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The Gender Dimension in Physics Research and Teaching

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Basic model – Levels of Change

Londa Schiebinger, Stanford University

1. Numbers

2. Culture

Gender awareness

Can they be seperated?

3. Subject

Gender perspective



Level 2: The culture

The Culture of Physics

Antropology: A culture without culture

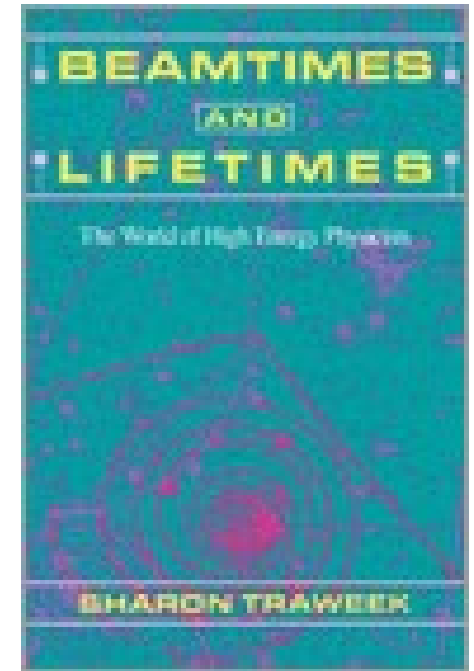
Ex:

- Grooming of the next generation
- Excellence is always male

Sociology: Herculian culture

Action!

Integrate gender, equality and diversity in academic teaching courses, mentorsprograms and leadership programs ...
for women *and* men.



Traweek 1998,
Beamtimes and Lifetimes

UPGEM
Understanding Puzzles in the
Gendered European Map

Hasse & Trentemöller 2008,
Break the pattern!

The Culture of Physics



PUSHING
THE FRONTIERS
OF INNOVATIVE
RESEARCH

ADVICE PAPER
NO.23 - JANUARY 2018

Psychology – Implicit bias .. and its threat to meritocracy

also **Sociology**

Nielsen 2015, Nature 525 427

Action!

- Awareness training
 - Transparency
 - Bias observers
- Monitor meeting procedures
- Analyse evaluations etc

Implicit bias in academia:

A challenge to the meritocratic principle and to women's careers –
And what to do about it

LEAGUE OF EUROPEAN RESEARCH UNIVERSITIES

• University of Amsterdam • Universitat de Barcelona • University of Cambridge • University of Copenhagen • Trinity College Dublin
• University of Edinburgh • University of Freiburg • Université de Genève • Universität Heidelberg • University of Helsinki
• Universiteit Leiden • KU Leuven • Imperial College London • University College London • Lund University • University of Milan
• Ludwig-Maximilians-Universität München • University of Oxford • Sorbonne University • Université Paris-Sud
• University of Strasbourg • Utrecht University • University of Zurich

LERU Advice paper 2018:
Gender bias as a challenge to meritocracy.

A new dawn!

Diversity as quality/excellence!



nature
International journal of science

R. B. Freeman and W. Huang, Nature News **513**, 305 (2014):

Collaboration: Strength in diversity

M. W. Nielsen et al., Nature, human behaviour **2** 726

Making gender diversity work for scientific discovery and innovation

K. Powell, Nature **558**, 19 (2018):

These labs are remarkably diverse – here´s why they´re winning in science.

Being inclusive gives research groups a competitive edge. It also happens to be the right thing to do

A new dawn!

Diversity as quality/excellence!

PNAS

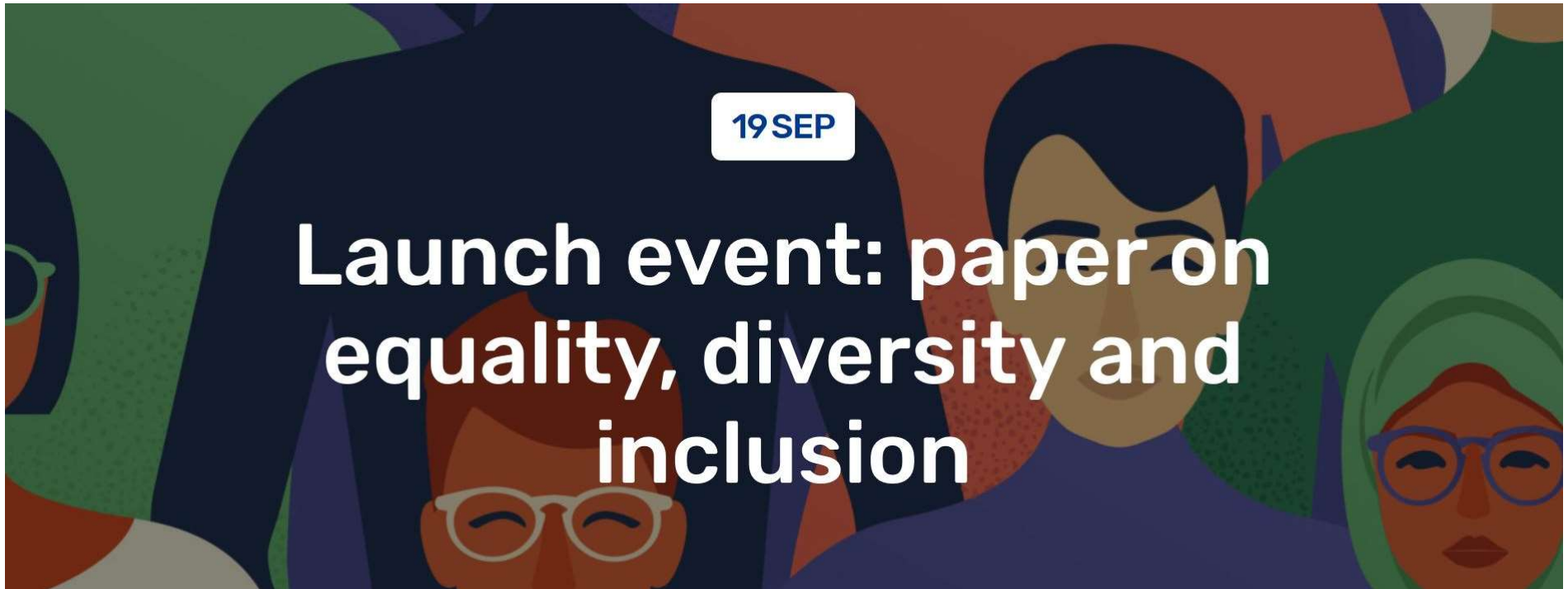
Proceedings of the
National Academy of Sciences
of the United States of America

M. W. Nielsen et al., PNAS 114, 1740 (2017)

Opinion: Gender diversity leads to better science



Advice papers



Date: Thursday 19 September 2019 in Brussels

Workshop in Lund December 23, 2019, 9-12 AM at LUX-aula

Level 3: The subject

Gender in Research and Innovations



<http://genderedinnovations.stanford.edu/>

Sometimes an obvious gender/sex perspective – even in Physics

Medical Physics, Meteorology – Climatology, Biophysics
... Maybe all applied Physics?

There is always the sex or gender of the researcher

... but this dimension is often forgotten ...

<http://genderedinnovations.stanford.edu/>

”Pure” Physics and Gender Perspective?

Change view point:

Electrons and Stars do not have gender, but

Physics is what Physicists do

i.e. what we teach – what we do research on

Who selects what we do? What metaphors do we choose?

Even in curiosity driven research – whose curiosity?

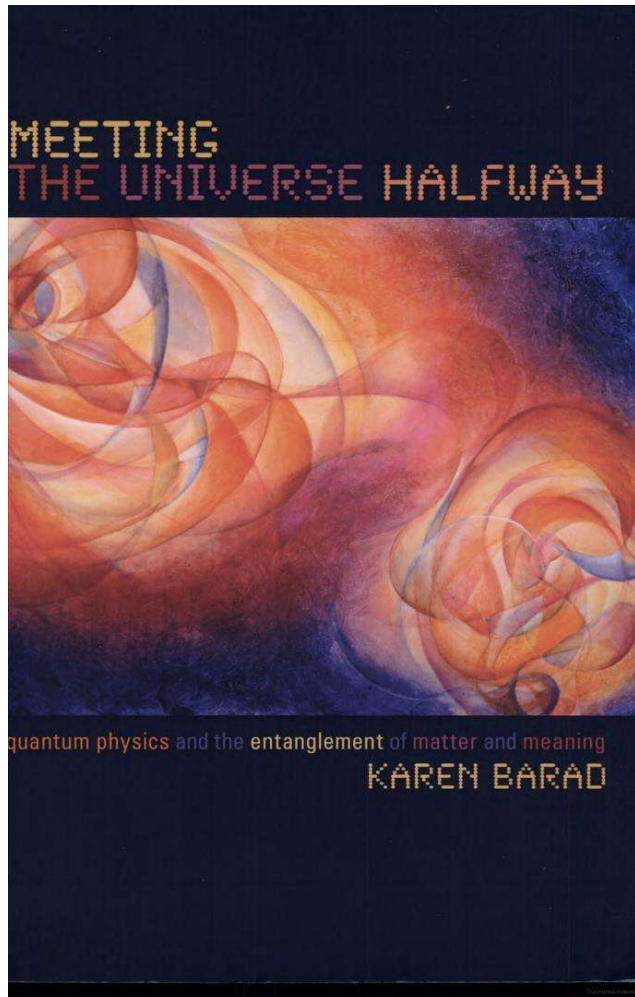
Donna Haraway: We always have to reflect over our *siting* as well as our *sighting*.

Example of methods from GRI

- Rethinking research priorities and outcomes
- Rethinking language and visual presentations

- Case study of Combustion Physics in Lund.

The content – or subject – of Physics



Karen Barad: Meeting the Universe Halfway

Newtonian Physics – objective and extremely positivistic

Quantum physics might offer something different:

*Entanglement,
Reality-Experiment-Observer
Agential Realism*



ADVICE PAPER
No.18 - SEPTEMBER 2015

GENDERED RESEARCH AND INNOVATION:

INTEGRATING SEX AND GENDER ANALYSIS
INTO THE RESEARCH PROCESS

LEAGUE OF EUROPEAN RESEARCH UNIVERSITIES

Advice papers

2015:
How sex and gender analyses
could (and should) be included
for excellence in research and
innovations.

Thank you for your attention!

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