

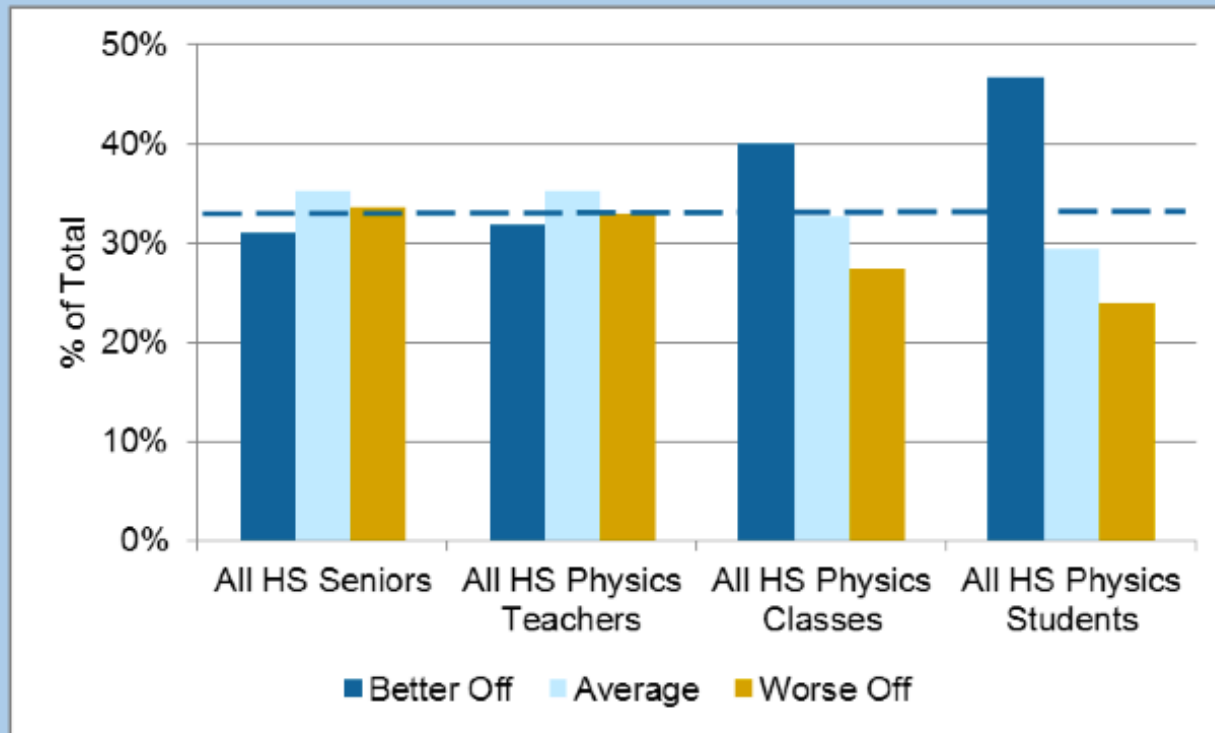
Diversity in Physics

Who the Diversity Group is and What We Do

- Started by three graduate students in 2010
- **Mission Statement:** The goal of PandA Diversity at JHU is to **increase awareness of the underrepresentation of groups** based on race, gender, disability, sexuality, etc. in the fields of Physics and Astronomy with **a focus on the causes and the resulting implicit and explicit discrimination** faced by these groups. We **propose and carry out possible solutions**, with the aim of **increasing diversity and striving towards a climate of equal opportunity** for all in these fields.
- **Website:** <https://sites.google.com/site/pandadiversity/>

The “Leaky Pipeline”: Birth -> HS

**Percent of Seniors, Physics Teachers, Classes, and Enrollments
by Socioeconomic Profile of the School[‡]**
U.S. Public High Schools Only, 2008-09

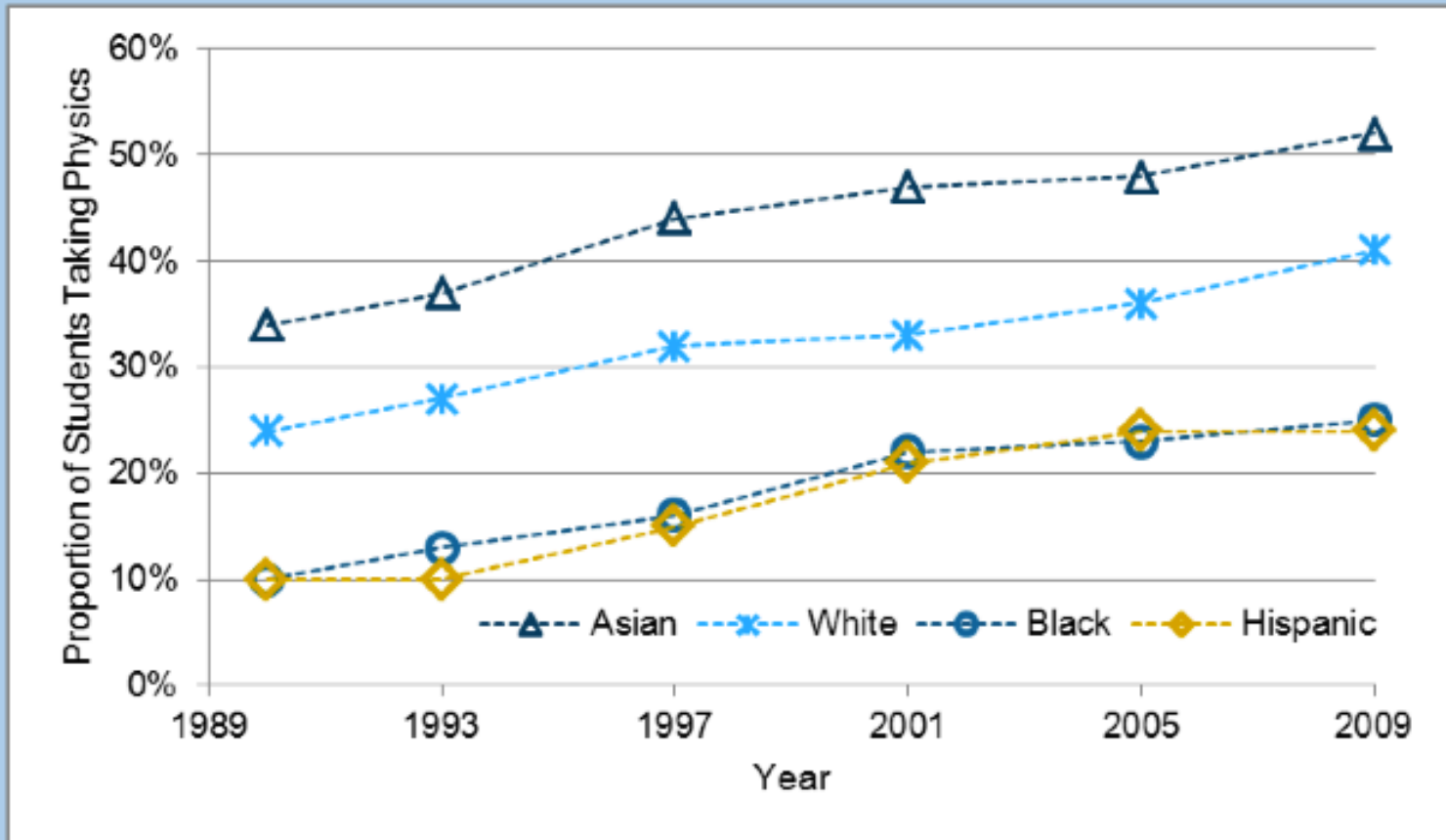


[‡] Teacher/principal assessment of student economic circumstances relative to those of students at other schools in the local area.

-- The dashed line is at 33.3%. If there were no differences by socioeconomic profile of the school, then each bar would be this tall. Small variations are not statistically significant.

The “Leaky Pipeline”: Birth -> HS

**Proportion of Students in Each Racial or Ethnic Group Taking Physics*
All U.S. High Schools**

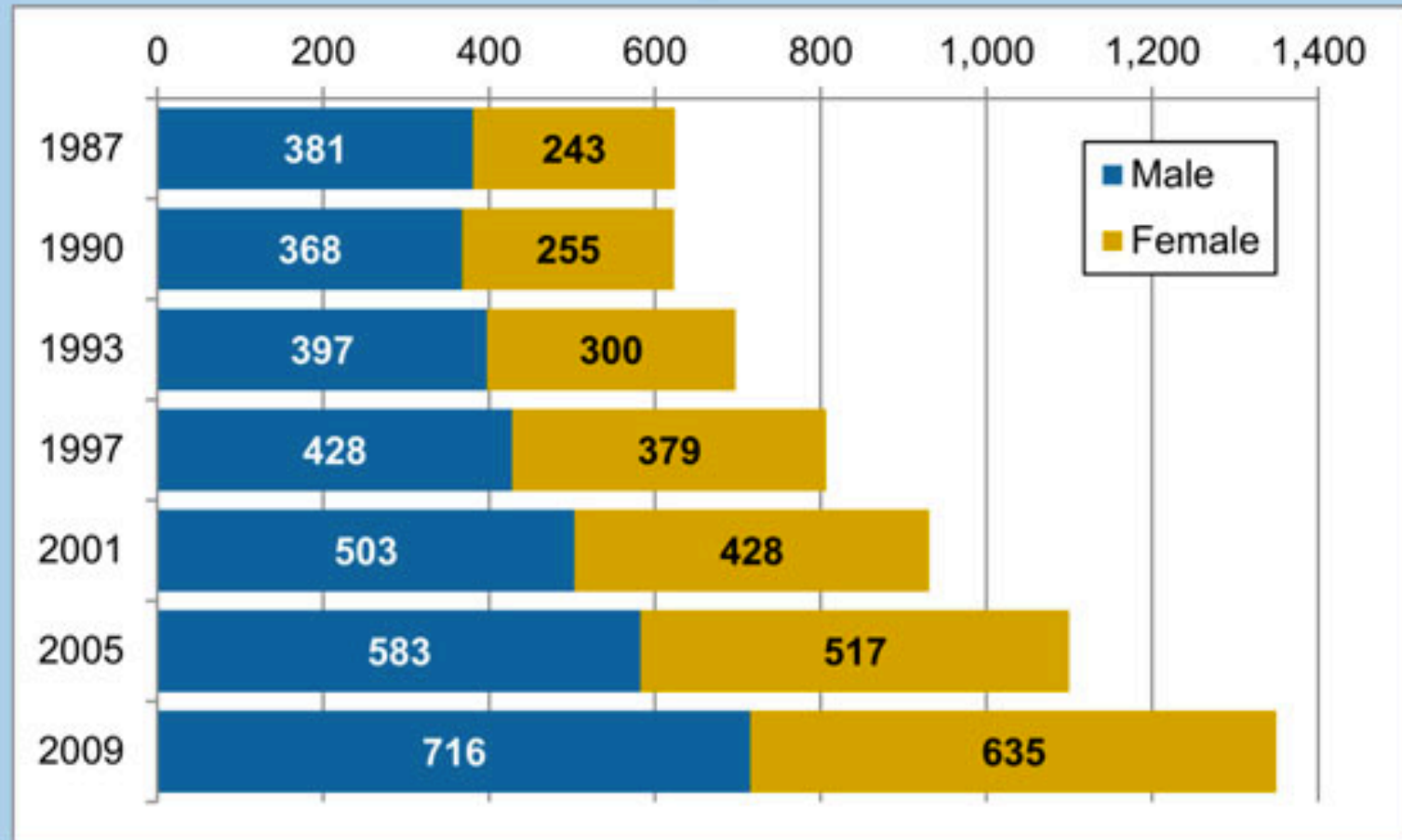


* A closer examination of the data reveals that these differences are likely driven more by socioeconomic factors than by race.

<http://www.aip.org/statistics>

The “Leaky Pipeline”: HS -> Bachelors

**Number of Male and Female Physics Students
All US High Schools**



Numbers in thousands

<http://www.aip.org/statistics>

The “Leaky Pipeline”: HS -> Bachelors

Demographic Characteristics of Exiting Physics Master’s, Classes of 2010, 2011 & 2012 Combined.

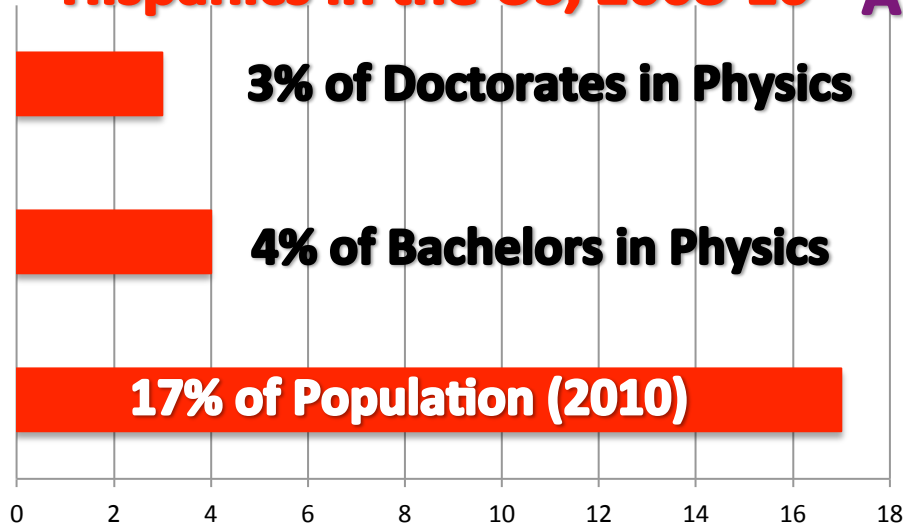
Sex	Male	77%
	Female	23%
Citizenship	U.S.	68%
	Non-U.S.	32%
Average Age		28.9

Note: Exiting physics master’s are individuals who upon receiving their degrees leave their current departments. They include graduates from departments where the master’s is the highest degree offered as well as master’s leaving departments that offer a PhD.

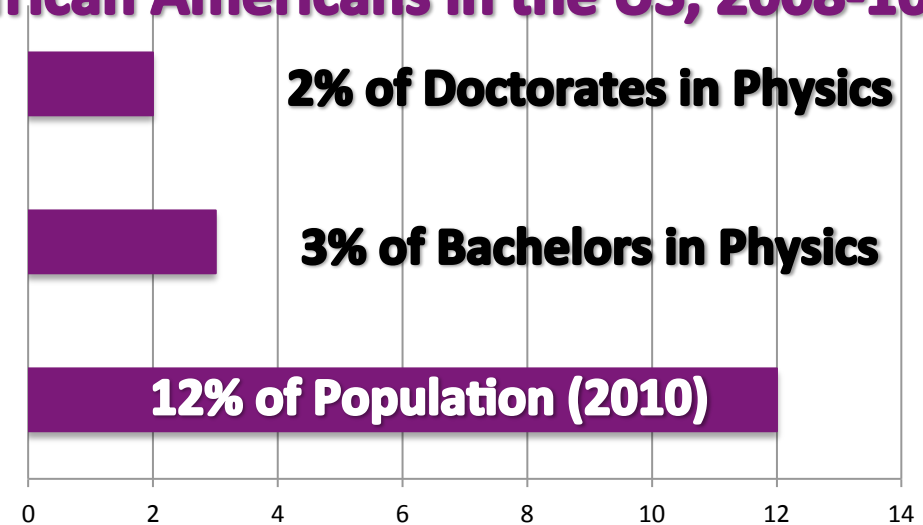
<http://www.aip.org/statistics>

The “Leaky Pipeline”: Bachelors -> PhD

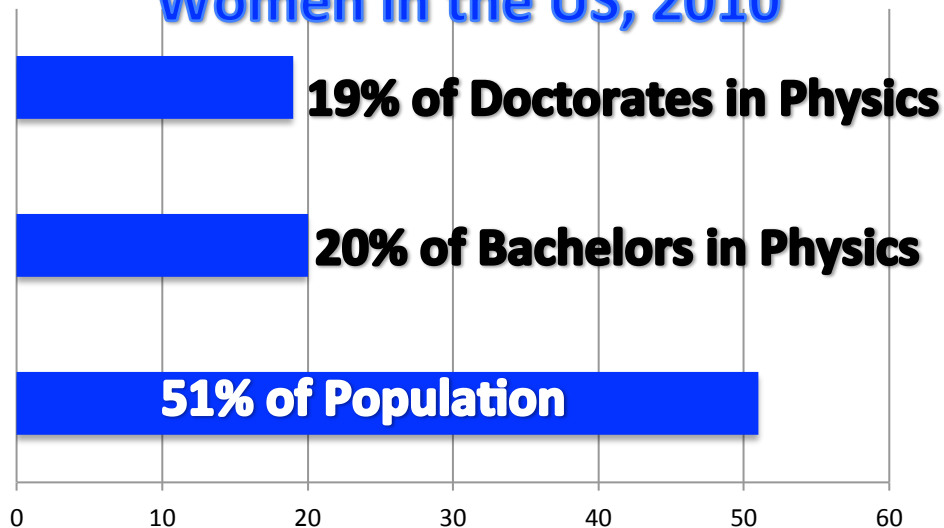
Hispanics in the US, 2008-10



African Americans in the US, 2008-10



Women in the US, 2010



-Women in US:

<http://www.indexmundi.com/facts/united-states/quick-facts/all-states/female-population-percentage#map>

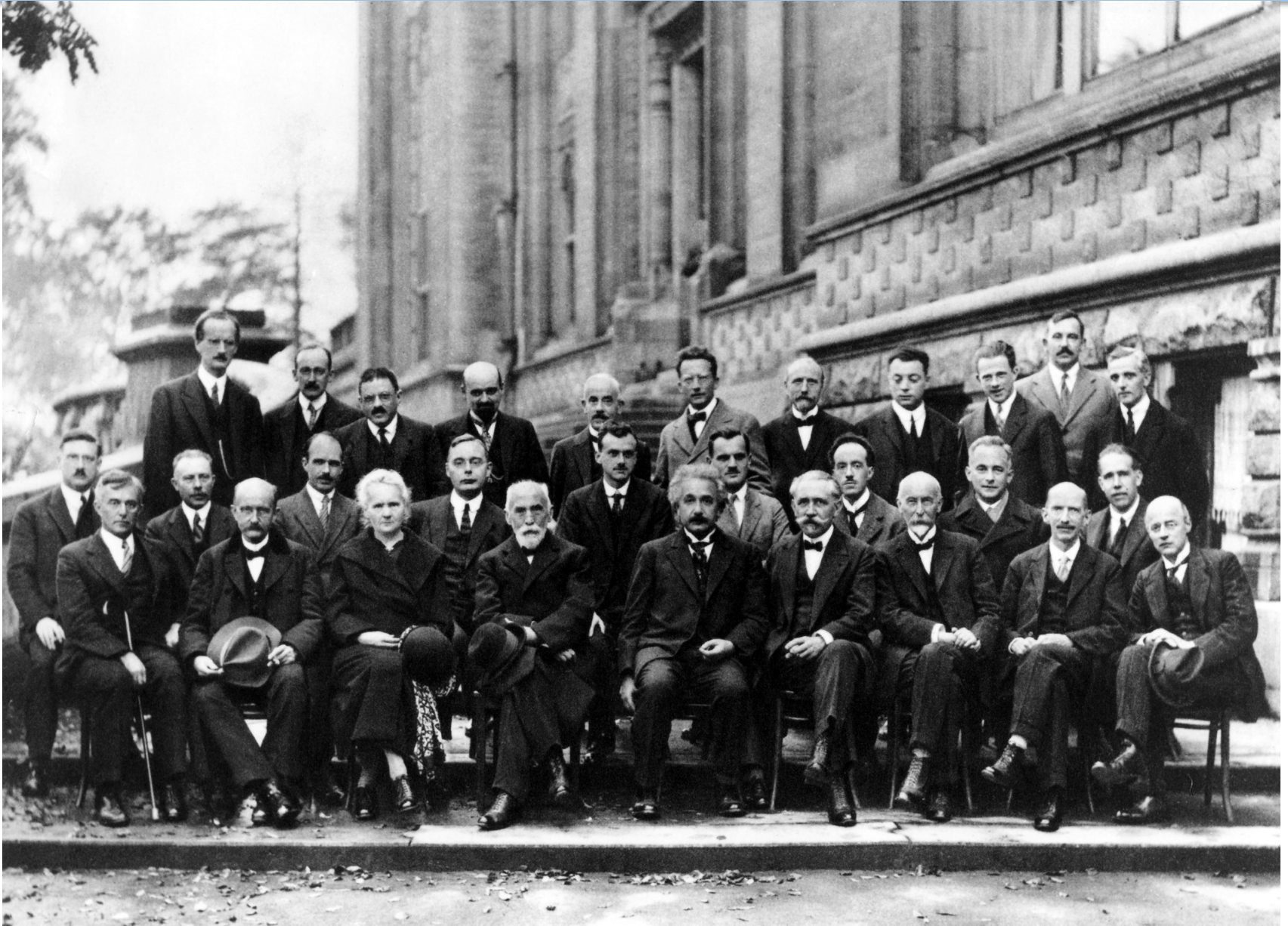
-Women in Physics: IPEDS Completion Survey & NSF-NIH Survey of Graduate Students and Postdoctorates in Science and Engineering courtesy of APS

-Hispanics/African-Americans in US:

<http://kff.org/other/state-indicator/distribution-by-raceethnicity/>

-Hispanics/African-Americans in Physics:
<http://www.aip.org/statistics/trends/reports/physbach0910.pdf>

Solvay Conference 1927



Solvay Conference 2011



How Can We Help?

- External validation
 - Supporting students by encouraging them to consider STEM as an option
- Reactions to discrimination in the classroom
 - What is the most effective way to stop overt discrimination?
- Group work vs. solitary
 - How to separate students into groups?
 - Stereotype threat in standardized tests
- Group answers vs. raising hands
 - Clickers or asking students to raise a sheet of paper to answer questions – how important is anonymity?