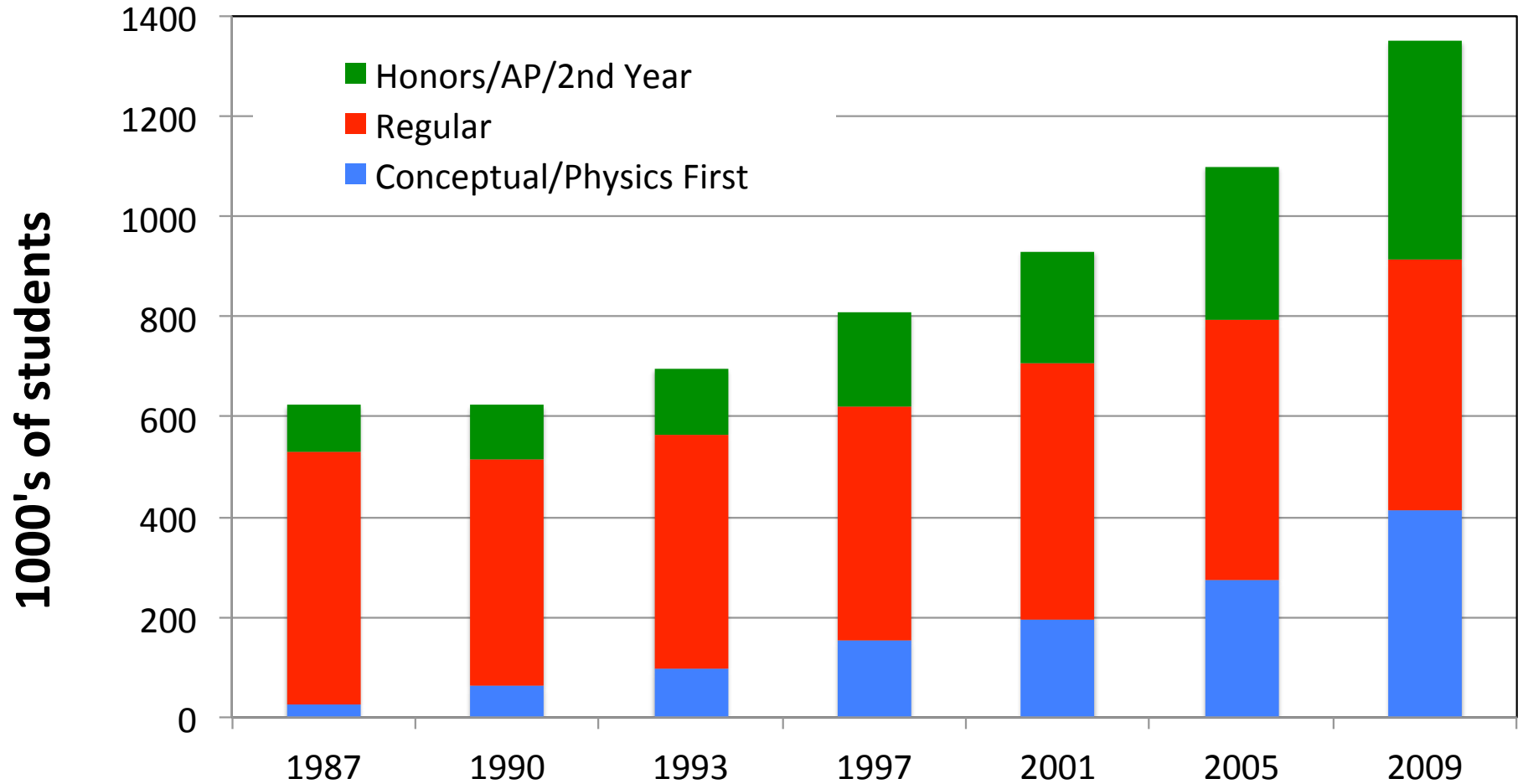


Source: IPEDS Completion Survey

www.aps.org

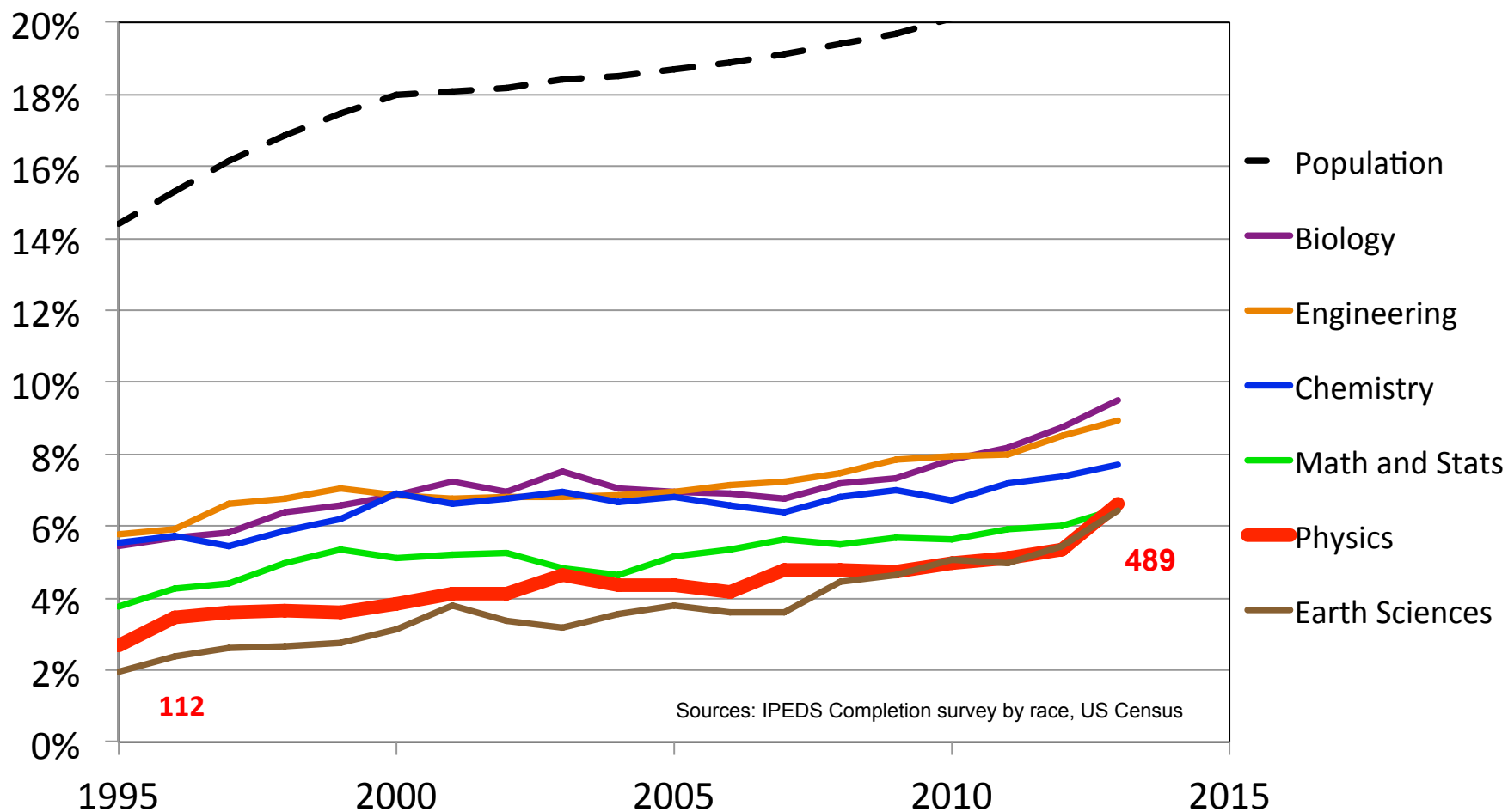
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High School Physics Enrollments

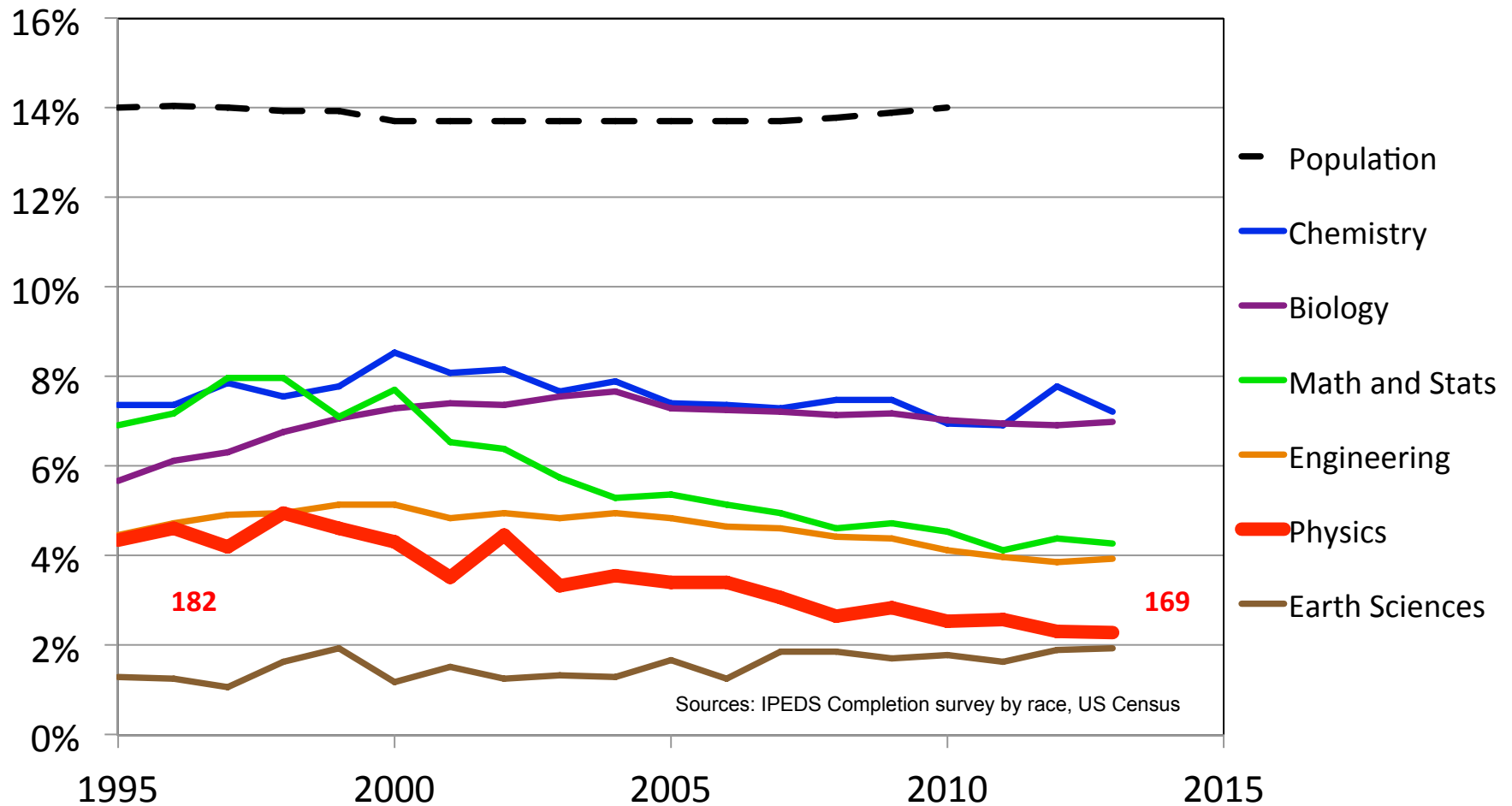


Source: AIP Statistical Research Center

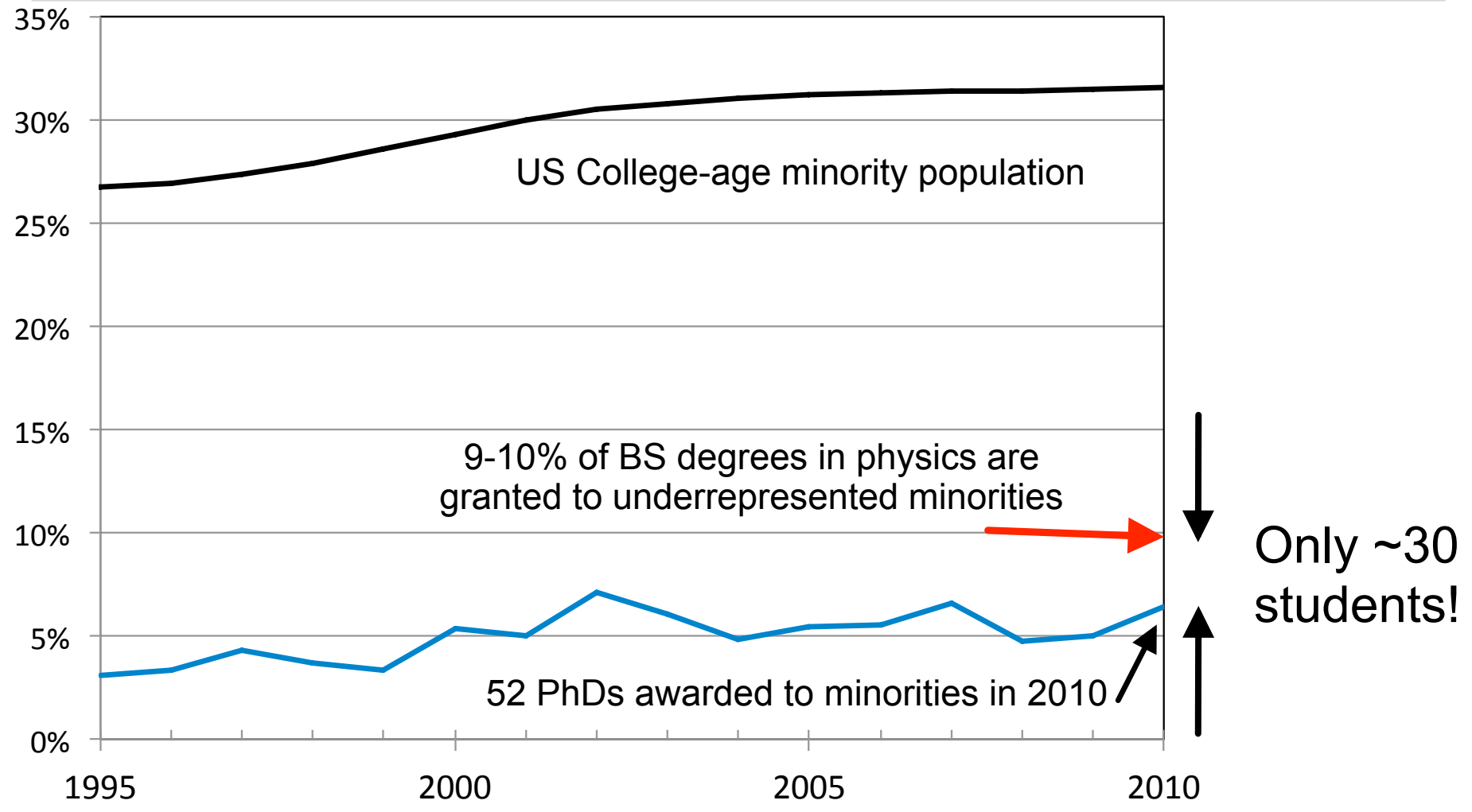
Hispanic American Bachelor Degrees



African American Bachelor Degrees



URM Physics PhDs to Minority Population



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**

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

We review applications AFTER April 15

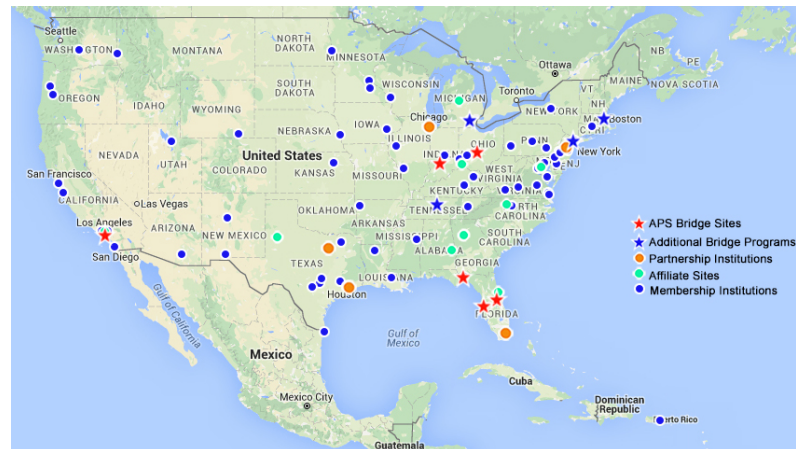
Bridge Programs in Physics

APS Sites :

- Cal State Long Beach
- Florida State University
- Indiana University
- Ohio State University
- University of Central Florida
- University of South Florida

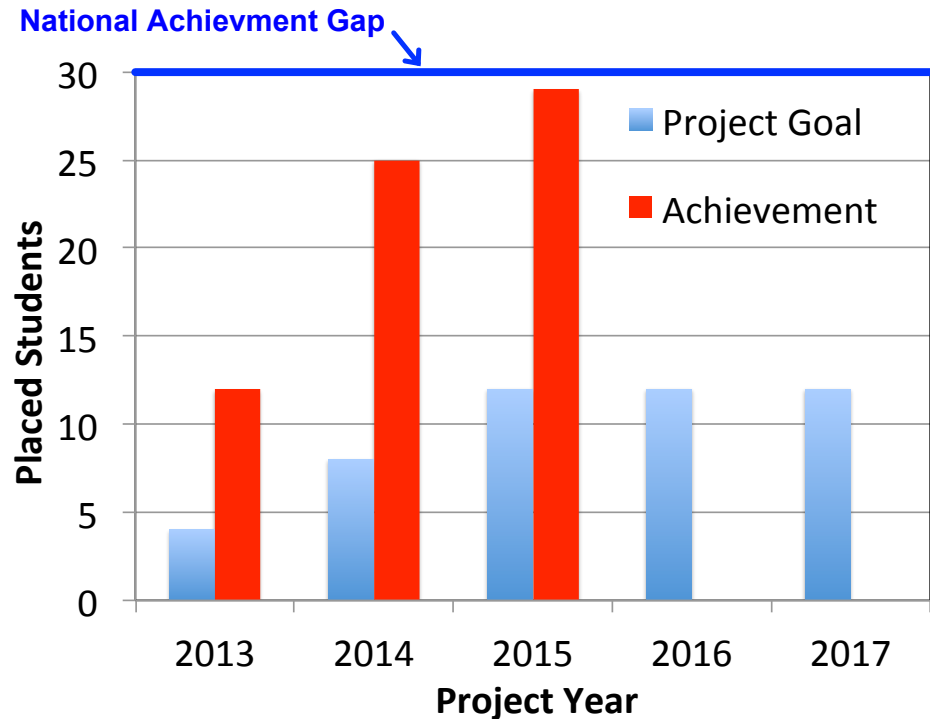
Non-APS Sites:

- Columbia University
- Fisk / Vanderbilt
- MIT
- Princeton University
- University of Chicago
- University of Michigan



Bridge Program Achievements

- 6 Bridge Sites (2 others self-funded)
- 95% retention rate
- 5+ institutions self-fund extra students from our pool
- Increasing by ~30/yr answers national need
- Research into admissions: how are departments using GRE and other measures, correlations with outcomes
- Lots of interest by departments and students



Bridge Sites and Partnership Institutions

- 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)

What we didn't know...

...and learning this surprised us!

1. Aggregating applications is a powerful tool
2. Graduate programs (most) want to do better
3. Admissions are not what they seem
4. Applications are expensive
5. Importance of graduate student groups

Some reasons students are not admitted

Students:

- Low Physics GRE scores
- Apply to too few places
- Apply to wrong places
- “Feel” unprepared (self-esteem)
- Inadequate preparation: will fail in grad courses
- Application materials do not tell a predictive story

Admissions Committees:

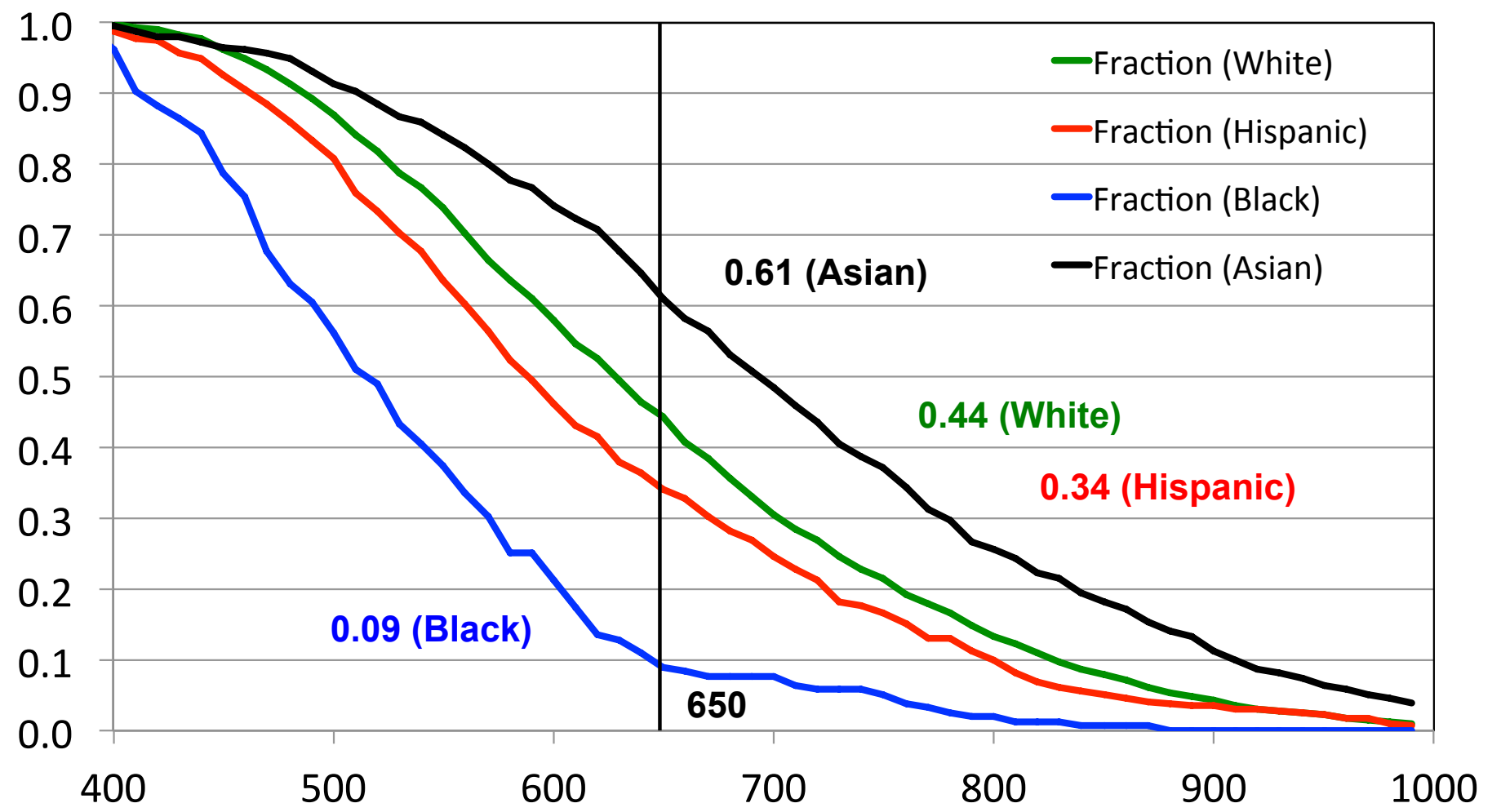
- Members overwhelmed
- Members unaware of scholarship

- **Graduate admissions study**
 - Doctoral institutions
 - Master's institutions
- **GRE (and other) admissions data:** Correlations with student success; impact on diversity
- **Holistic admissions practices:** practical use of non-cognitive measures or other practical techniques for use by physics graduate admissions faculty (parallel effort by CGS)

Considering:

- Student perspective on admissions

Physics GRE: Impact of Cutoff Scores



Next Steps...

- Long-term sustainability of advances made by Bridge Program
- Interface with APS National Mentoring Community
- Better understand graduate admissions and advocate for a better informed process

Happy Physicists \Rightarrow Great Physics