Professional Culture and Climate: Addressing Unconscious Bias

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[+] The views presented here do not necessarily represent those of the National Science Foundation

Unconscious Bias

"If you asked me to name the greatest discoveries of the past 50 years, alongside things like the internet and the Higgs particle, I would include the discovery of unconscious biases, and *the extent to which stereotypes about gender, race, sexual orientation, socioeconomic status, and age deprive people of equal opportunity in the workplace and equal justice in society."*

-Prof. Nancy Hopkins

MIT Professor of Biology

Boston University Graduation

May 18, 2014

Unconscious Bias

"Unconscious bias" is also known as "implicit bias" or "implicit social cognition." It affects:

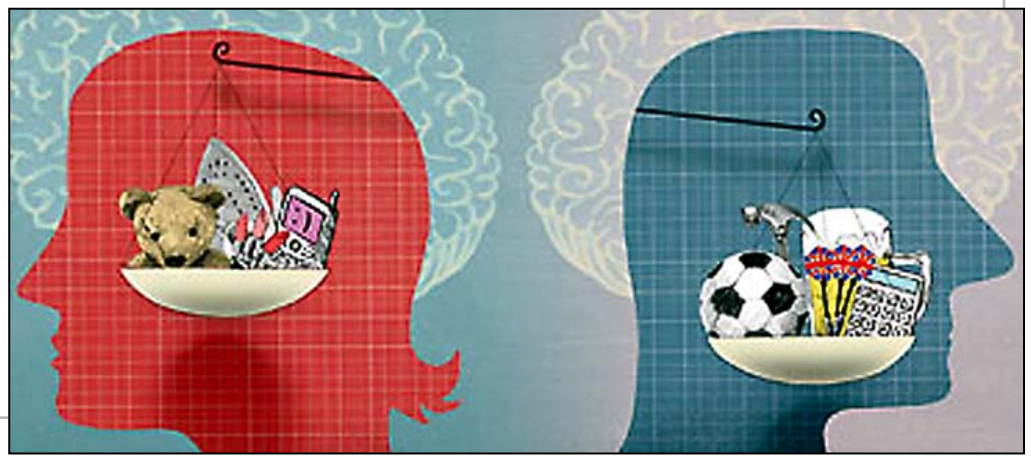
- The way people interact with you
- The way *you* interact with others

- It's critical to consider both as you move along your career path!

Maintain "Constant Vigilance"

Unconscious Bias

- Expectations or stereotypes influence our judgments of others (*regardless of our own group*).
- Gender:
  - Men judging women; women judging women
  - Men and women BOTH downplay the contributions of women
- Race/ethnicity
  - Whites judging minorities; minorities judging minorities
  - Whites and minorities downplay the minorities
- Unconscious bias is
  - NOT discrimination
  - NOT prejudice



Schemas …

Schemas are expectations or hypotheses about the characteristics of a person based on their group membership; they

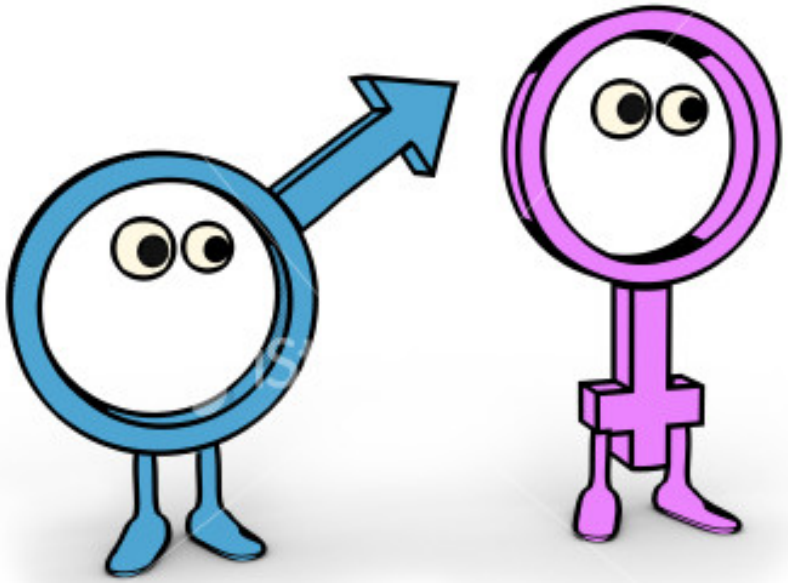
- influence group members' expectations about how they will be judged.
- allow efficient, if sometimes inaccurate, processing of information.
- often conflict with consciously held or "explicit" attitudes.
- change based on experience/exposure.

Nosek, Banaji, & Greenwald (2002). *Group Dynamics: Theory, Research and Practice*, 6, 101-115.

Fiske, Cuddy, Glick, & Xu (2002). *Journal of Personality and Social Psychology, 82*(6), 878-902.

Schemas are applied more often under circumstances of:

- Lack of critical mass
- Time pressure
- Stress from competing tasks
- Ambiguity (including lack of information)



Fiske (2002). *Current Directions in Psychological Science, 11*, 123-128.

Schema

- A well-dressed businessman draws a knife on a vagrant.
- The onlookers may (and often do) "remember" the vagrant pulling the knife.
- Results of these studies are starting to question the reliability of eye witnesses.

From Wikipedia, the free encyclopedia

Bias Is Prevalent Everywhere

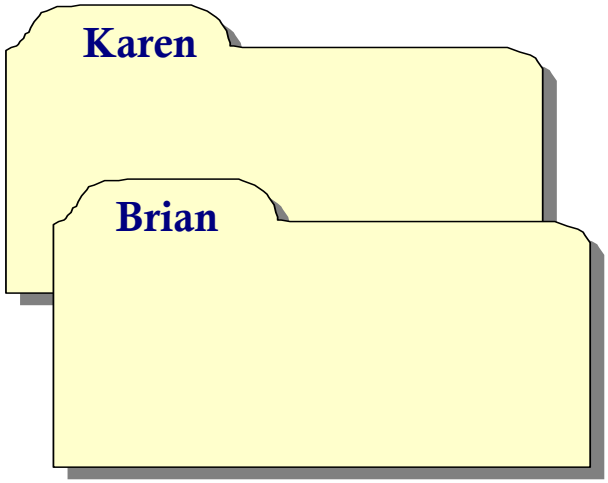
A recent study found that there are widespread disparities in the administration of corporal punishment by race, gender and disability status. For example:

- In Alabama and Mississippi, African American children are at least 51 percent more likely to be corporally punished than white children in over half of school districts.
- In eight states, boys are five times as likely to receive corporal punishment as girls are in at least 20 percent of school districts.
- Children with disabilities are more than 50 percent more likely to be corporally punished than their nondisabled peers in many southeastern states. Disability status is defined as students who qualified as having a disability (physical, cognitive, or emotional) under the Individuals with Disabilities Education Act.

Social Policy Report, "Corporal Punishment in U.S. Public Schools: Prevalence, Disparities in Use, and Status in State and Federal Policy," V30, #1, 2016

Unconscious Bias: Gender

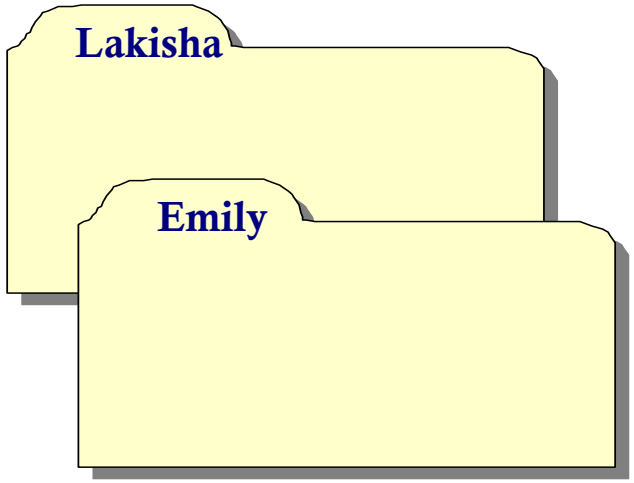
- Teams of male and female university psychology professors (search committees)
- Evaluate candidates for an open position (assistant professor of psychology)
- Application packages for Karen and Brian are identical except for name
- Search committees preferred 2:1 to hire Brian over Karen
- When evaluating a more experienced record (tenure), reservations expressed 4 times more often for Karen than for Brian



Steinpreis, Anders, & Ritzke (1999) *Sex Roles*, 41, 509.

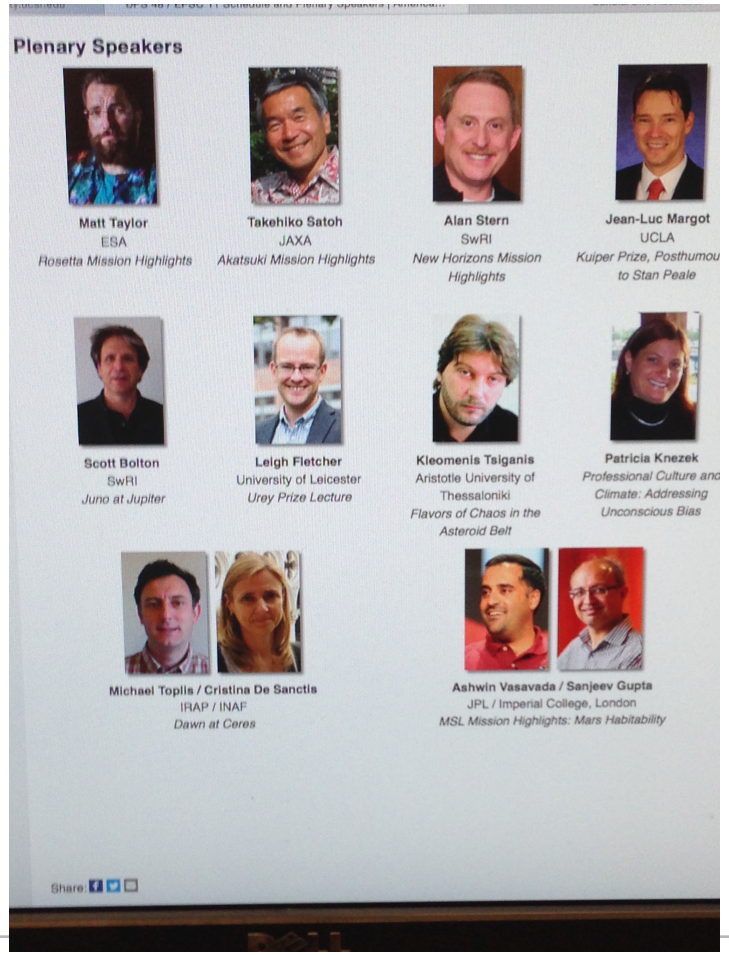
Unconscious Bias: Race

- Lakisha had to send 15 resumes to get a callback, compared to 10 needed by Emily
- Lakisha needed 8 more years of experience to get as many callbacks as Emily
- The higher the resume quality, the larger the gap between callbacks for Emily and Lakisha



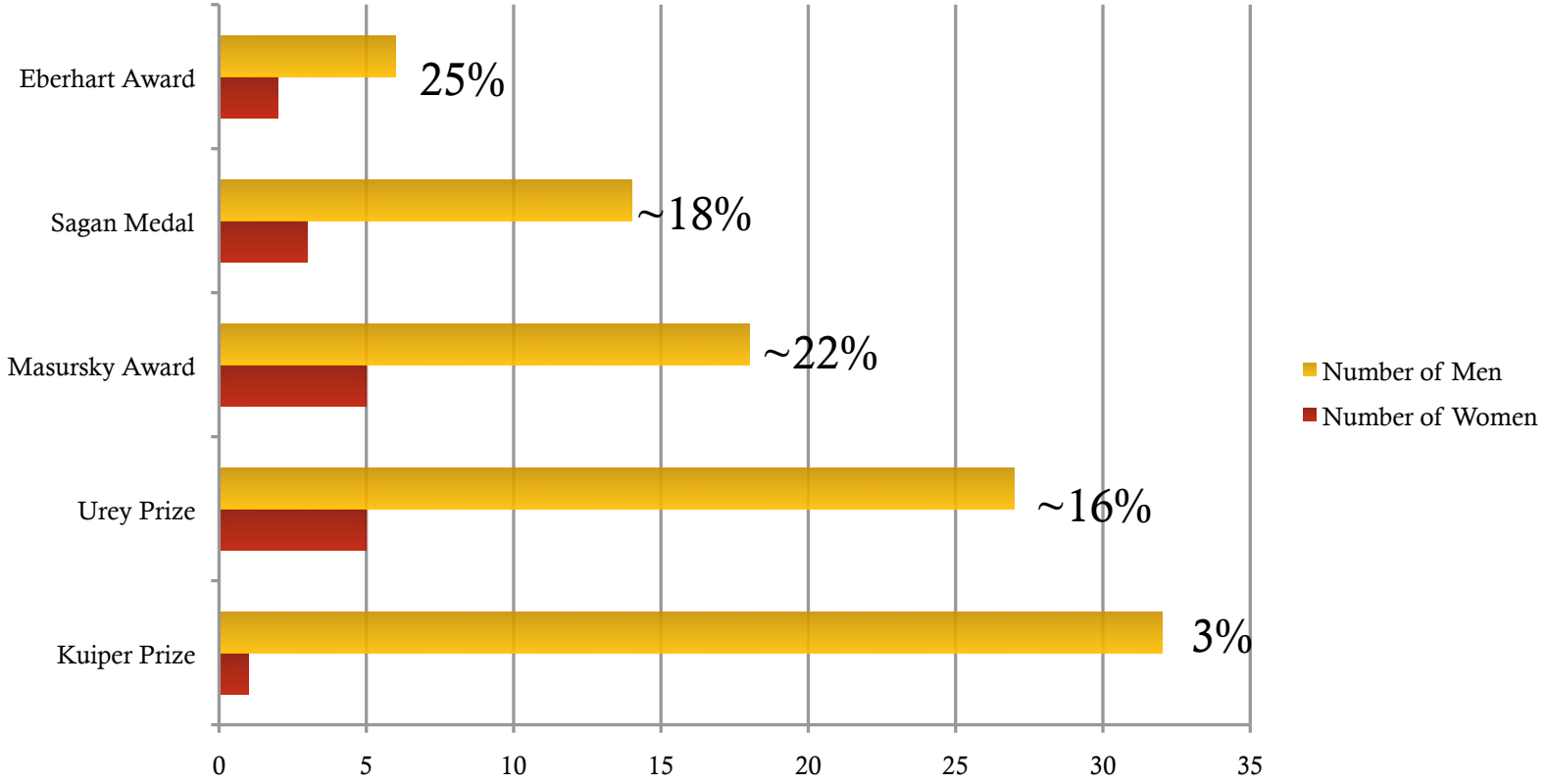
Bertrand & Mullainathan (2004) *Poverty Action Lab*, 3, 1-27.

Why is This Important in Planetary Science?

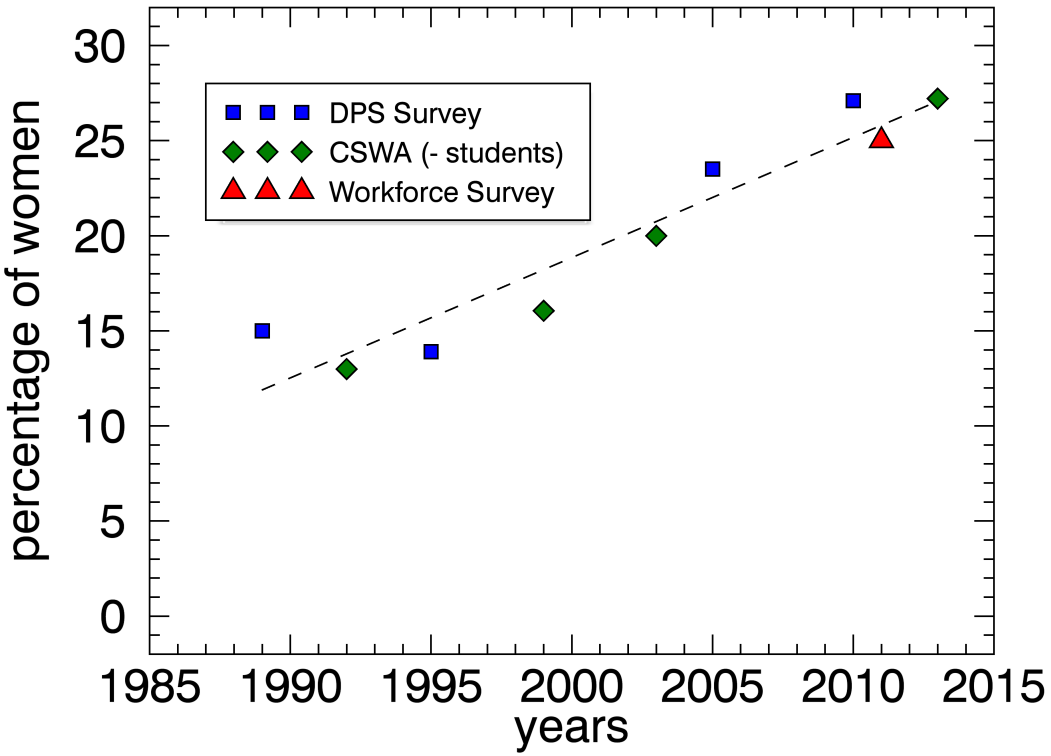


Women are 9% of scientific plenary speakers; 17% of all plenary speakers; appear to be no other underrepresented minorities

Planetary Science Prizes and Awards

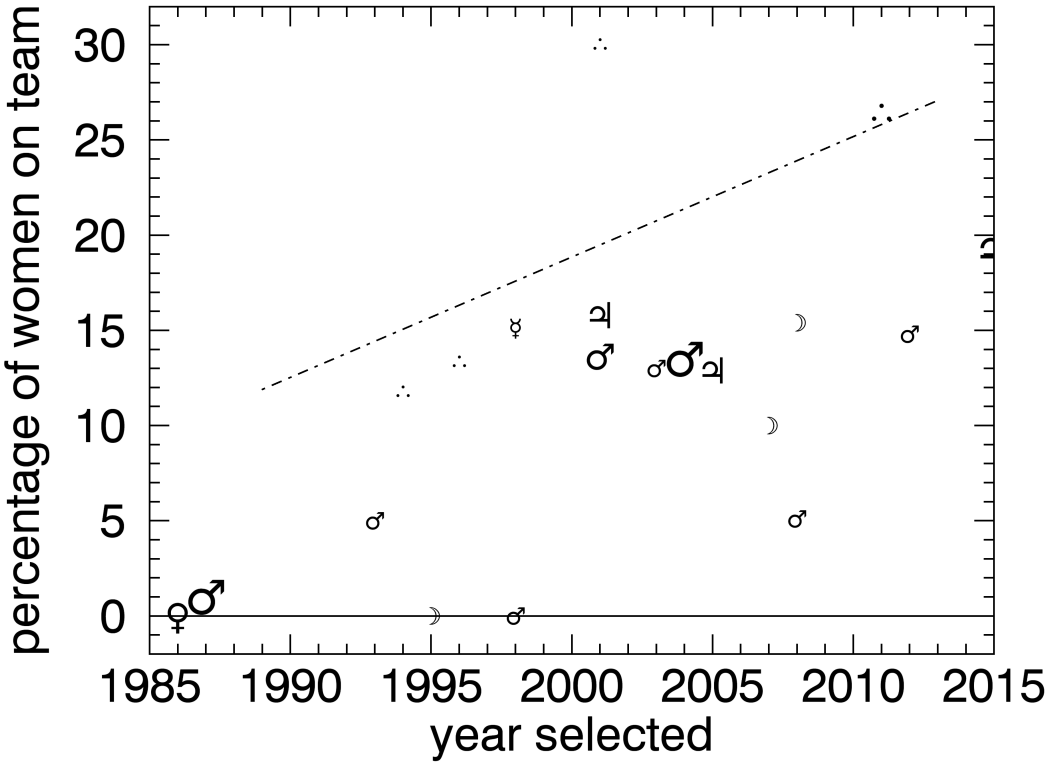


Women in Astronomy and Planetary Science



Rathbun et al. 2015, DPS; see poster 332.01 additional information

Women Scientists in Spacecraft Teams



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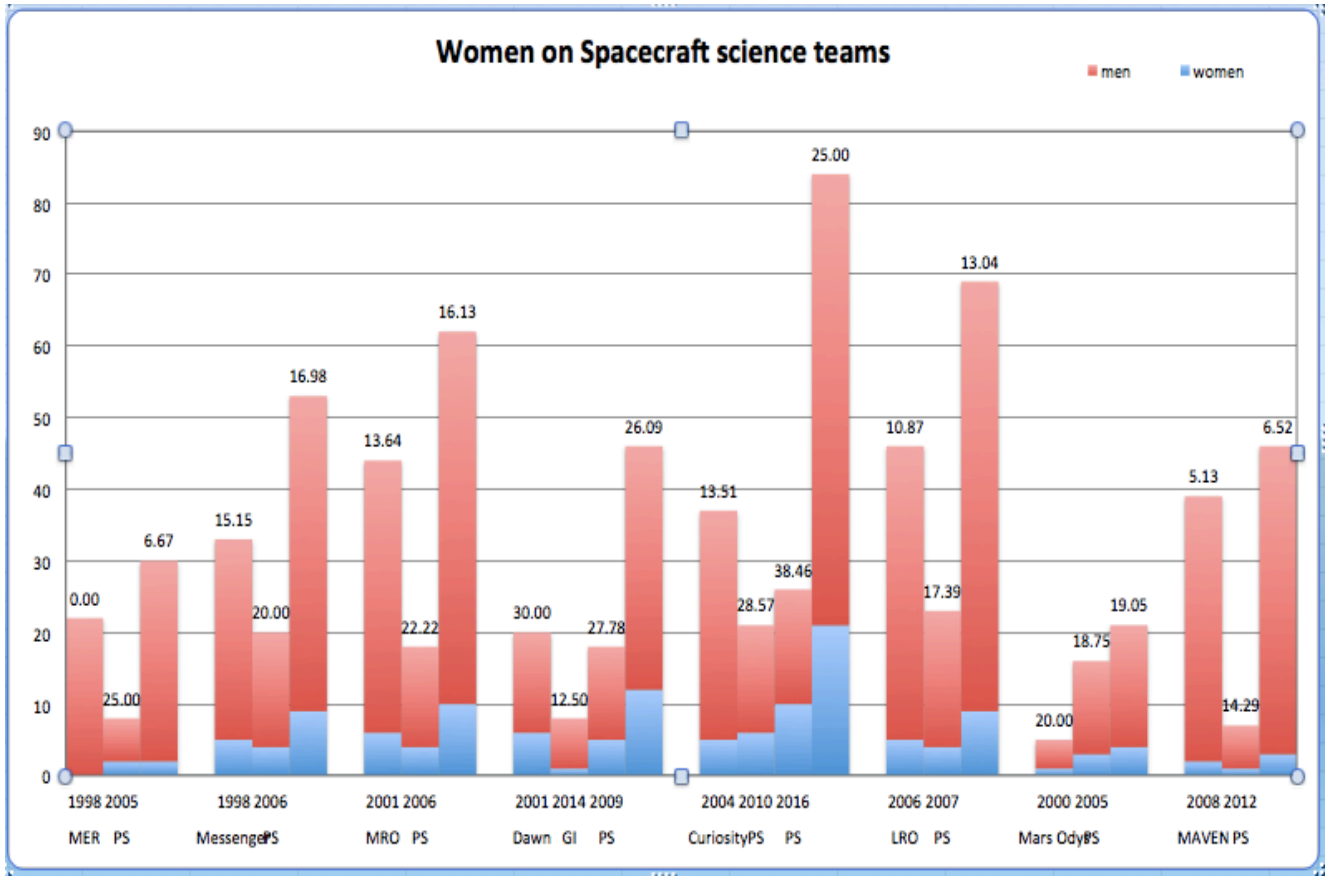
Women Scientists on Spacecraft Science Teams



Rathbun et al. 2016, DPS, poster 332.01

Underrepresented Minorities: Faculty

Figure 1

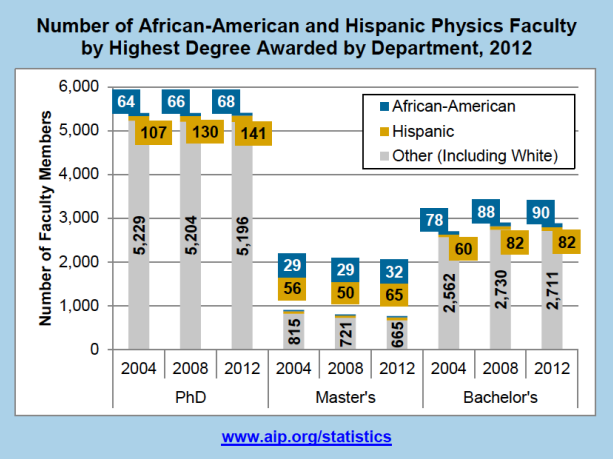


Figure 2

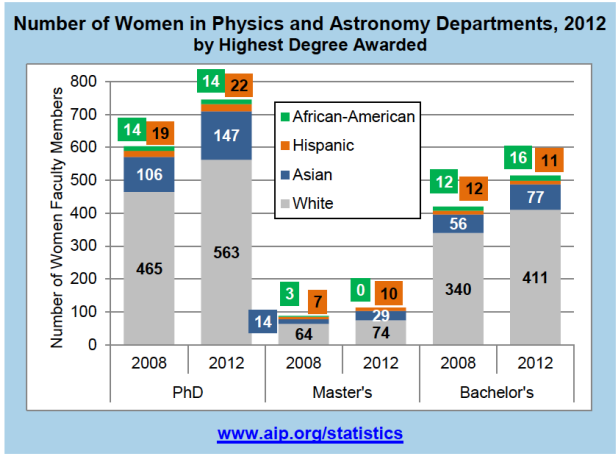


Table 3

Under-Represented Minorities Among Astronomy Faculty, 2012

Degrees Awarded by Department	African American %	Hispanic American %
Astronomy only	1	2
Physics	2	3
All Disciplines[+]	7	4

[+] Data for all disciplines (which includes non-science disciplines) found at http://nces.ed.gov/fastfacts/display.asp?id=61

www.aip.org/statistics

Ivie et al., AIP Report, "African Americans & Hispanics Among Physics & Astronomy Faculty," 2014

Underrepresented Minorities: Bachelor Degrees

Table 2

Number of Bachelor's Degrees Earned in Physical Science Fields: Total Numbers and Percent Change, 2003 & 2013

Physical Sciences	All Degrees Earned		African American Degrees	
	Degrees in 2013 #	Change '03-'13 %	Degrees in 2013 #	Change '03-'13 %
Earth Sciences	5,500	63	107	147
Atmospheric Sciences	760	34	21	75
Chemistry	14,814	49	1,072	40
Physics	6,725	58	153	1
Astronomy	413	33	5	**
Oceanography	247	75	7	**
All Physical Sciences	**28,459**	**53**	**1,365**	**39**

** Due to low population numbers, percent change was not calculated

www.aip.org/statistics

Merner, AIP Report, "African American Participation among Bachelors in the Physical Sciences and Engineering," 2015

Table 2

Number of Bachelor Degrees Earned in Physical Science Fields: Total Numbers and Percent Change, 2002-2012

Physical Sciences	All Degrees Earned		Hispanic Degrees	
	Degrees in 2012 #	Change '02-'12 %	Degrees in 2012 #	Change '02-'12 %
Chemistry	14,598	45	1,083	59
Physics	6,177	54	342	107
All Geosciences*	6,059	47	328	134
Earth Science	5,088	51	279	147
Atmospheric Sciences	740	38	36	260
Astronomy	448	37	21	75
Ocean Sciences**	231	17	13	13
All Physical Sciences	**27,282**	**47**	**1774**	**78**

*All Geosciences includes: Atmospheric Sciences, Earth Sciences and Ocean Sciences
**Ocean Sciences is calculated using a 2-year average

www.aip.org/statistics

Merner, AIP Report, "Hispanic Participation among Bachelors in the Physical Sciences and Engineering," 2014

When Do Schemas Affect Evaluation Outcomes?

- Resumes
- Job credentials
- Fellowships
- Hiring
- Awards
- Promotion
- Proposal Reviews

➢Death by a thousand cuts.

What Can We Do about Unconscious Bias?

- Awareness
- Policies
- Practices
- Accountability

Ways to Mitigate Bias

- Increase awareness of how implicit biases might affect evaluations
- Decrease time pressure and distractions in evaluation process
- Rate on explicit criteria rather than global judgments
- Point to specific evidence supporting judgments

Bauer and Baltes, 2002, *Sex Roles 9/10, 465.*

We Can All Help Shatter the Glass Ceiling!

The Planetary Science Workforce of the Future

Thank You!

Special thanks to
- Joan Schmelz (Arecibo Observatory)
- Abigail Stewart (Univ. of Mich.)

Excellence has no gender or race or sexual orientation

Implicit Association Test

- Think unconscious bias = conscious prejudice?
- Think you don't have unconscious biases?
- Try taking the Harvard Implicit Association Test: **https://implicit.harvard.edu/implicit/**