

February 26th 2024

15:00 – 16:30 CET,
9:00 – 10:30 EST



**REGISTER
NOW!**

WEBINAR: Promoting gender equality in science

- Gendered academia
- European actions taken to improve gender equality
- Gender/sex aspects in research
- Gender aspects in teaching
- Free registration

Speaker: Maria Saline
Moderator: Silvia Muceli
Chalmers University Technology
Sweden



Hybrid neuroscience

**based on cerebral and muscular information
for motor rehabilitation and neuromuscular disorders**

HybridNeuro activities



- 1 Exploratory research project
- 2 Summer schools
- 4 Workshops
- 8 Webinars
- 1 Biomedical Signals Data Repository
- 1 Massive Online Open Course on Hybrid Neuroscience
- 1 International Hub
- 12 National/international events



Funded by
the European Union



UK Research
and Innovation

Our speaker



- **Maria Saline**
- Project coordinator, **Genie** - Gender Initiative for Excellence
- Increase the proportion of female faculty
- Remove the structural and cultural obstacles that hamper women's careers
- Create a working environment that is diverse, inclusive and supportive of excellence in research and teaching

Notes for today



- The seminar will be recorded, but we have two different views for the presenters and the attendants, and only the presenter view will be recorded
- If you have any questions, please write them in the chat and Maria will address them
- Enjoy the seminar!



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UK Research
and Innovation

GA No. 101079392

GA No. 10052152



Promoting gender equality in science

Maria Saline

Chalmers University of Technology

Gothenburg, Sweden



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UK Research
and Innovation

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University of Maribor



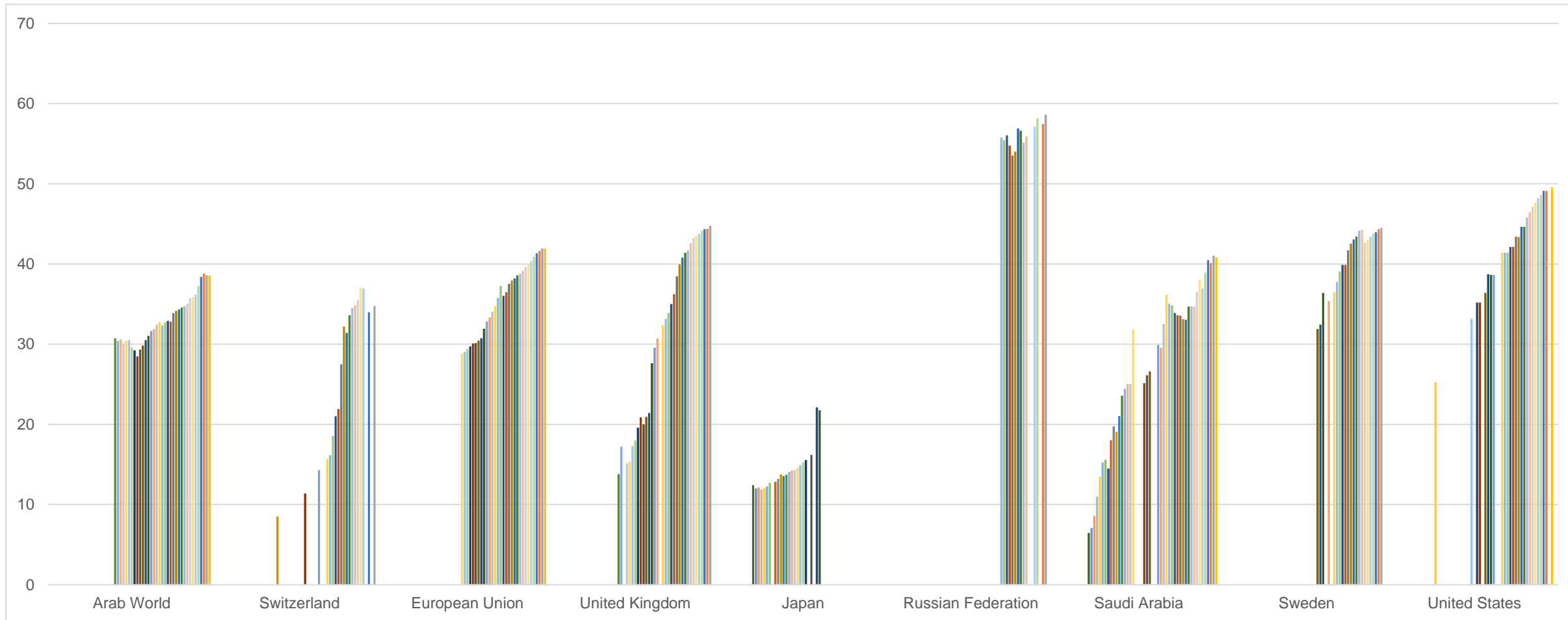
UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH



CHALMERS
UNIVERSITY OF TECHNOLOGY

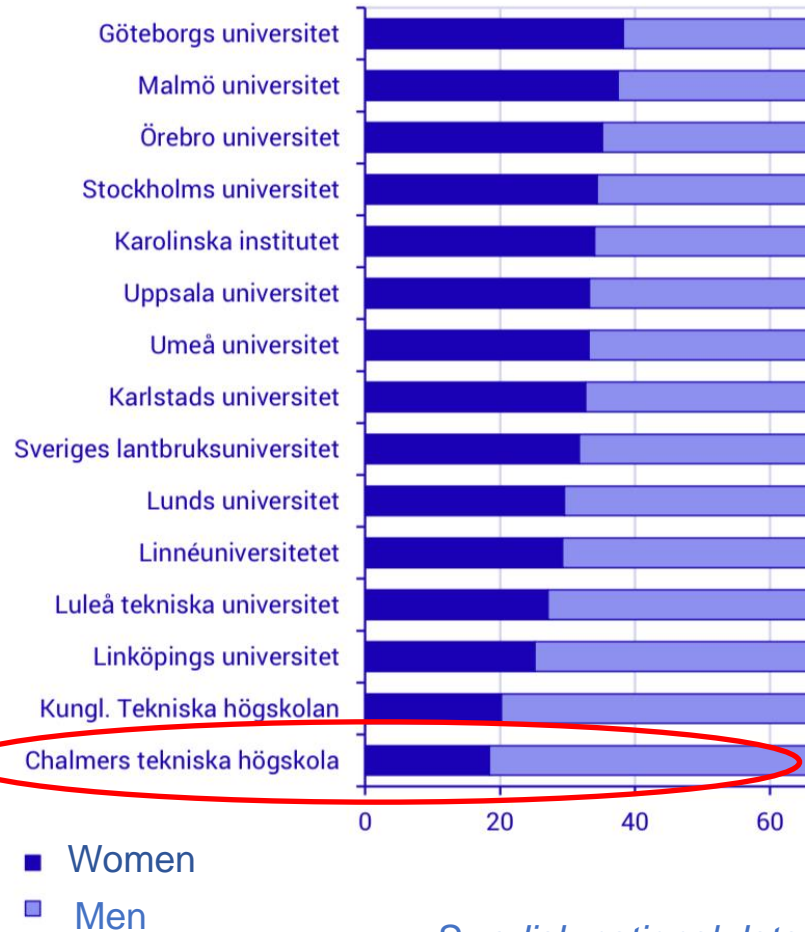
Imperial College
London

The world: Percentage of female academic staff 1972-2017



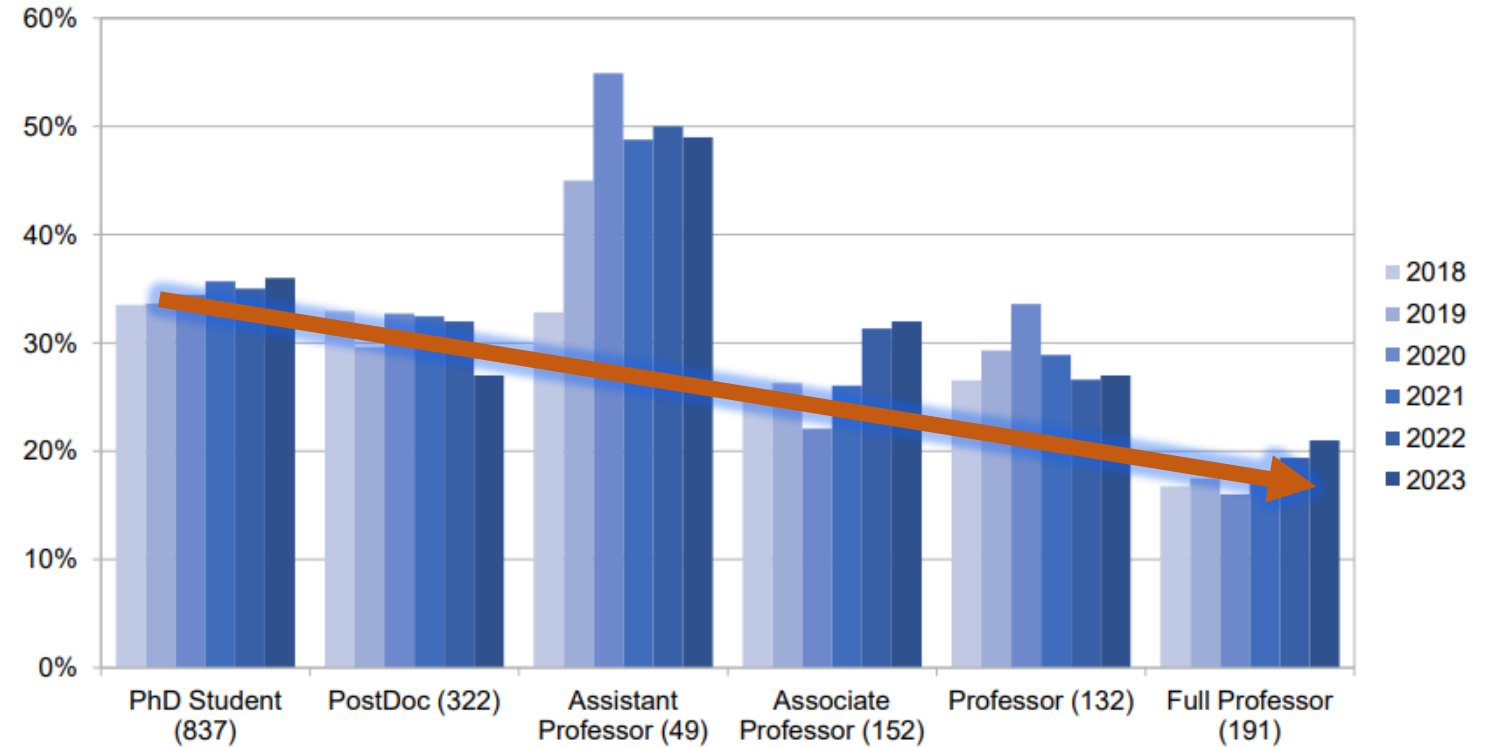
Swedish Universitys

Social Sciences and mixed Universitys, STEM
% professors



*Swedish national data
from 2021*

Female employed at Chalmers (by role)



Role and number of people from Dec 2023. Data from Qlickview, December, pension age 67 years old

Why care?

PROBLEM

- Few women in academia; higher the rank the fewer women (leaky pipeline)
- Historical and cultural norms rule in society. Lead to unconscious bias and unfairness towards women
- Academic system not fair today. Systematic bias against women in scientific merits (funding, publications, positions etc.).
- Affect work environment and women's confidence. Bad for **all** at the workplace.

BENEFITS IF FIXED

- Mixed/diverse groups do better/higher impact science
- Diverse groups take different approaches to research questions
- Female role models will encourage more young females to enter
- Industry wants female scientists and engineers (and men trained in gender equality)
- Focus on diversity/gender will improve university's trademark and output

Bias against women in evaluation

- Females must have more merits to get same competence score
- Both men and women show this bias...



Harvard implicit bias test

Same CV but different evaluations depending on gender...

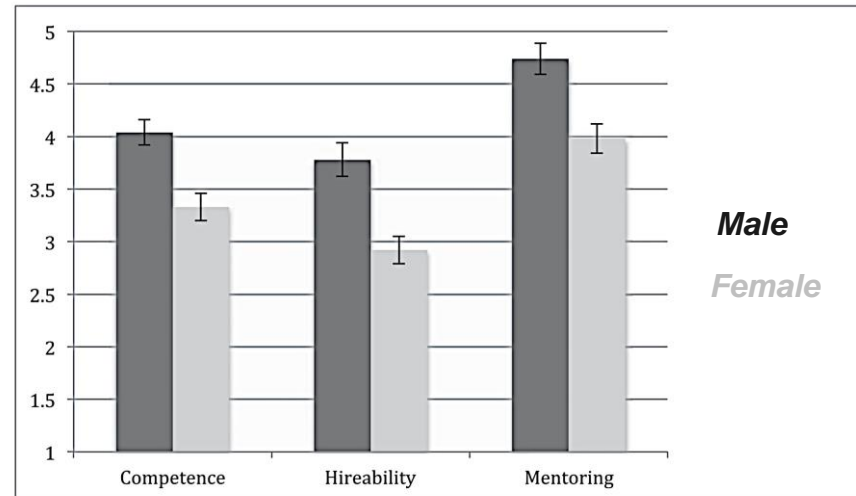
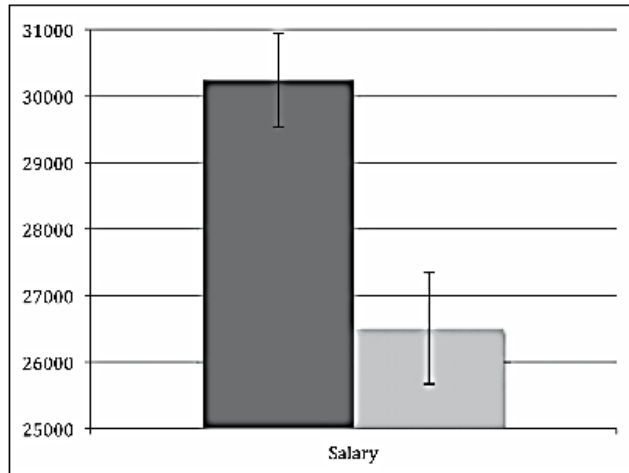


Figure 1 The mean competence score given to male (red squares) and female (blue squares) applicants by the MRC reviewers as a function of their scientific productivity, measured as total impact. One impact point equals one paper published in a journal with an impact factor of 1. (See text for further explanation.)

Illusion of fairness. Authorship

nature

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Article | [Open access](#) | [Published: 22 June 2022](#)

Women are credited less in science than men

[Matthew B. Ross](#), [Britta M. Glennon](#), [Raviv Murciano-Goroff](#), [Enrico G. Berkes](#), [Bruce A. Weinberg](#) & [Julia I. Lane](#) 

[Nature](#) **608**, 135–145 (2022) | [Cite this article](#)

117k Accesses | 120 Citations | 3127 Altmetric | [Metrics](#)

4 years:
9,778 teams
128,859 individuals
39,426 journal articles
7,675 patents

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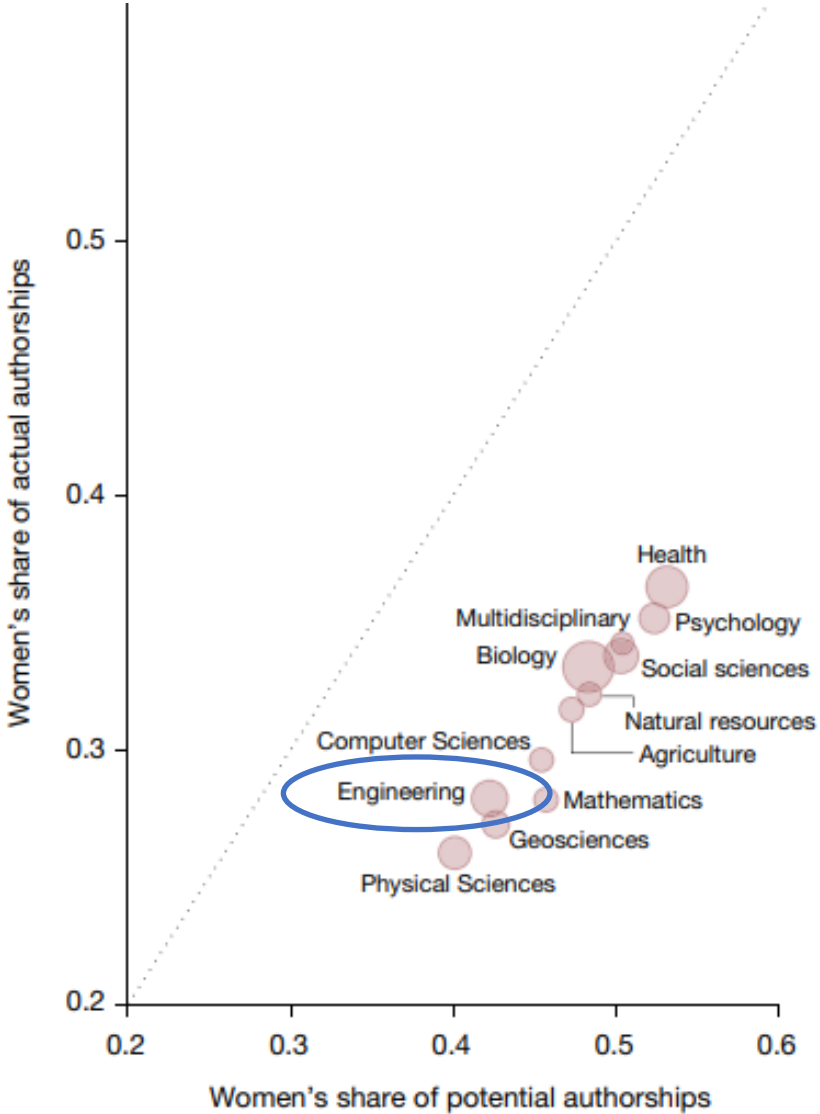
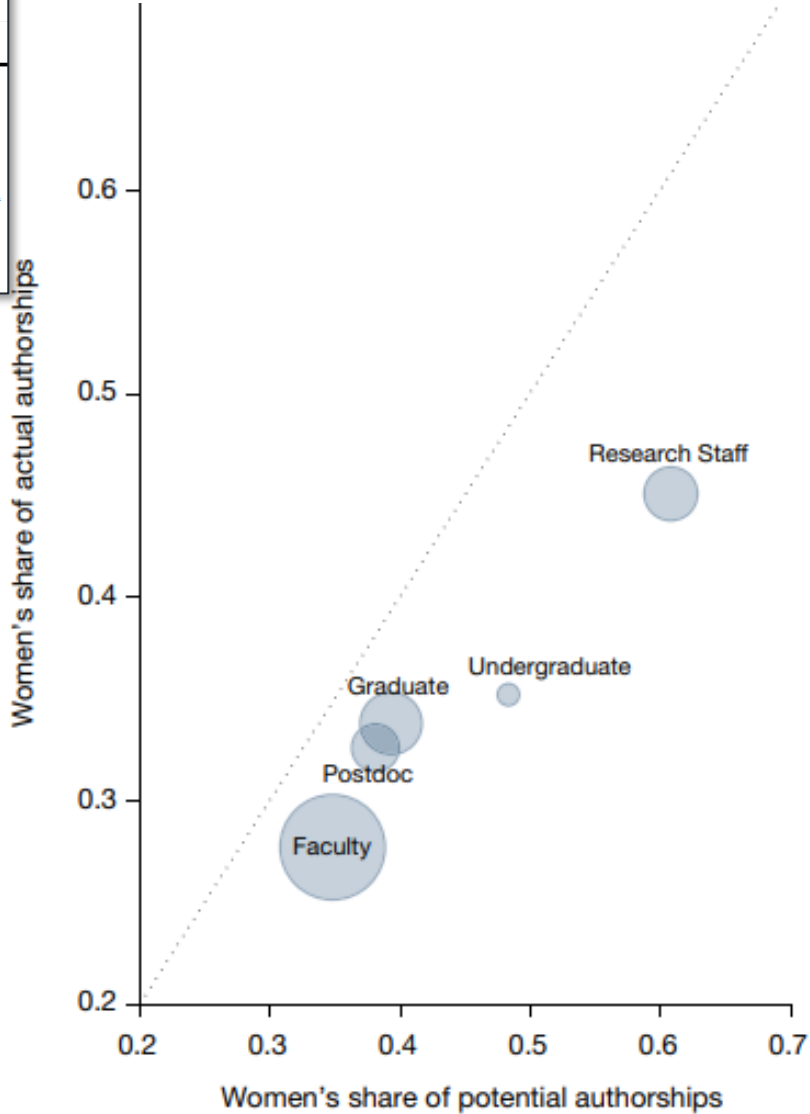
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More diversity, better science

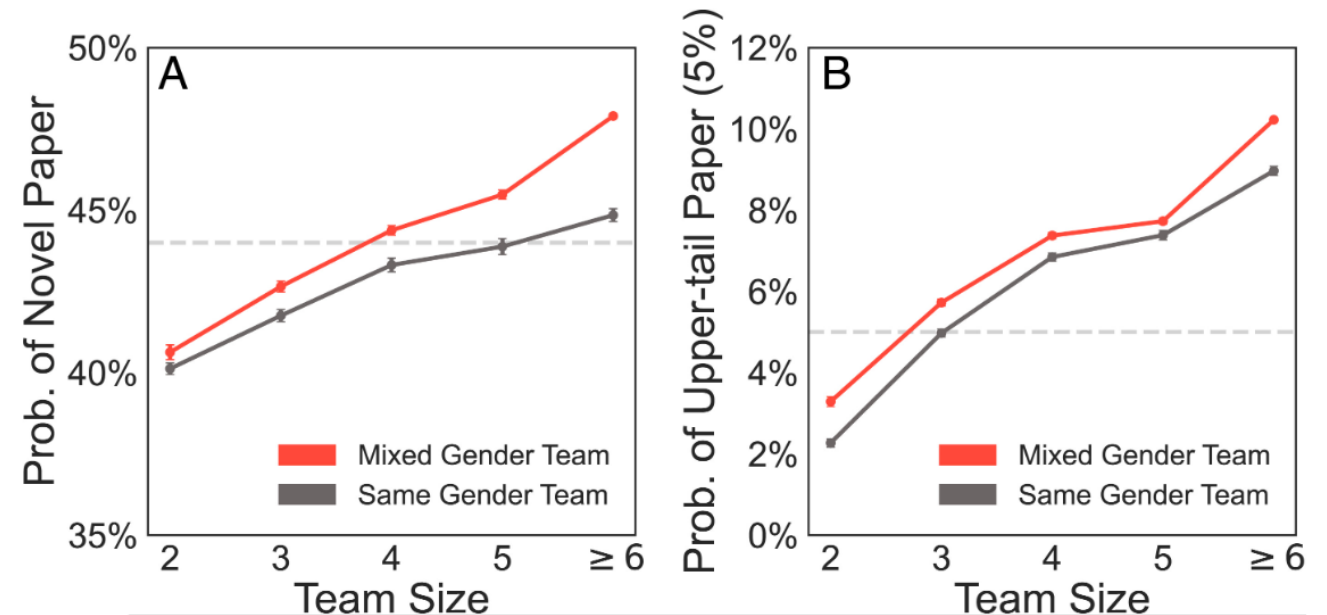


Strength in diversity

Richard B. Freeman and Wei Huang reflect on a link between a team's ethnic mix and highly cited papers.

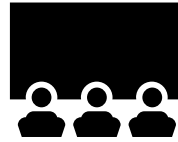
- Papers with four or five authors of multiple ethnicities have, 5–10% more citations (2,5 millions papers analyzed)
- Researchers with better work-life balance publish higher quality papers
- Gender equality gives increased success, in novelty and higher impact (examining 6.6 million medical papers 2000-2022)

- *Nature*, 2014, 513, 30
- *Do gender equality and work-life balance matter for innovation performance?* Woo et al, *Technology Analysis & Strategic Management* 2020
- *Gender-diverse teams produce more novel and higher-impact scientific ideas*, Uzzi et al, *PNAS* 2022



Academic workenvironment

- Physical environments
- Social environments - Culture



Values, norms, ideals, histories, heroes, forms of collegiality, behavioral patterns and codes, ways of speaking, symbols, rituals, ceremonies, dress code, humour, tabus...

Academic culture and gender

- Hierarchical and sometimes informal
- Competition and collaboration
- (Implicit/unconscious) gender bias in evaluation and assessment (James/Jane example)
- Stereotype of researcher/academic/engineer: male
- Gendered (male-dominated) organizations
- Men rarely problematized as men
- Homosociability: men's preference and validation of other men
- The visibility paradox of women: visible as women, relatively invisible as colleagues – sex role spill over, academic motherhood
- Informal division of labor. Risk: academic household work
- Sexual harassment of students and staff most often women victims

*“Typically, when one form of prejudices (such as sexism or racism) is labelled as unacceptable, it does not simply vanish; rather it tends to take **increasingly subtler forms**, thus protecting the prejudiced person from both social and legal accusations. “*

Paula Caplan: Lifting a Ton of Feathers (1993, 17)

- Processes rather than single incidents
- Own, witnessed, cognitive experiences
- Accumulation of disadvantage: repeated microevents, microaggressions
 - “Molehills become mountains” (*“Why so slow” and “An inclusive academy” by Virginia Valian*)
 - Non-events (*Sexism, Support and Survival in Academia, 2001, Liisa Husu*)

Ex; Silences, exclusions, bypassing, ignoring, making invisible, lack of support, lack of validation,
Not being seen, heard, encouraged, taken into account, validated, supported, asked along...

POOR RETURNS ON THE USUAL PROGRAMS

The three most popular interventions made firms less diverse, not more, because managers resisted strong-arming.

% CHANGE OVER FIVE YEARS



MANDATORY DIVERSITY TRAINING for managers led to significant decreases for Asian-Americans and black women.



TESTING job applicants hurt women and minorities—but not because they perform poorly. Hiring managers don't always test everyone (white men often get a pass) and don't interpret results consistently.

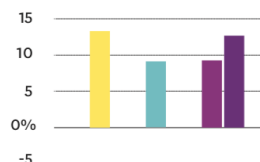


GRIEVANCE SYSTEMS likewise reduced diversity pretty much across the board. Though they're meant to reform biased managers, they often lead to retaliation.

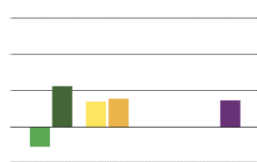
White Men
White Women
Black Men
Black Women
Hispanic Men
Hispanic Women
Asian Men
Asian Women

PROGRAMS THAT GET RESULTS

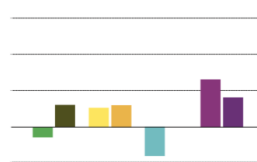
Companies do a better job of increasing diversity when they forgo the control tactics and frame their efforts more positively. The most effective programs spark engagement, increase contact among different groups, or draw on people's strong desire to look good to others.



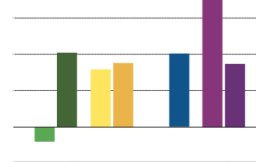
VOLUNTARY TRAINING doesn't get managers' defenses up the way mandatory training does—and results in increases for several groups.



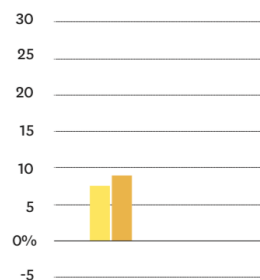
SELF-MANAGED TEAMS aren't designed to improve diversity, but they help by increasing contact between groups, which are often concentrated in certain functions.



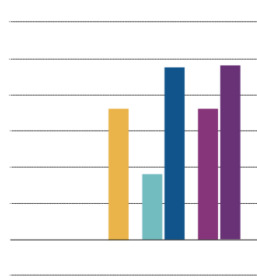
CROSS-TRAINING also increases managers' exposure to people from different groups. Gains for some groups appear to come at a cost to Hispanic men.



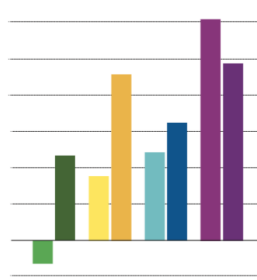
COLLEGE RECRUITMENT TARGETING WOMEN turns recruiting managers into diversity champions, so it also helps boost the numbers for black and Asian-American men.



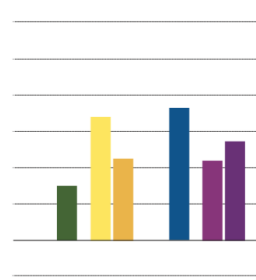
COLLEGE RECRUITMENT TARGETING MINORITIES often focuses on historically black schools, which lifts the numbers of African-American men and women.



MENTORING has an especially positive impact. Managers who sponsor women and minorities come to believe, through their increased contact, that their protégés deserve the training and opportunities they've received.



DIVERSITY TASK FORCES promote social accountability because members bring solutions back to their departments—and notice whether their colleagues adopt them.



DIVERSITY MANAGERS sometimes put ineffective programs in place but have a positive impact overall—in part because managers know someone might ask them about their hiring and promotion decisions.

Why Diversity Programs Fail

And what works better

BY FRANK DOBBIN AND ALEXANDRA KALEV

Harvard Business Review.
July-August, 2016, Vol. 94 Issue 7-8

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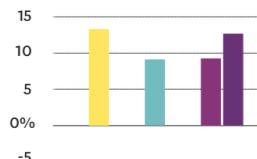
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PROGRAMS THAT GET RESULTS

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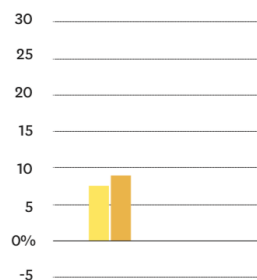


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Why Diversity Programs Fail

And what works better

BY FRANK DOBBIN AND ALEXANDRA KALEV

- Testing is unfair
- Complaint systems lead to retaliation



- Voluntary based activities
- Mixing people
- Recruitment targeting women
- Promote social accountability

Harvard Business Review.
July-August, 2016, Vol. 94 Issue 7-8

In reality - what to focus on?



- Efforts towards individuals, culture, and organisation
- Both targeted and general strategies needed

Ref: *Building gender equity in the academy* Laursen and Austin, John Hopkins Press, 2020

Gender in teaching, example computer science

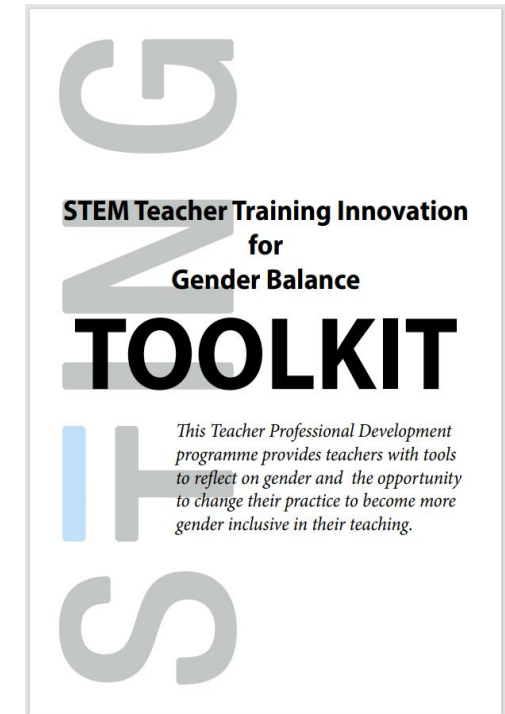
- Men and women are not equally **represented**.
 - *Students should learn about gender mainstreaming and culture*
- **Socialisation of children** and young people inside and outside of school.
 - *A basic knowledge of studies describing this socialization experience with digital media, should form part of every degree.*
- Gender divisions in labor characterizes the industrial society.
- Software is not neutral. "young, male, white users" dominate the development teams and thus the output is biased towards them.
 - *This requires software design methods that combine a conscious reflection on social contexts with technological development.*
- Make **future computer scientists more sensitive to the role that gender plays** in the research and development of computer systems.

[Gender Curricula für Bachelor- und Masterstudiengänge:
Curriculum Computer Science \(gender-curricula.com\)](https://gender-curricula.com)

Gender in teaching

- introducing gender aspects in the computer science curriculum from University of Bremen:

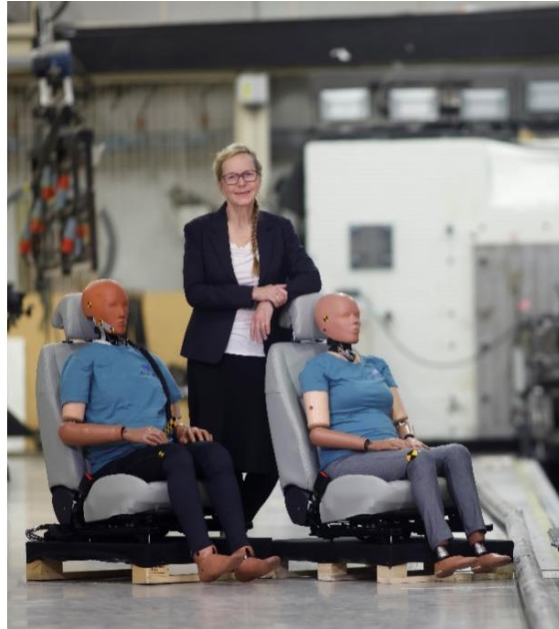
Currently	With a gender perspective
Ability to design, develop, assess and ensure accessibility, ergonomics, usability and security of multimedia systems, services and applications, as well as of the information they manage.	Ability to design, develop, assess and ensure accessibility, ergonomics, usability and security of multimedia systems, services and applications, as well as of the information they manage, considering the needs, patterns of use and expectations of diverse people.
Ability to work in a multidisciplinary group and a multilingual environment and to communicate, both orally and in writing, knowledge, procedures, results and ideas related to information and communications technology, with a focus on the multimedia aspects of these technologies	Ability to work in a multidisciplinary group and a multilingual environment and to communicate, both orally and in writing, knowledge, procedures, results and ideas related to information and communications technology, with a focus on the multimedia aspects of these technologies, while promoting respect for diversity, equity and gender equality.



[toolkit en 2017 05 09 .pdf \(wordpress.com\)](#)

[Gender Curricula für Bachelor- und Masterstudiengänge:
Curriculum Computer Science \(gender-curricula.com\)](#)

Gender in research



Professor Astrid Linder with SETs 50M (male, left) and SETs 50F (female, right) dummies.
Picture info: Hejdlösa bilder/VTI

- Crash test dummies: Norm: male body (1.75 m; 78 kg) less injuries for men. (*Carter et al., 2014*).
 - Female dummy introduced 2022 (*Karemyr et al., 2022*)
- Biomedical research – male body the norm.
- Architecture – for whom is the city created?
- Machine learning: **Creating Intersectional Training Datasets.** The Gender Shades project, (MIT): darker-skinned women, darker-skinned men, lighter-skinned women and lighter-skinned men (*Buolamwini & Gebru, 2018*)

[Gendered Innovations | Stanford University](#)

Ongoing efforts and resources



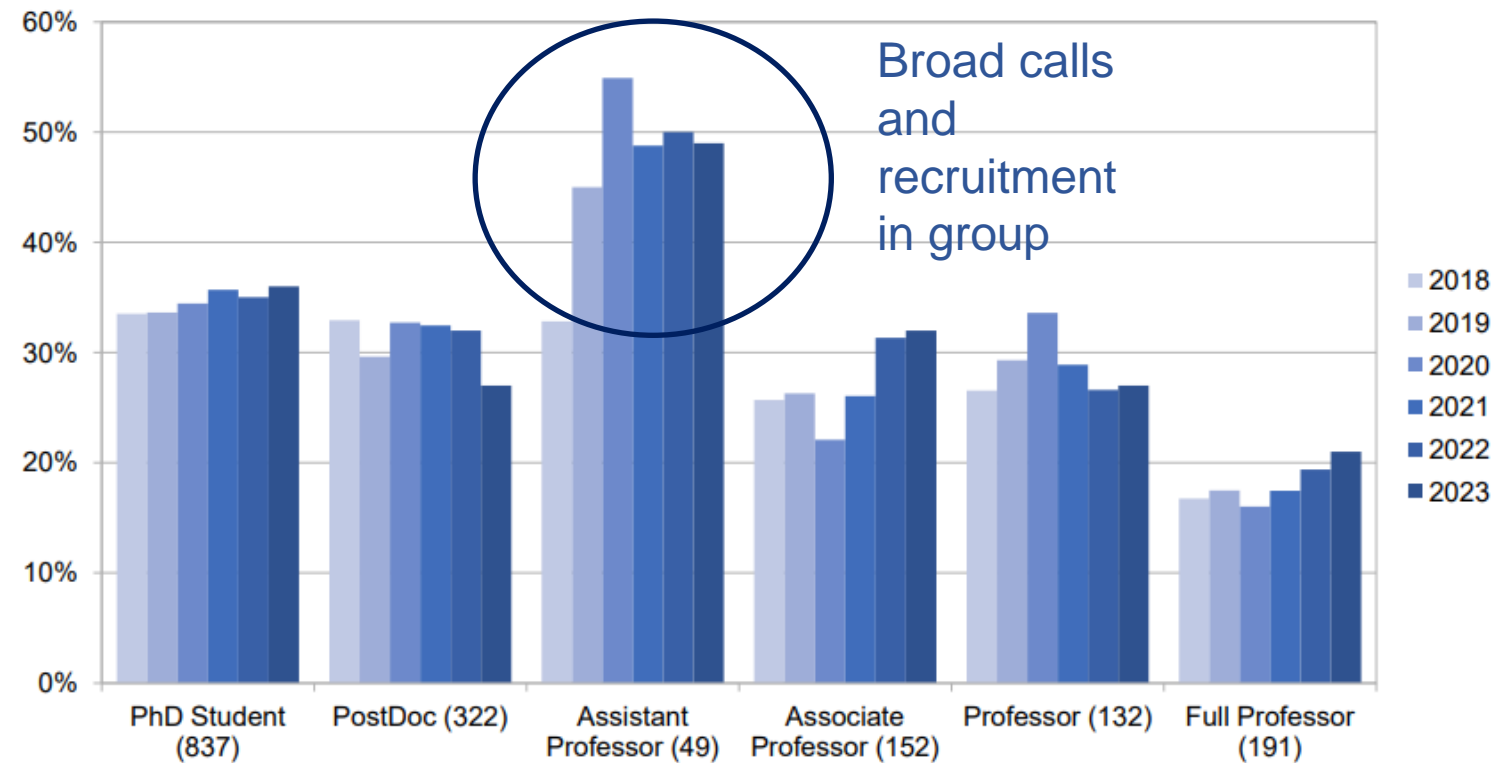
- ADVANCE (NSF USA)
- Athena Swan (UK)
- SAGE (EU Horizon 2020), SAGE (Australian academies)
- UniSAFE: EU Horizon2020 unisafe-gbv.eu/
- ENHACNE DIVERSITY – ENHANCE Alliance (enhanceuniversity.eu)
- League of European Research Universities (LERU) (2019) Equality, Diversity and Inclusion at Universities <https://www.leru.org/publications/equality-diversity-and-inclusion-at-universities>
- League of European Research Universities (LERU) (2018) Implicit Bias in Academia – a Challenge to the meritocratic principle and what to do about it <https://www.leru.org/publications/implicit-bias-in-academia-a-challenge-to-the-meritocratic-principle-and-to-womens-careers-and-what-to-do-about-it>
- GenPort – European portal for research, policy and action on gender and science broadly defined, www.genderportal.eu
- Drew, Eileen, and Siobhán Canavan (eds.) (2020) The Gender-sensitive University: A Contradiction in Terms?. Taylor & Francis. (open access)
- Sexism in Danish universities collective action 2020 <https://sexismedu.dk/>
- Excellent resource with research-based advice and strategic interventions (StratEGIC) <https://www.colorado.edu/eeer/research-areas/women-science/strategic-toolkit>



Conclusion

- Gender equality is a challenge and prerequisite for excellent research
- We all are biased
- The academic system is not gender neutral
- Academia is a gendered work environment
- Sexual harassment occur
- Small non-events add up make female feel not included
- Broad calls and recruitment in group has a positive effect on recruiting female
- Need all colleagues aware and allies – speak up
- We all make our culture
- Gender equal groups are more successful

Female employed at Chalmers (by role)



Role and number of people from Dec 2023. Data from Qlickview, December, pension age 67 years old



Thank you!

Maria.saline@chalmers.se

Chalmers.se/genie