

# APS Leadership Convocation

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*2 February 2018*

*Washington, DC*

## ***APS Education and Diversity Programs***

*Monica Plisch, Director of Education and Diversity*

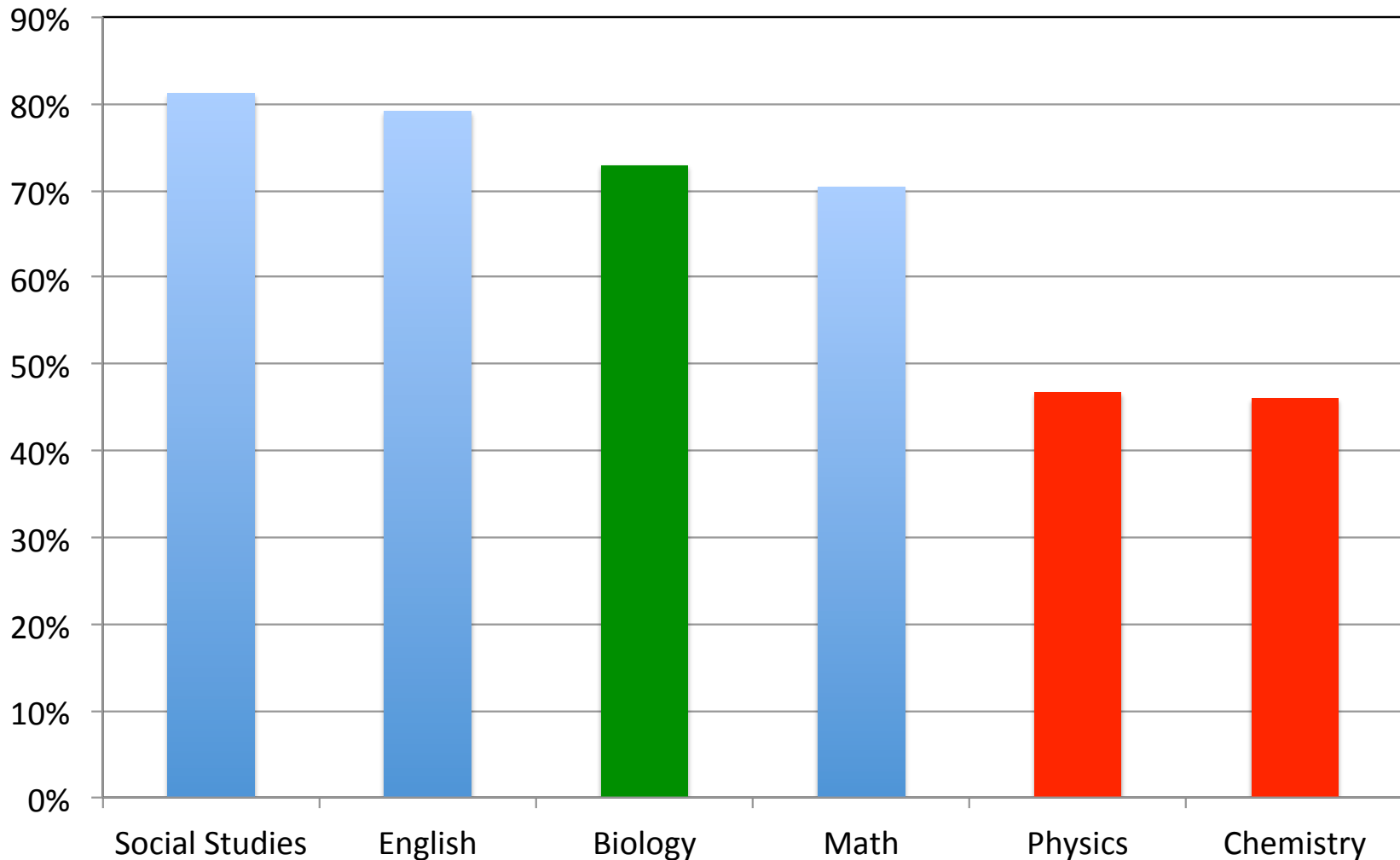
# APS Education and Diversity



- Conferences for Undergraduate Women in Physics (CUWiP)
- New Faculty Workshop
- Physics Chairs Meeting
- REU Site Leaders Conference
- Professional Skills Workshops
- Graduate Education Conference
- LGBT Climate in Physics report
- Mentoring seminar curriculum
- Ethics case studies
- Joint Task Force on Undergraduate Physics Programs report
- Physics education posters
- More...

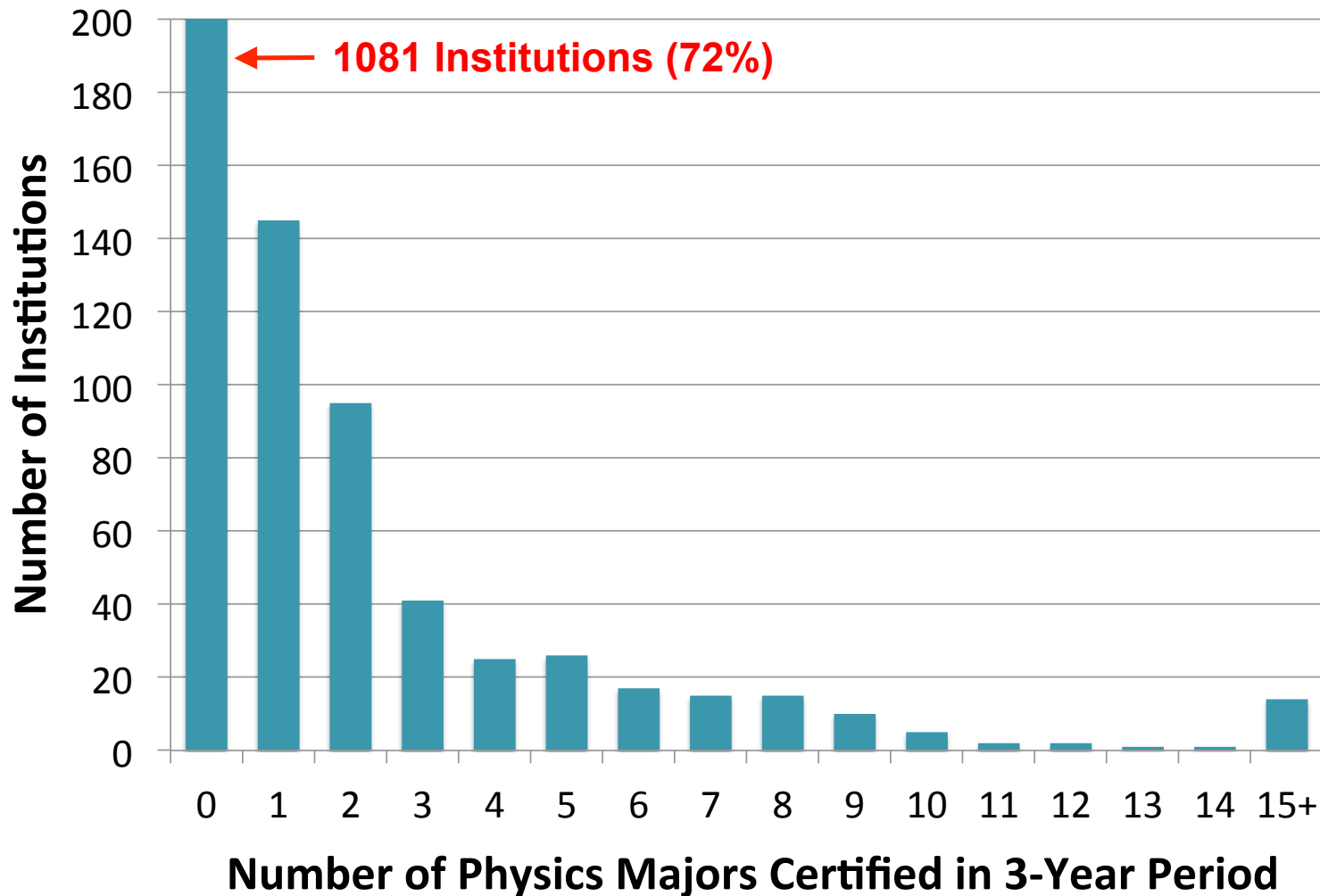
- Sessions/talks
  - Education topics
  - Diversity topics
- Workshops
  - Effective mentoring practices
  - Professional skills for women
- Honors
  - Inclusive practices for fellows, prizes, awards
- Meetings
  - Childcare grants
  - APS code of conduct
- Unit diversity statistics
- Unit committee on education / diversity

# High school classes taught by teacher with degree in the field



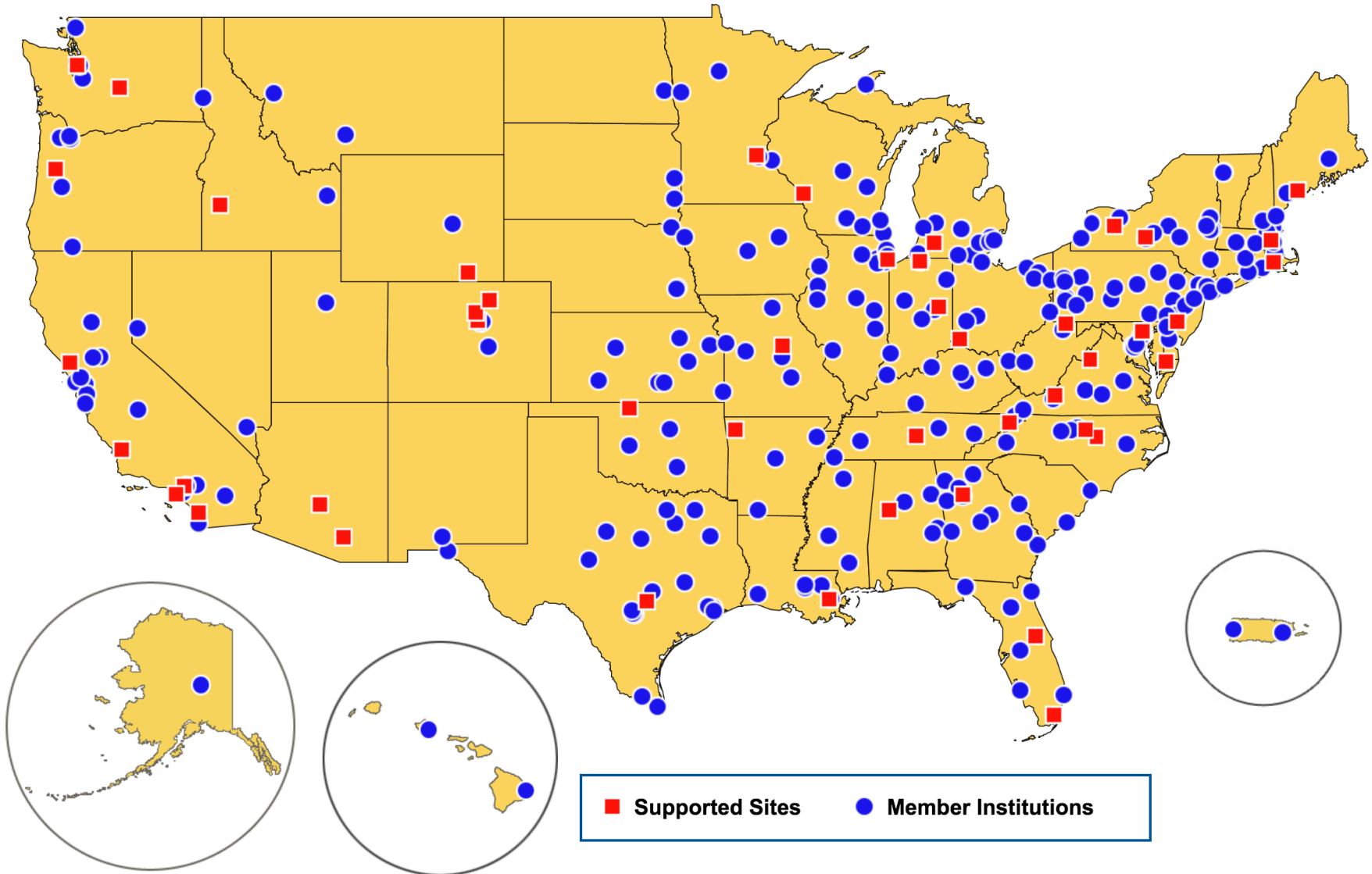
Source: Schools and Staffing Survey

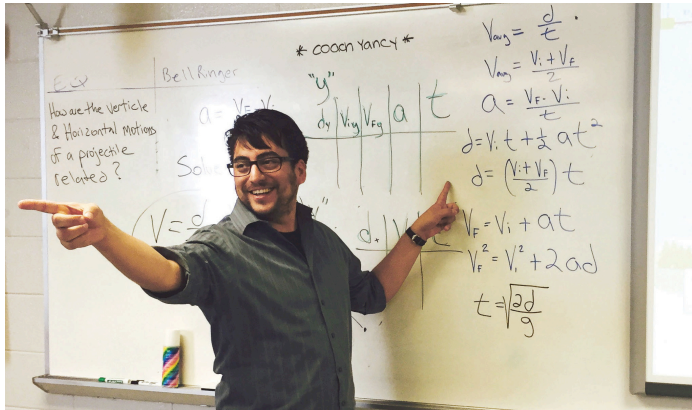
# Numbers of new physics teachers educated



Source: Title II

# Physics Teacher Education Coalition (PhysTEC)





- 46 PhysTEC Sites educate **1 in 8** physics teachers with a degree
- *Comprehensive* Sites nearly **tripled** their numbers of physics teachers
- Retention rates for new PhysTEC teachers are **over 70% after 5 years**

## Key Components

- Recruiting
- Course reform
- Early teaching experiences
- Mentoring and induction
- Learning Assistants
- Teacher in Residence
- Champion
- Collaboration
- Institutional commitment
- Assessment

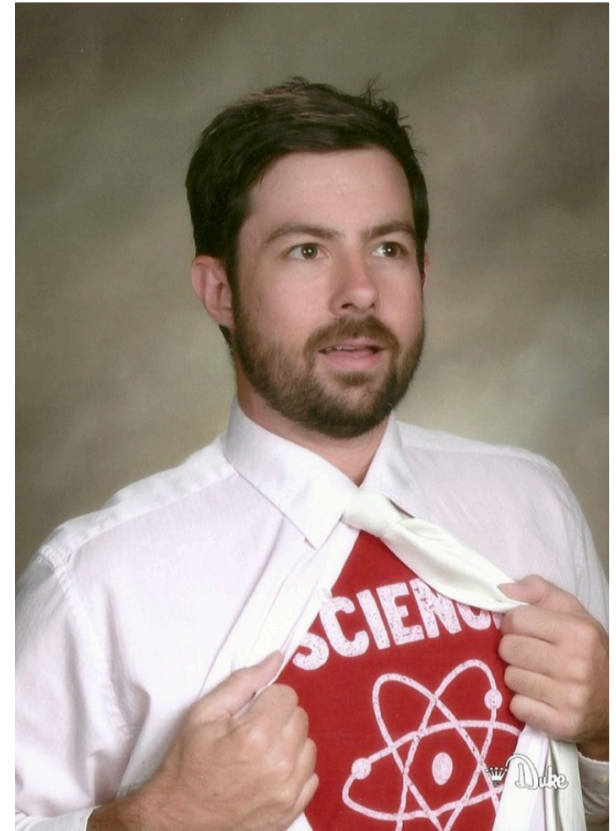
# Recruiting physics teachers

“Physics teacher candidates are in your program: They just need the opportunity to discover how rewarding teaching can be.”

– *Alma Robinson, Virginia Tech*

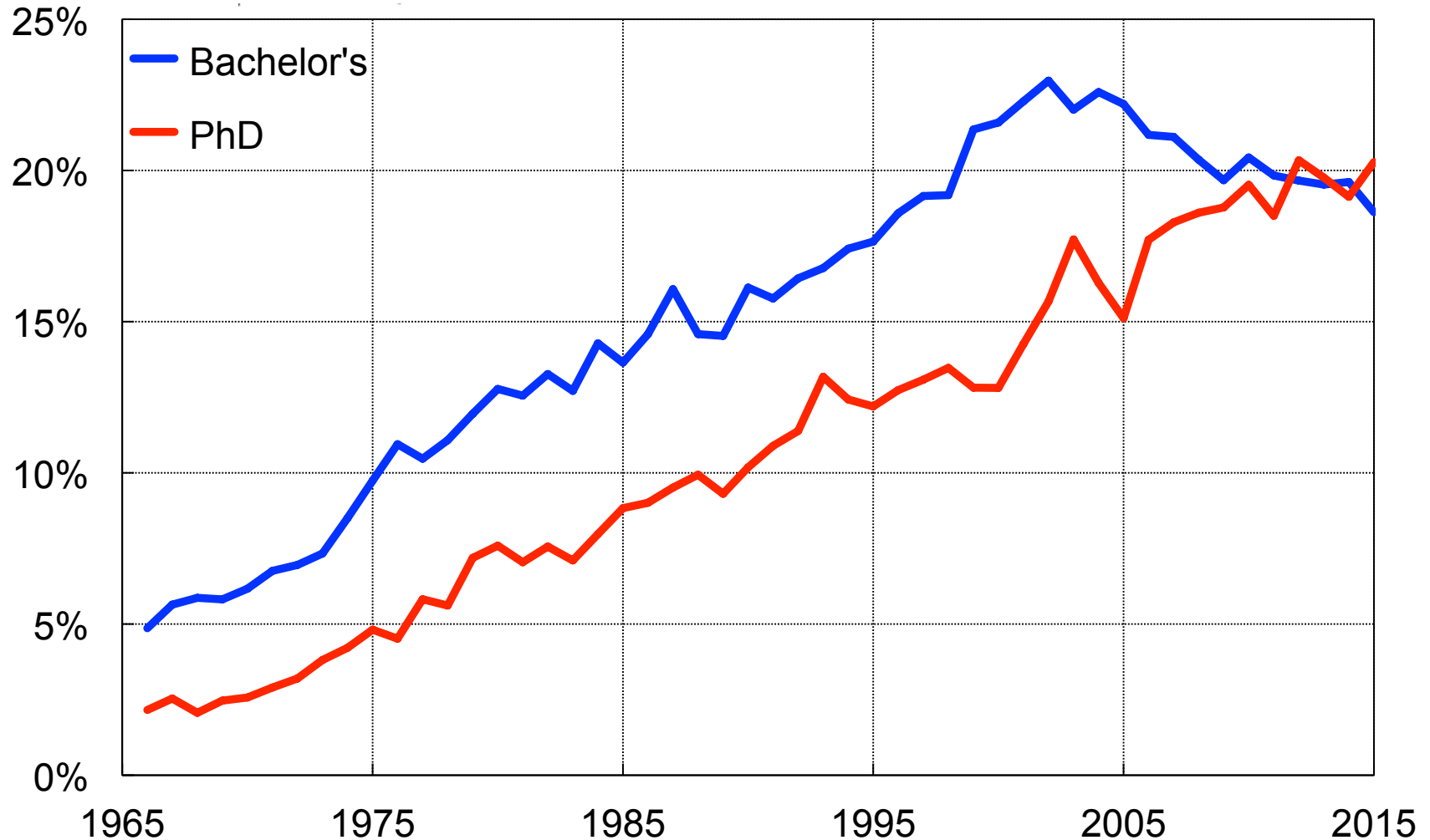
“I’ve been generally surprised how many physics students were interested once they knew that teaching is an option.”

– *Brian Thoms, Georgia State*



Zachary Kovach,  
La Joya Community High School

# Participation of Women in Physics



Source: IPEDS and APS

# APS Conferences for Undergraduate Women in Physics

## 2018 CUWIP CONFERENCE SITE LOCATIONS

If you have any questions,  
please email  
[women@aps.org](mailto:women@aps.org)

### 5 Cal Poly Pomona/Pomona College/Harvey Mudd College

Alaska  
California (South of San Jose)  
Hawaii

### 6 Arizona State University

Arizona  
Colorado  
Nevada  
New Mexico  
Utah

### 7 University of Kansas

Arkansas  
Kansas  
Missouri  
Nebraska  
Oklahoma  
Texas

### 8 University of North Florida

Alabama  
Florida  
Georgia  
Louisiana  
Mississippi  
Puerto Rico  
South Carolina

### 1 University of Oregon

California (San Jose and north)  
Idaho  
Montana  
Oregon  
Washington  
Wyoming

### 2 Iowa State

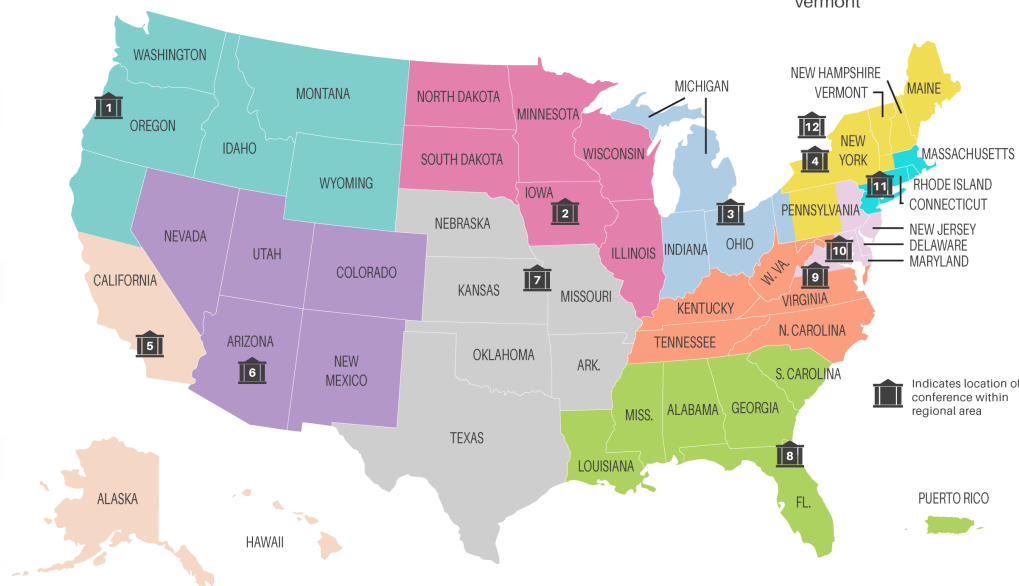
Illinois  
Iowa  
Minnesota  
North Dakota  
South Dakota  
Wisconsin

### 3 University of Toledo

Indiana  
Michigan  
Ohio  
Pennsylvania (Pittsburgh and  
west)

### 4 Rochester Institute of Technology

Maine  
Massachusetts (West of I-91)  
New Hampshire  
New York (North of Poughkeepsie)  
Pennsylvania (Central -  
Harrisburg)  
Vermont



### 9 University of Virginia

Kentucky  
Maryland (Frederick and west)  
North Carolina  
Tennessee  
Virginia (Fredericksburg and  
south)  
West Virginia

### 10 George Washington University

District of Columbia  
Delaware  
Maryland (East of Fredrick)  
New Jersey (Trenton and south)  
Pennsylvania (Eastern, Lancaster)  
Virginia (North of Fredricksburg)

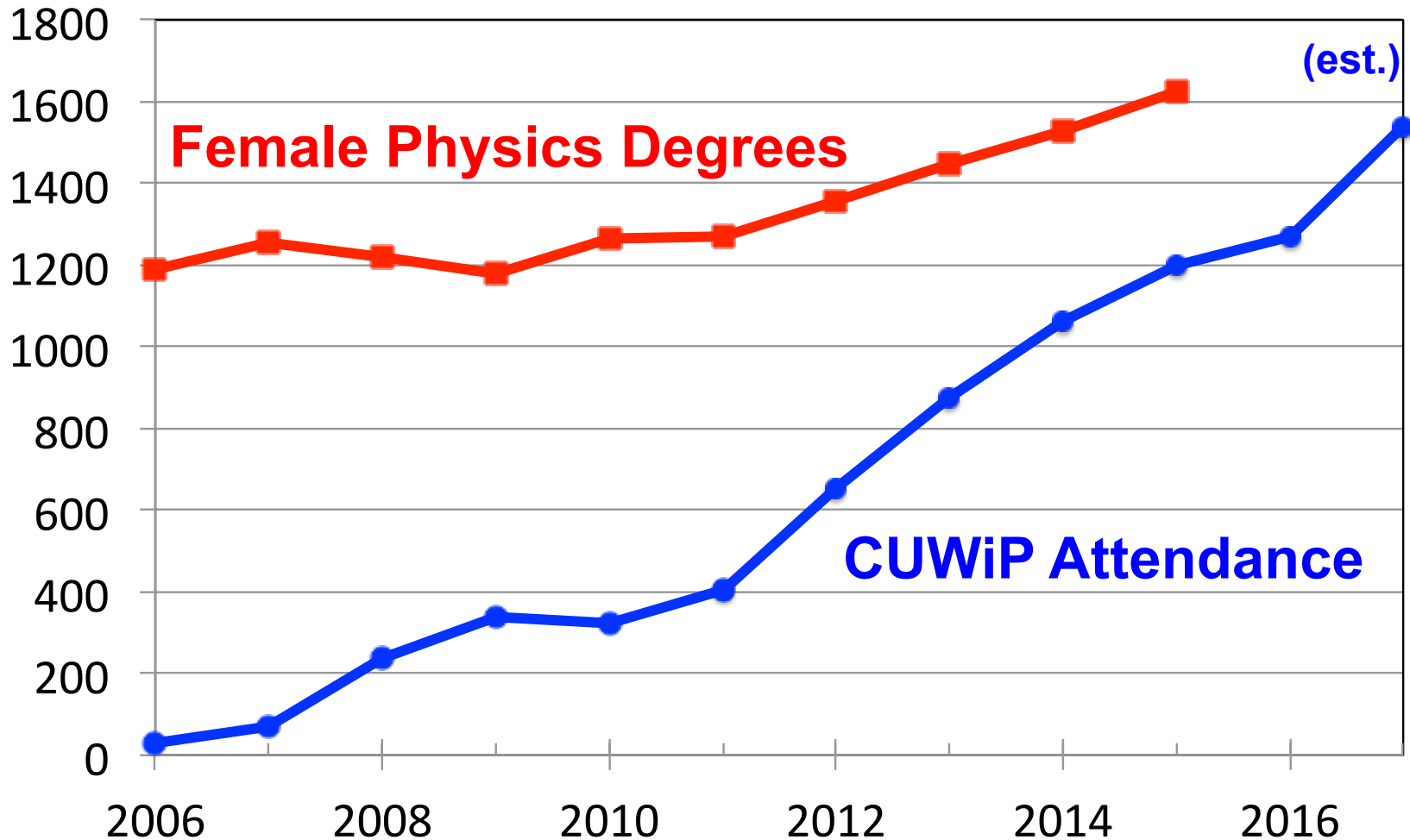
### 11 Columbia/Barnard/ City College

Connecticut  
Massachusetts (East of I-91,  
including Springfield)  
New Jersey (North of Trenton)  
New York (Poughkeepsie and  
south)  
Rhode Island

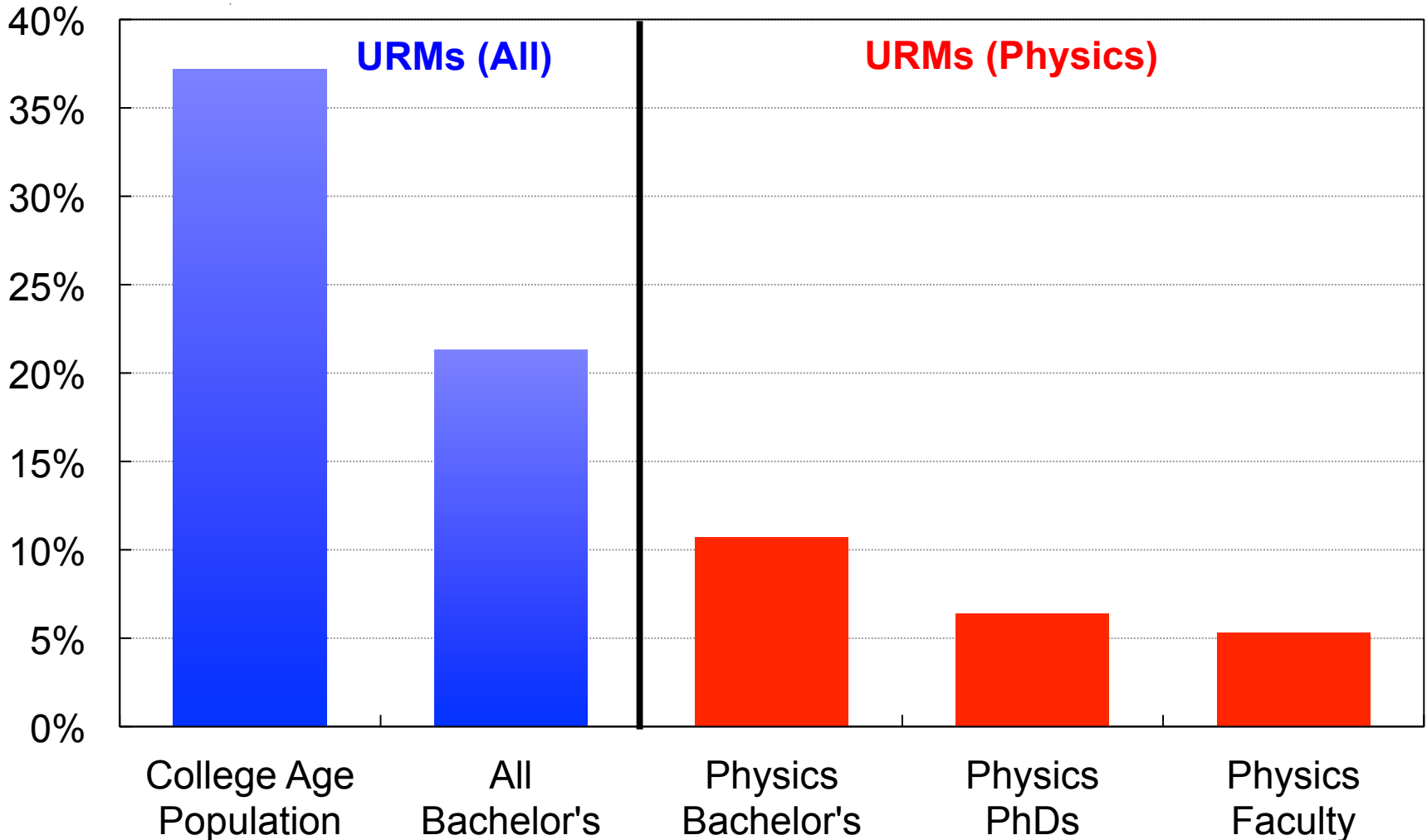
### 12 Queens University in Canada

Site location includes all  
Canadian provinces

# CUWiP Participation



# Participation of Underrepresented Minorities (URM) in Physics

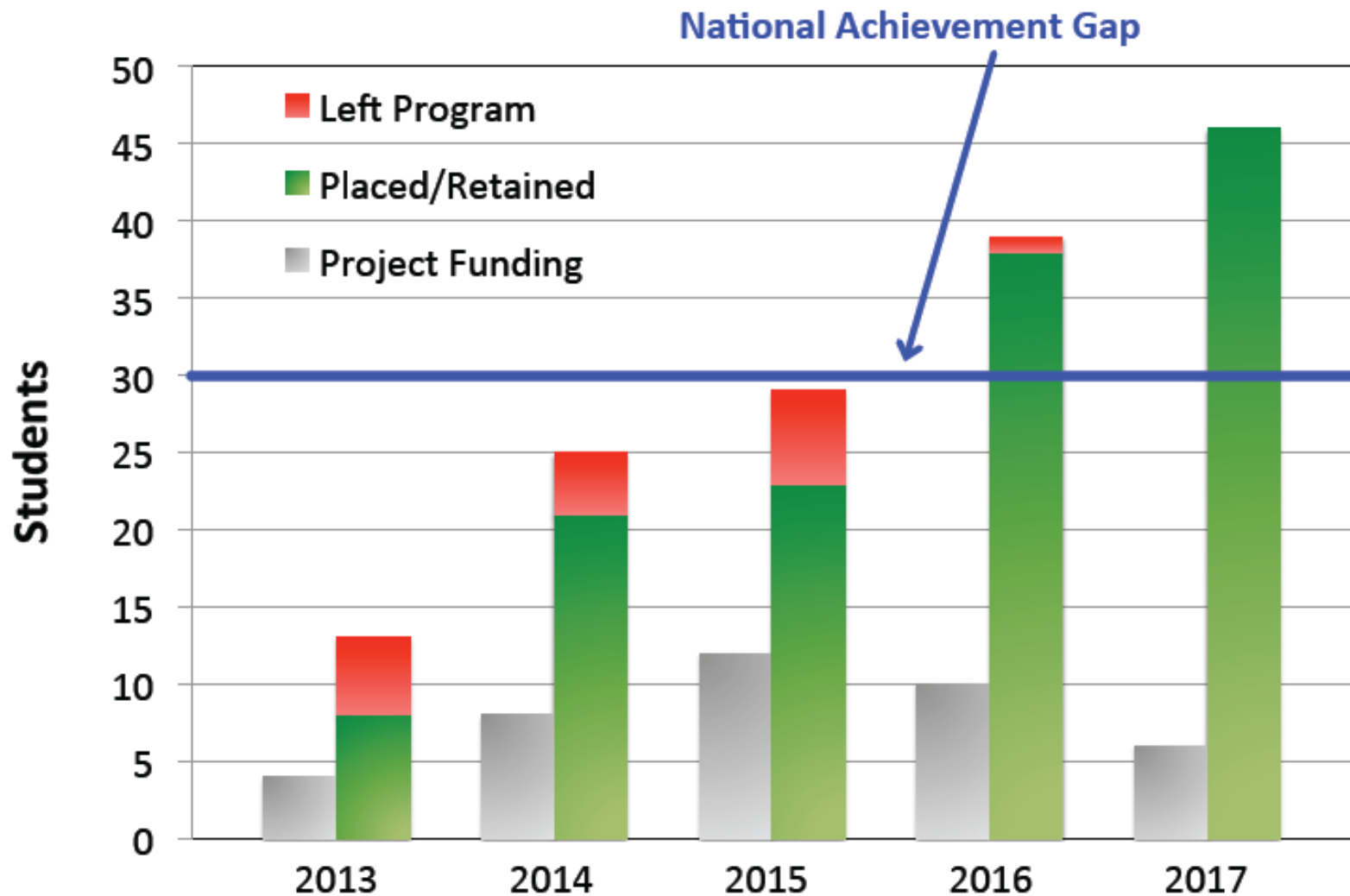


Source: US Census, IPEDS, AIP, and APS

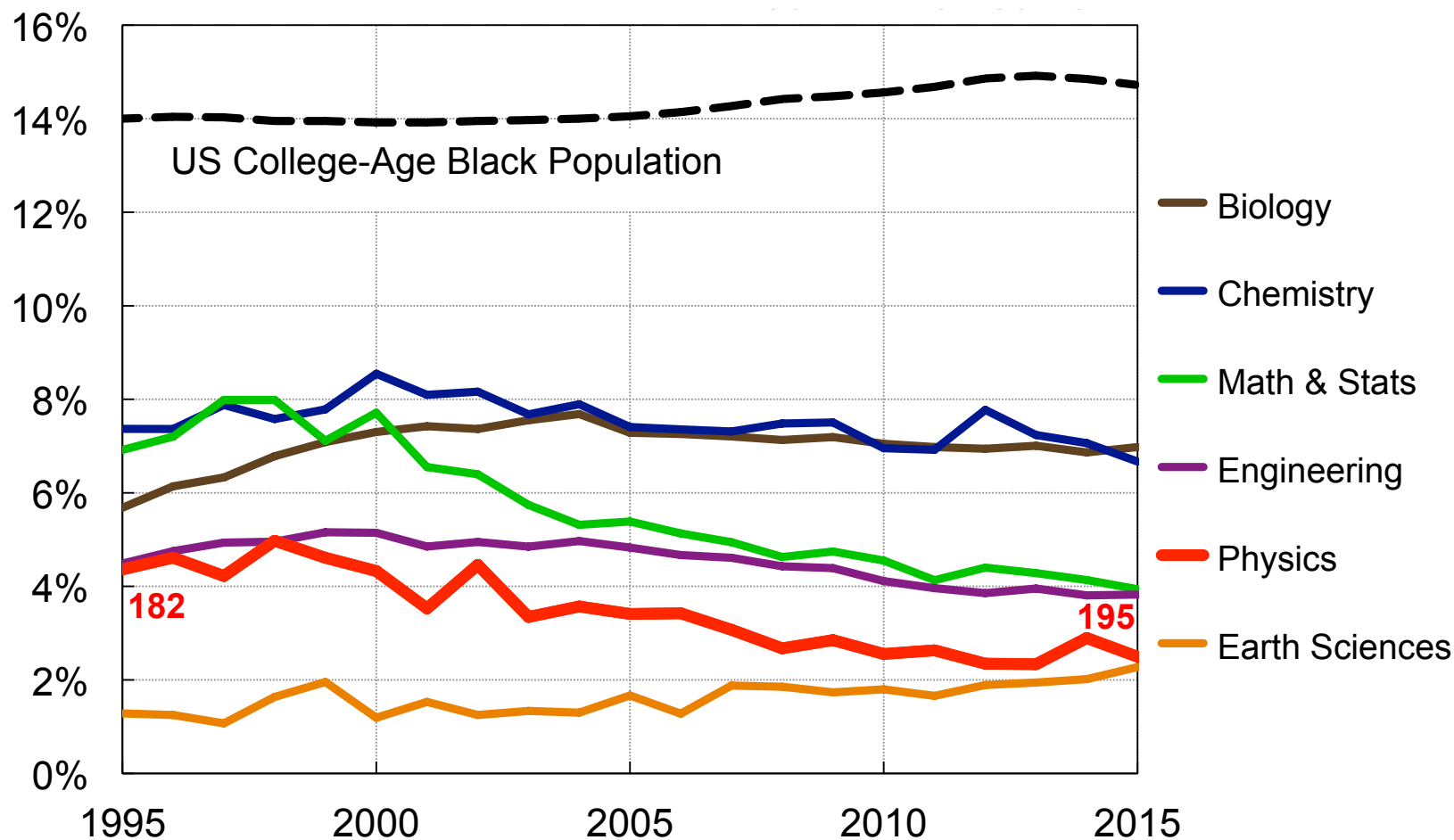
# APS Bridge Program: Key Features

- **Recruit** students not accepted to graduate programs
- **Place students in Bridge Programs (6):**
  - Coursework, research, mentoring, induction, progress monitoring
  - For students who demonstrate potential but underprepared
- **Place students at Partnership Institutions (29):**
  - "COM approved" programs
  - Students directly admitted to doctoral program
- **Monitor** student/site progress
- **Research**
- **Disseminate / Advocate**

# APS Bridge Program Achievement

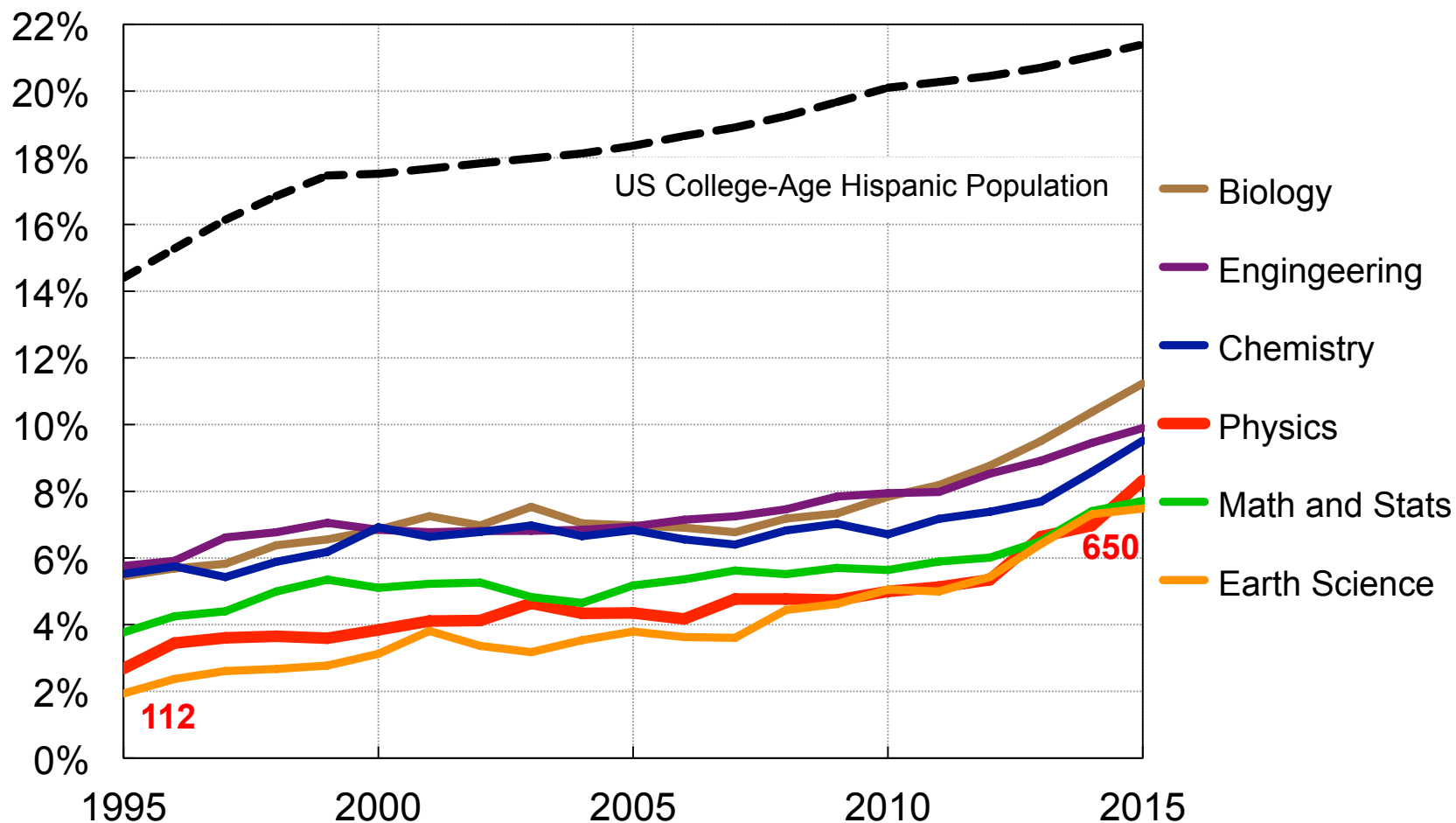


# African American Bachelor Degrees



Source: IPEDS, US Census, APS

# Hispanic American Bachelor Degrees



Source: IPEDS, US Census, APS

**Mission:** To increase the number of underrepresented ethnic and racial minorities who complete a physics BS degree

**Program components:**

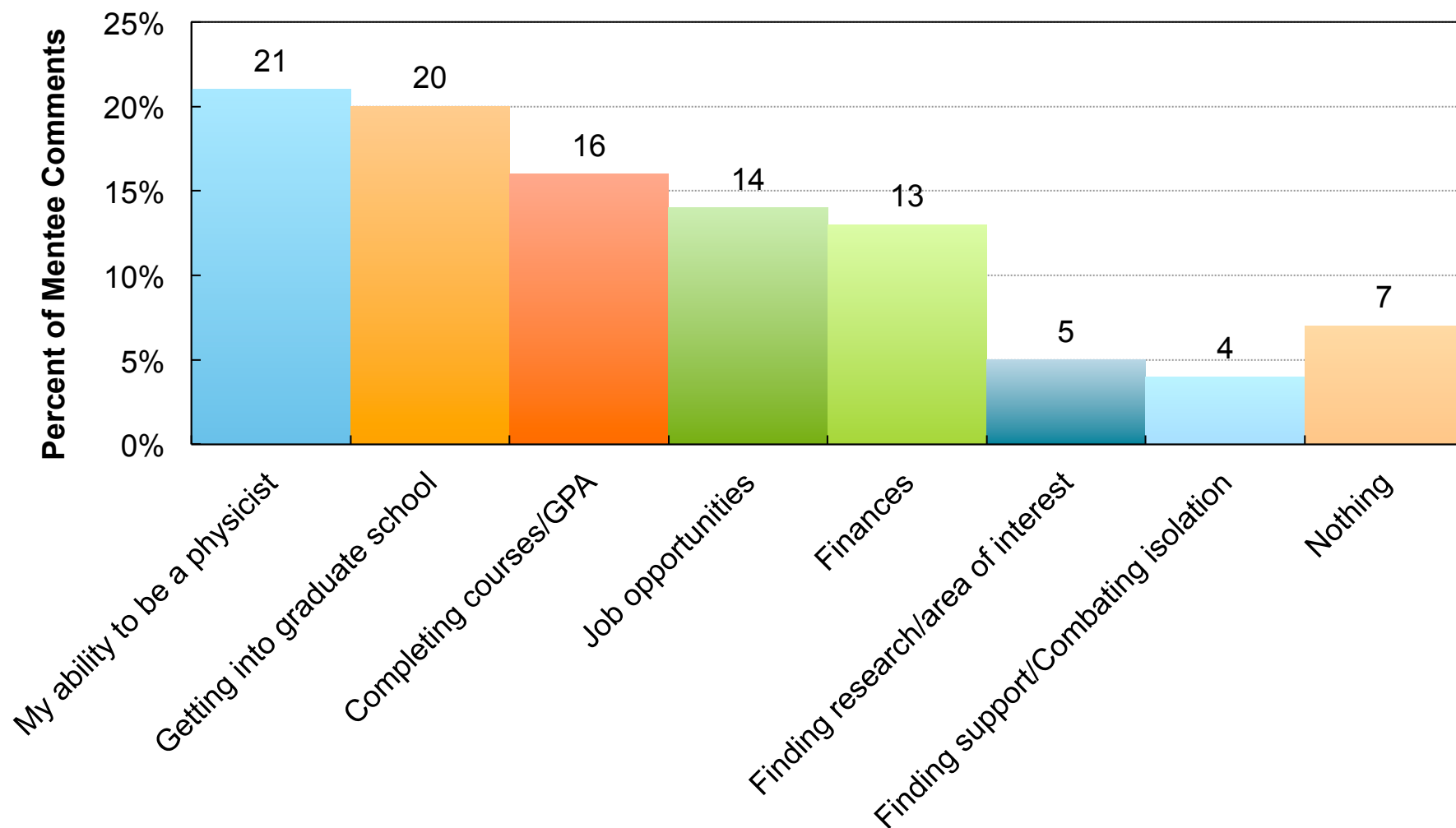
- Pair undergraduates with local faculty mentors
- Annual conference
- Email prompts
- Workshops/PD
- BEAM fund

**Sign up now!**

- [www.aps.org/nmc](http://www.aps.org/nmc)
- Email: [NMC@aps.org](mailto:NMC@aps.org)



# Biggest concerns with finishing physics degree



- All mentees reported the program was useful, and it helped them gain confidence, knowledge, and opportunities.
- One-third of mentees reported the mentoring significantly increased their intent to complete a BS degree in physics.
- Mentees' intent to go to graduate school increased significantly due to the program.

- “[The NMC] opened my chances for opportunities I thought I would never have. I mean that with the deepest sincerities.”
- “[The NMC] connected me to other physicists and afforded me visibility of our diversity. Physicists get typecast into a certain demeanor, look, and nature, but NMC brought together various physicists of all types. It bolstered the self-confidence that I had knowing that we are unified by the pursuit of answers, but otherwise diverse.”

# Physics GRE: Impact of Cutoff Scores

