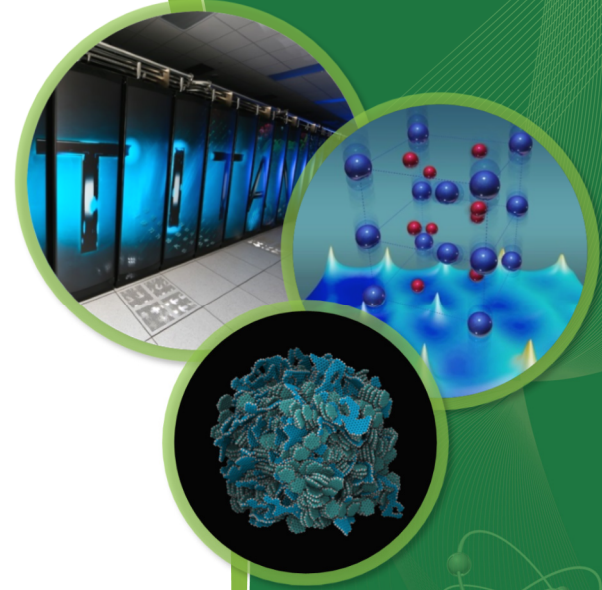


Speaking of Diversity

Karen S. White

October 12, 2017

ICALEPCS 2017



Our Community



ICALLEPCS 2015

International Conference on Accelerator
& Large Experimental Physics
Control Systems

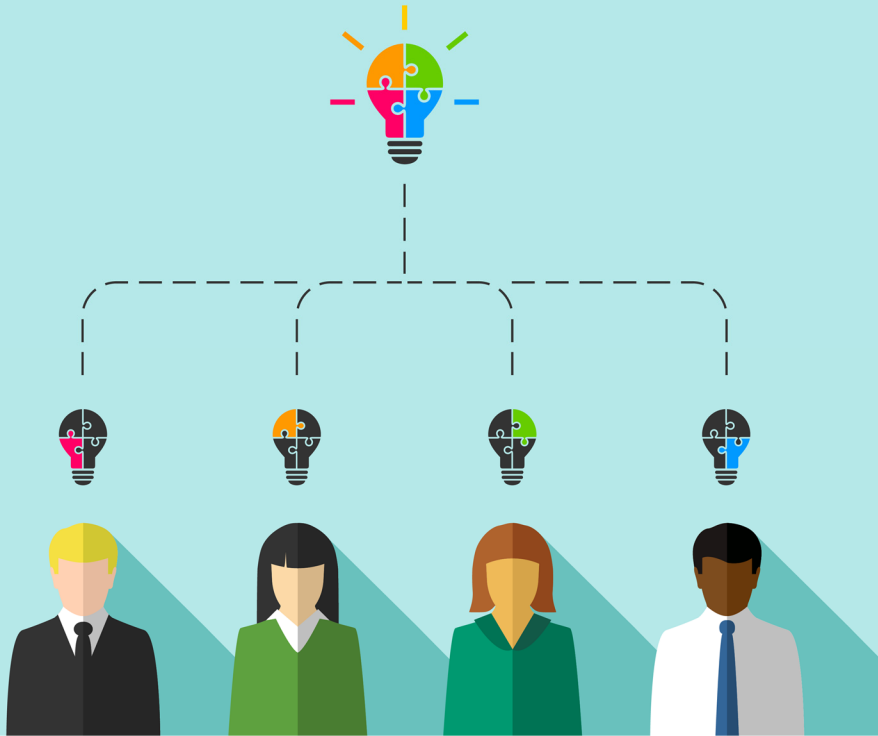
17-23 OCTOBER 2015 MCEC MELBOURNE

What is Diversity?

- By definition, diversity is about variety
- We need a diverse set of skills to develop control systems
- But what about social diversity?



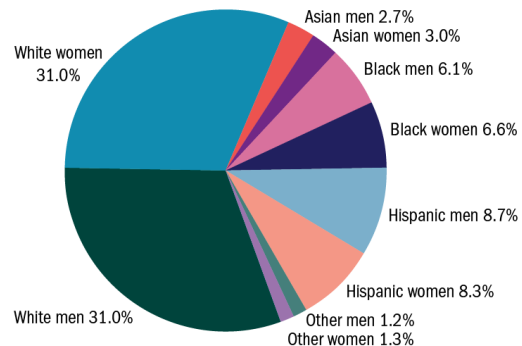
Why is diversity important?



- Studies tell us diverse workgroups are more successful, creative, innovative
- Diverse groups benefit from the different backgrounds, viewpoints and life experiences of the members
- A 2014 article in Scientific American summarized several diversity studies and concluded in diverse teams, everybody **works harder**

What is the current situation? U.S. Population and STEM workforce

Noninstitutionalized resident population of the United States ages 18–64, by race, ethnicity, and sex: 2014

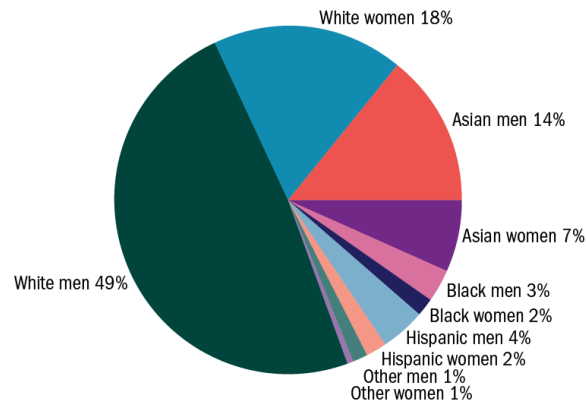


NOTES: Hispanic may be any race. Other includes individuals not of Hispanic ethnicity who reported more than one race or a race not listed separately.

Women, Minorities, and Persons with Disabilities in Science and Engineering: 2017

Source: U.S. National Science Foundation

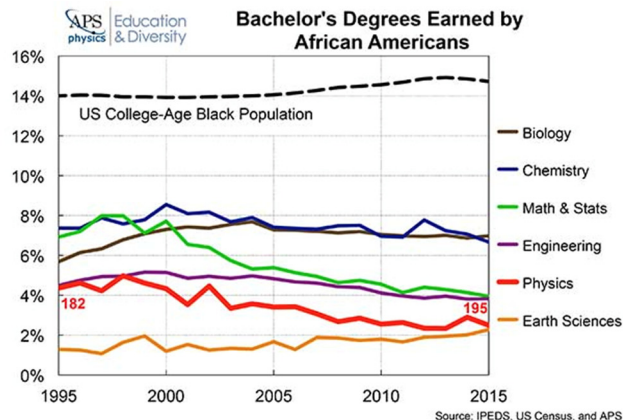
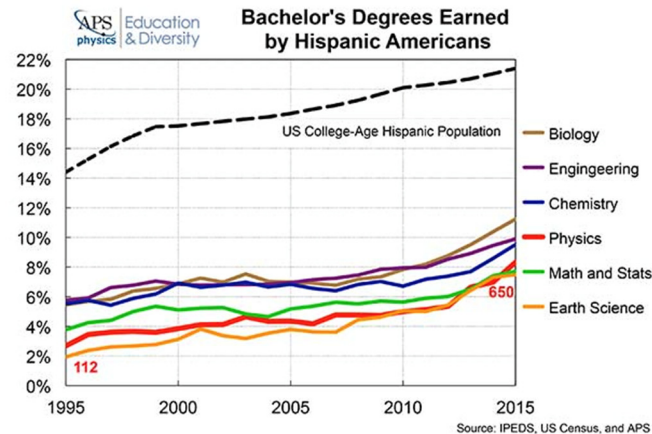
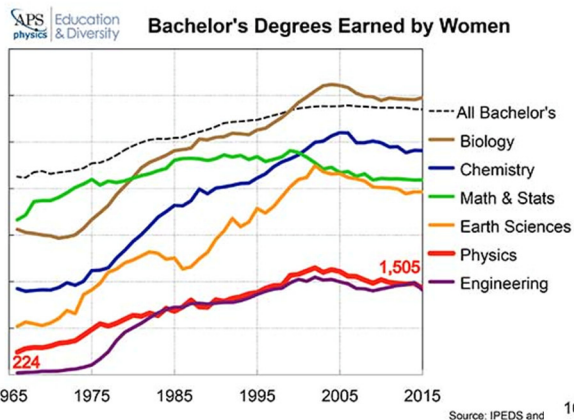
Scientists and engineers working in science and engineering occupations: 2015



NOTES: Hispanic may be any race. Other includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and multiple race.
Women, Minorities, and Persons with Disabilities in Science and Engineering: 2017

What is the current situation? University

- Our community draws on degreed professionals primarily from computer science, electrical engineering and physics

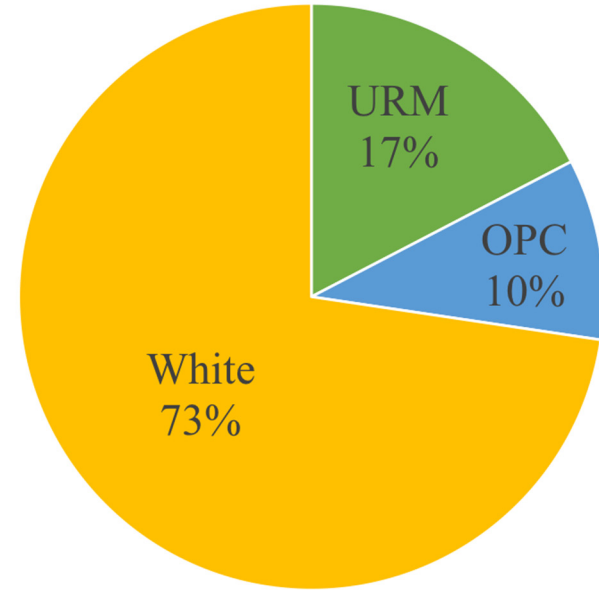
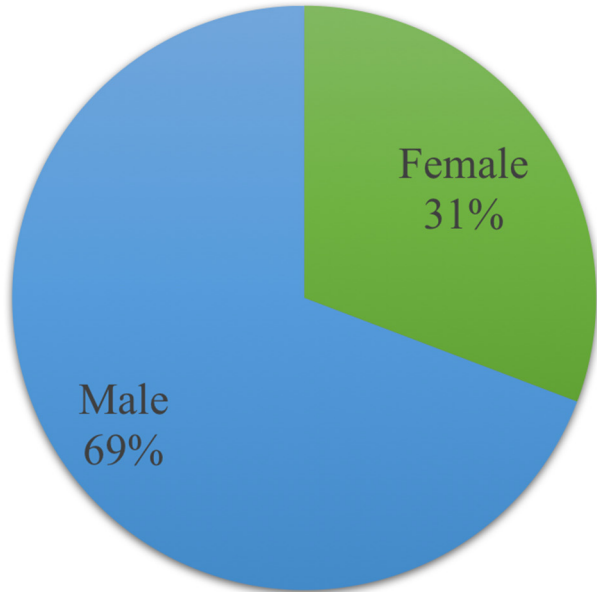


What is the current situation?

DOE Laboratories

Gender and Race/Ethnicity for all staff

Source: U.S. Department of Energy

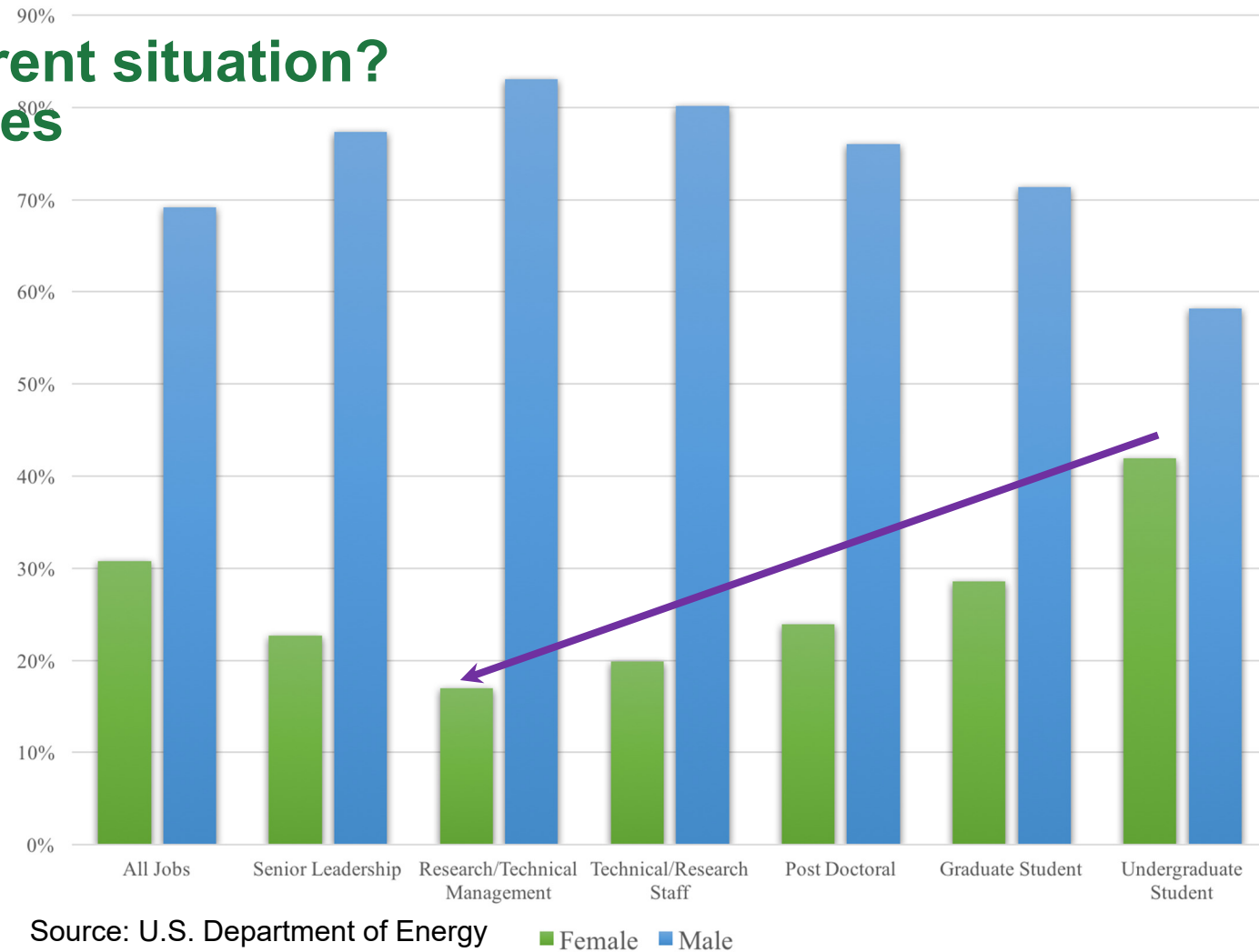


URM = Under Represented Minorities:
African Americans, Blacks, Hispanics and
Latinos

OPC = Other People of Color :
Asians, Asian Americans and Pacific Islanders

What is the current situation?

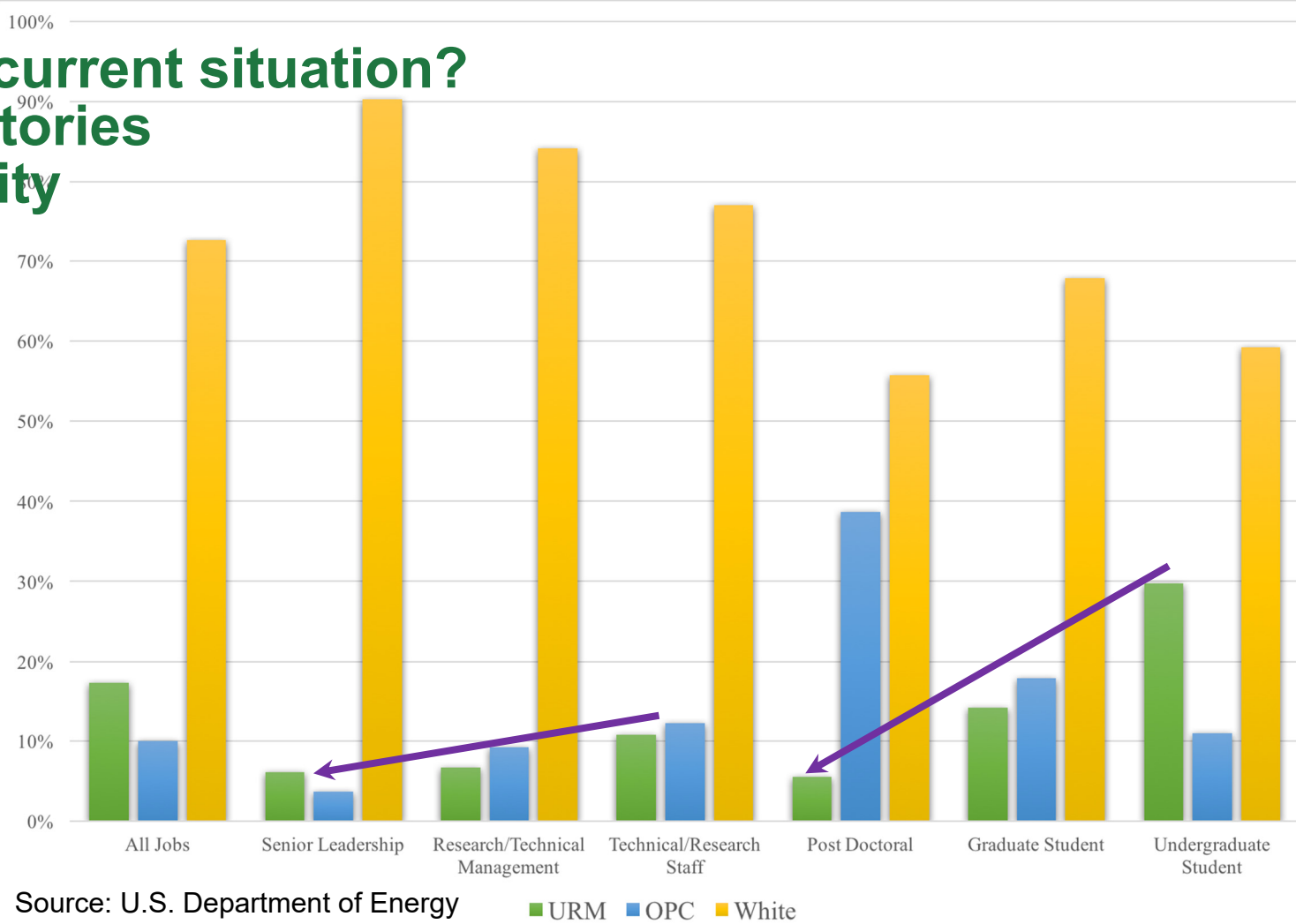
DOE Laboratories Gender



What is the current situation?

DOE Laboratories

Race/Ethnicity



Diverse computing pioneers

Ada, Countess of Lovelace



Grace Hopper



Alan Turing





Why are there so few women and minorities?

- Centuries of legal discrimination and exclusion
- Social and cultural norms regarding roles, education and career
- Depiction of engineers and computer professionals in the marketing, media and entertainment
- Implicit bias in interviews, hiring, promotion, training
- Lack of support for dual career families
- Distinctly homogenous power structure
- Lack of encouragement, recognition, role models, mentors

PROGRAMMERS
For Romford & Guildford
Salaries up to £2,000 p.a. - to start

Stuart is the only programmer we lost in the first 2 1/2 years of Operation at Computeraid Romford. He is seen here being welcomed back! More programmers are now welcome at Romford and Guildford. More programmers competent in 360 BAL/COBOL. More programmers to care for.

To arrange an interview ring: Chris Wood, Group Programming Manager (Reverse charges) At Romford (0708) 45913 or Guildford (0483) 64691. Or write to Computeraid Ltd, Ladymead, Guildford, Surrey

computeraid
are a great bunch of young people

17

150 Extra Engineers

An IBM Electronic Calculator spends through thousands of intricate computations so quickly that on many complex problems it's like having 150 EXTRA Engineers.

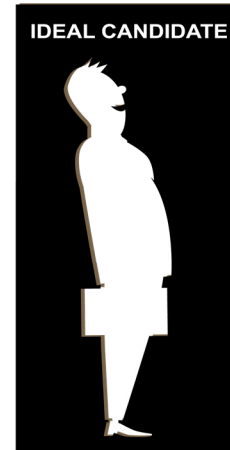
No longer must valuable engineering personnel... now in critical shortage... spend precious minutes time at routine repetitive figuring.

Thousands of IBM Electronic Business Machines... vital to our nation's defense... are at work for homes, industry, and the armed forces, in laboratories, factories, and offices, helping to meet urgent demands for greater production.

IBM INTERNATIONAL BUSINESS MACHINES

What can we do?

- Understand our biases, we all have them
- Be accountable, raise awareness, ensure workgroups are inclusive
- Be a role model or a mentor to someone who does not look or live like you
- If you have a management role, ensure fairness at each step in hiring, evaluation and promotions



*We can
broaden our
normative
types*

Conclusion

- While we may have limited power to change government and institutional barriers to diversity, we have tremendous power to act fairly and fill and flow our pipeline
- ***We can improve diversity one career at a time***
- I welcome your feedback to start a discussion
ksw@ornl.gov

