



Dandelion Physicists



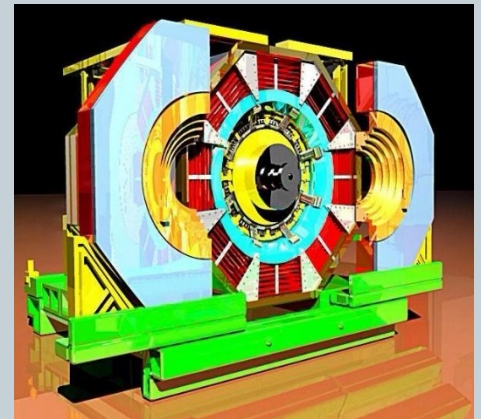
- GENDER PERSPECTIVES ON PHYSICS
DOCTORAL STUDENTS IN UPPSALA
AND WHAT WE CAN LEARN FROM IT

Karin Schönning, Dept. Of Physics and Astronomy
Uppsala University

Who am I?



- Professor in Nuclear Physics, UU
- MSc in Engineering Physics, UU, in 2003
- PhD in Nuclear Physics 2009
- Research Fellow at CERN 2010-2012
- Back in Uppsala since 2012
- Member of the BESIII, HADES and PANDA experiments
- Try to understand the strong interaction and the matter-antimatter asymmetry





Outline



- About the study "Maskrosfysiker"
- Results

Agnes Lundborg a.k.a. Agnes Angerud

- Recruitment
- Work environment
- Gender in/equalities
- Resistance
- Future



- Good practise: Diversity in the Cultures of Physics



Starting point



- There are, for a fact, fewer women than men in physics.
- Pernilla Wittung-Stafshede's seminar: this can to a large extent be explained by unequal conditions in academia
 - PWS talk: STEM + situation for (mainly) senior female scientists.
 - This talk: Physics + focus on PhD student situation.



About the study



Why care about a study among physicists in 2005?

- *Quantitative* conclusions no longer valid, but the study can still give an idea about
 - How gender discrimination comes about in physics
 - What kind of consequences are there?
 - How the Ph. D. students interpret gender discriminating situations.
- Led to similar studies in other fields:
 - H. Ridefelt & Å. Frisk, Earth Sciences: "*Att nå toppen av berget*"
 - J. Sjons : Mathematics & IT



About the study

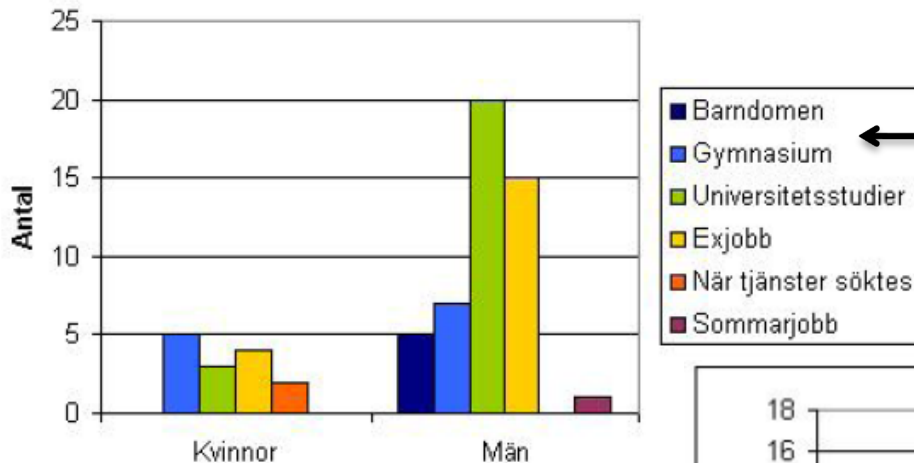


- Questionnaire with 97 questions
- Distributed among the 105 Ph.D. students (20 women, 85 men) at the physics departments at Uppsala University during the autumn of 2005.
 - 48 men and 14 women responded.
 - Net response rate: 59% (men), 78 % (women).
- Supervisor Anneli Häyrén (Centre for Gender Studies).
 - Seminar 4 in this series!



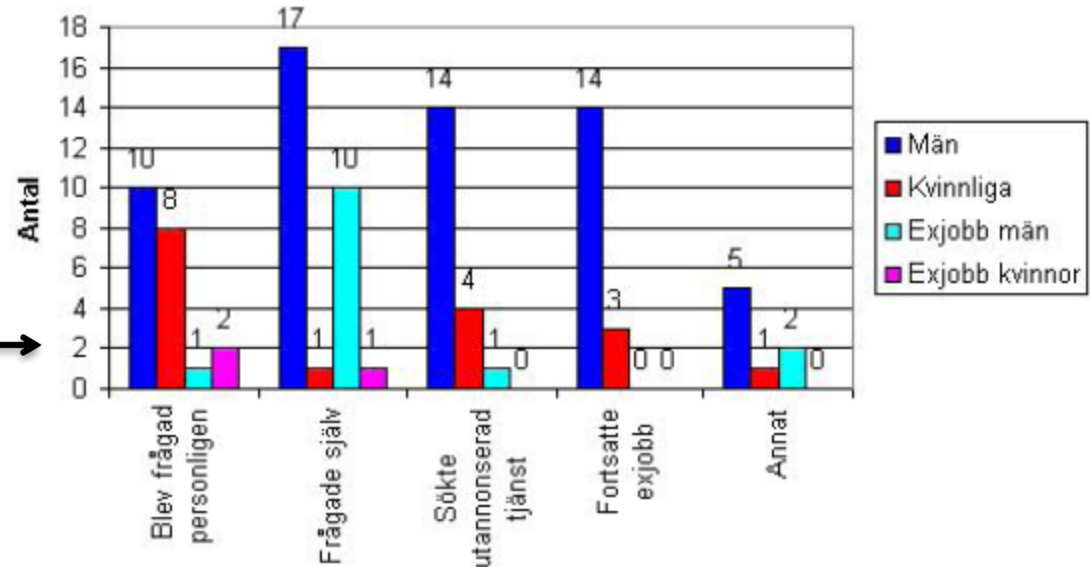
Results: Recruitment

När började du överväga forskarstudier?



When did you start considering doctoral studies?

How did you get your Ph.D. position?





Results: Recruitment



Main conclusions:

- Men ask professors informally for a position.
- Women apply if someone encourages them to do so.
- If an open position is
 - publicly announced
 - recruitment procedure is formal
 - several candidates competing,

then more women are recruited.

Basic recepy:

Announce all position, perform a formal recruitment procedure and encourage female students to apply for the open positions.



Results: Recruitment



More general conclusion:

There is no contradiction between competence/meritocracy and gender balance!

If the merits are decisive, then the gender balance is automatically improved.

One important reason for the gender unbalance is that competence/meritocracy has NOT been central in the recruitment procedure.



Afterglow: Recruitment



- More clear procedures for PhD recruitment – good!
- More women are recruited to physics:
 - Female PhD students 2005: **21%**
 - Female PhD students 2020: **30%**
- Room for improvement:

How do we advertise positions?



Afterglow: Recruitment



Post doc advert, 2021

[REDACTED]. We attach great importance to personal qualities
such as independence.



Afterglow: Recruitment



Post doc advert, 2021

[REDACTED]. We attach great importance to personal qualities such as independence. The candidate must have a very good ability to express himself in English, both orally and in writing.



Results: Work environment



Master suppression techniques

We asked about examples of:

- **Ridiculing**
- **Making invisible**
- **Concealing of information**



Results: Work environment



Master suppression techniques

We asked about examples of:

- **Ridiculing**
- **Making invisible**
- **Concealing of information**

But we did not ask about

- **Double penalty "You're damned if you do, and damned if you don't"**
- **Blaming and shaming the victim**



Results: Work environment



Master suppression techniques

- **Ridiculing:**
 - offensive jokes
 - joking about a person who is not there
 - suggesting someone got his/her position for other reasons that his/her competence
 - questioning of competence



Results: Work environment



Master suppression techniques

- **Making invisible:**
 - interruption when talking in a meeting
 - others answers the questions
 - others taking credit for results.



Results: Work environment



Master suppression techniques

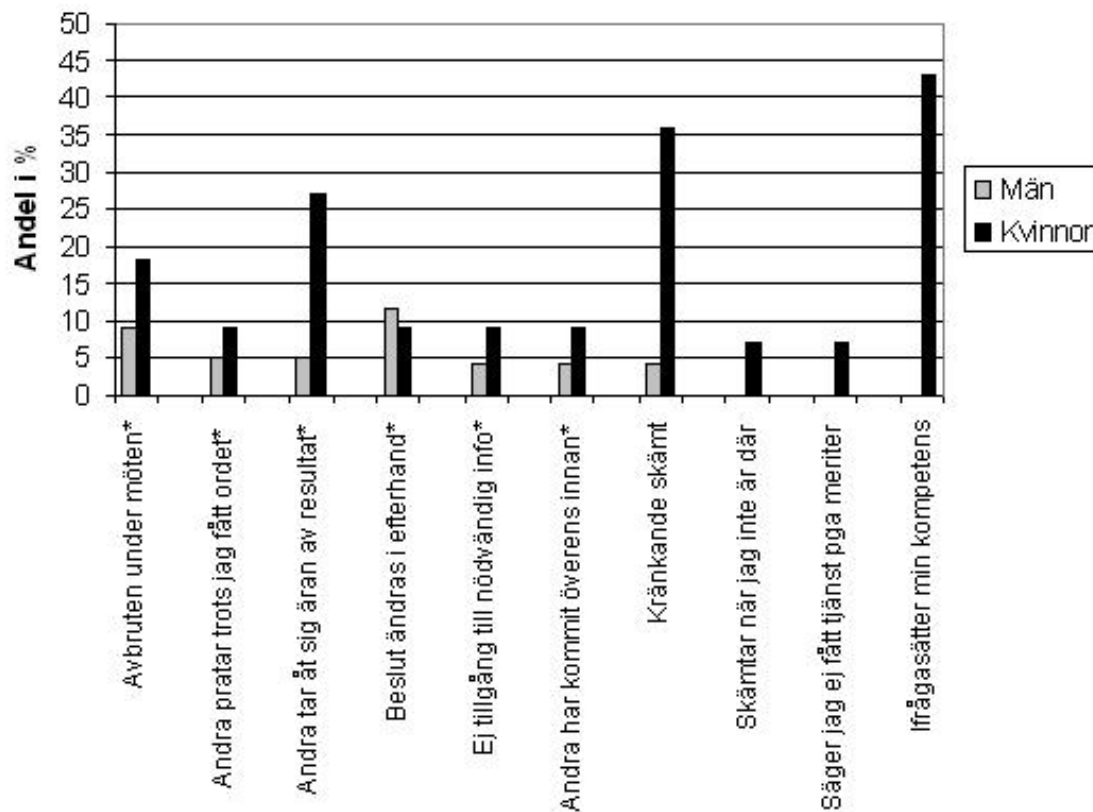
- **Concealing of information**
 - others agreed on a decision before it is officially taken,
 - decisions taken to my advantage are changed afterwards
 - did not get access to necessary information beforehand



Results: Work environment



Härskartekniker



Afterglow: Work Environment



- 2006: UU offered workshops by an expert on how to detect and handle master suppression techniques.
- 2021: No such "prêt-à-porter" workshops are offered by UU, but they can point you to companies who do.
 - Next seminar: Master suppression techniques by Paul Bengtsson.



Results: Work environment



Sexual harassment

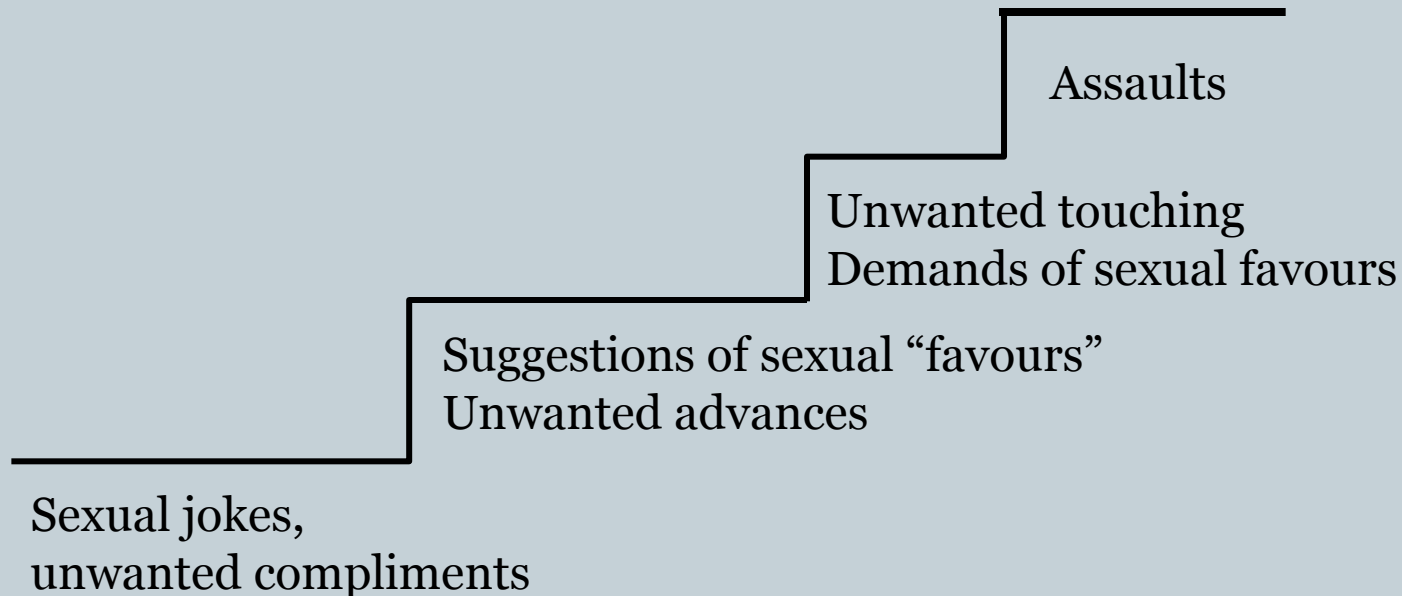
- Pioneer work by Catharine McKinnon, see *e.g.* "*Sexual harassment of working women*"
(Yale University Press, 1979)
- Definition: "*Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature*"
(Equal Employment Opportunity Commission (EEOC), 1980)



Sexual Harassment



- The legal perspective: well-defined, individual events.
- Common model: “The stairs”
(*e.g.* Ninni Hagman 1988)

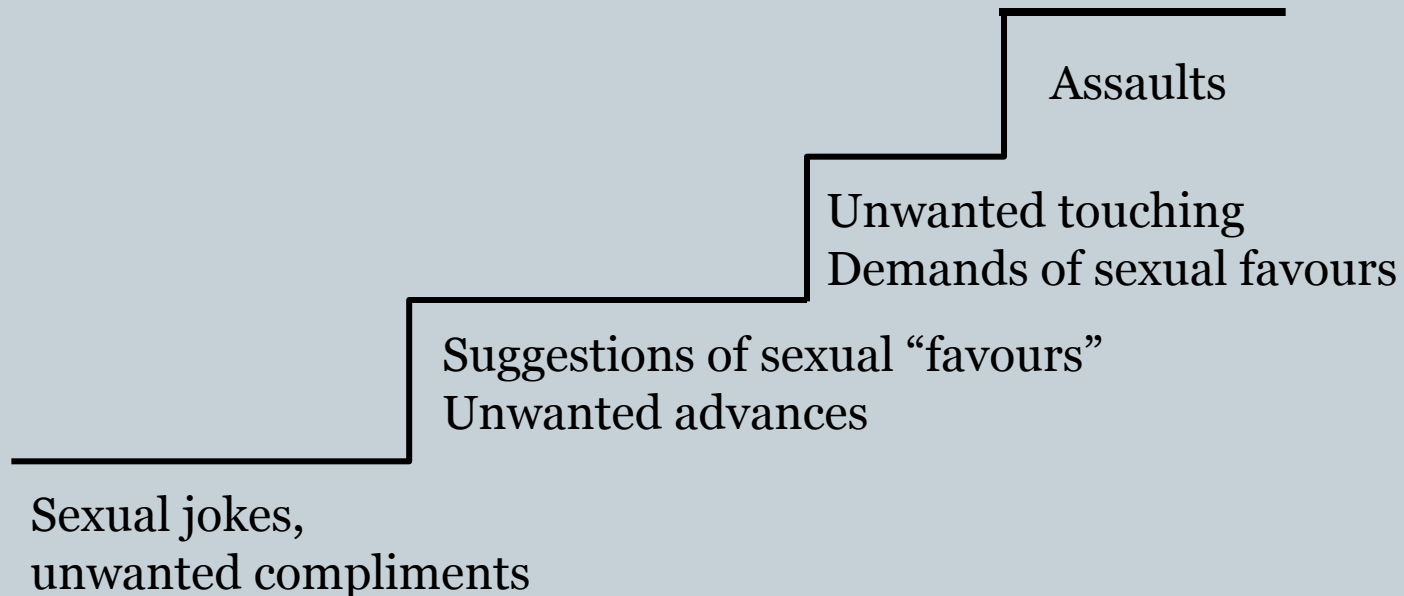




Sexual Harassment



- Problem 1:
 - Difficult to rank harassments
 - Risk that the lowest steps of the stairs are diminished or ignored.

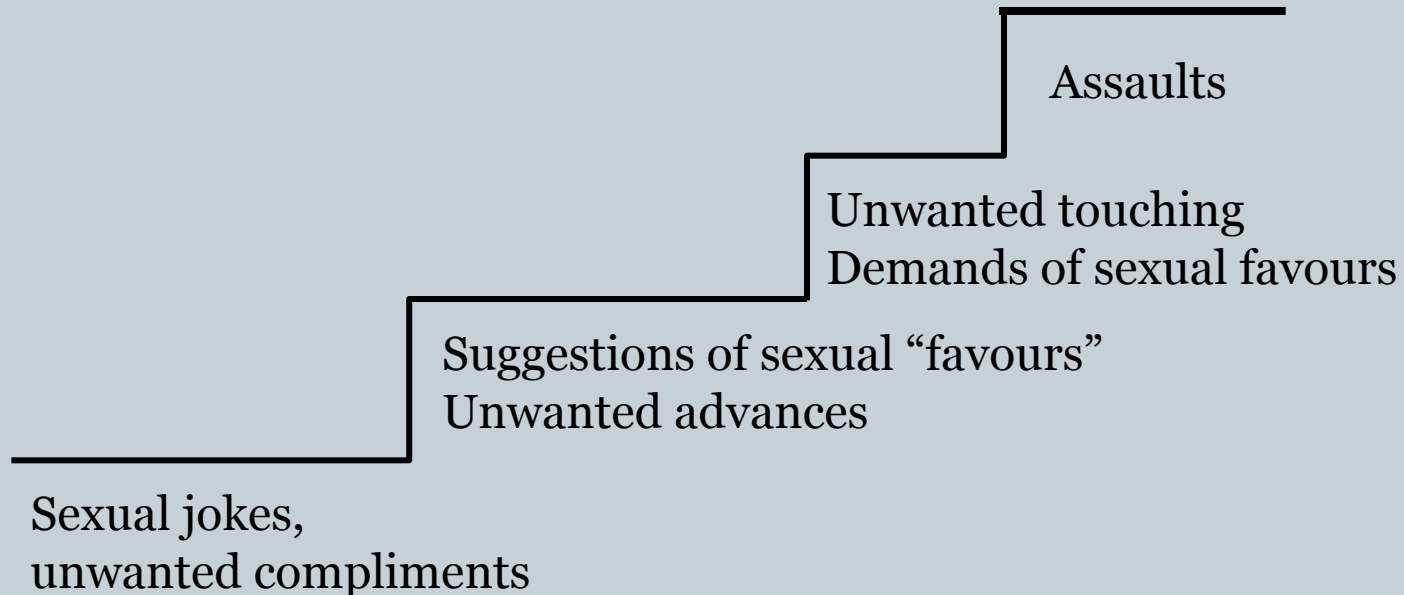




Sexual Harassment



- Problem 2:
 - For the victim, the consequences of one single event of harassment can last for many years.





Sexual harassment



Different approaches:

- Sexual harassment as a master suppression technique
 - Way for men to demonstrate power
 - Way to keep women down
 - See e.g. Harriet Holter, Karin Widerberg, Marianne Brandsaeter (*Sex i arbeid(et)*, Norsk Forlag, Oslo, 1992)
- Sexual harassment as an ongoing process

How are women affected by working in an environment where sexual harassment occurs?

(see e.g. Gunilla Carstensen, PhD thesis, Uppsala University (2005))



Sexual harassment



“The slippery slope”

Sexual jokes,
unwanted compliments

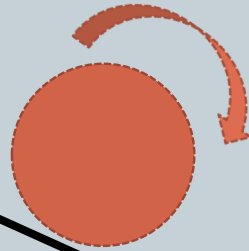
Suggestions of sexual “favours”
Unwanted advances

Unwanted touching
Demands of sexual favours

Assaults

Adapting behaviour to avoid
harassment

How does this affect
work-life and opportunities?





Results: Work environment



Our study

- Did not use the term "sexual harassment"
- Asked about a number of examples
 - Sexual harassment as well-defined events
- Also asked about how PhD students adapt their behaviour in order to avoid being harassed
 - Sexual harassment as a process



Results: Work environment



Sexual harassment

- About 1/3 of the women had experienced sexual harassment at work or at conferences, or both.
- About 2/3 of the women had adapted their behaviour by:
 - Worrying about appearance / clothes
 - Avoiding working outside office hours
 - Avoiding certain people
 - Feeling uncomfortable when networking at conferences
 - Avoiding certain conferences



“Backwards, and in high heels”



Afterglow: Harassment



- Recent PhD survey shows that harassment is still a problem.
- **2006:**
 - Dedicated person employed by UU to support victims of gender/sexual harassment.
 - Easily accessible action plan at each department for the event of gender/sexual harassment.
 - Some physics departments had a dedicated contact person with training on how to handle harassments.
- **2021:**
 - UU refers to department head and/or student union, with support by the HR unit.
 - Physics: Refers to department head and/or EO group.
 - No dedicated expert.

Afterglow: Harassment



- UU webpage: Information only in Swedish (until yesterday).

Några råd om du känner dig utsatt för kränkningar

- Säg ifrån. Om det är möjligt, konfrontera personen. Om det är svårt att säga ifrån muntligt, skriv ett brev eller visa på annat sätt att du ogillar personens beteende.
- Du har rätt att söka råd, stöd och information utan att uppge ditt namn.
- Berätta för någon på institutionen/inom programmet som kan leda dig till ansvarig funktion (prefekt). Du kan också ta kontakt med [student- och doktorandombuden](#).
- Anteckna tid och plats, vad som hände, vad som sades och hur du reagerade. Detta kan utgöra viktig dokumentation i en eventuell utredning.
- Delta i den utrednings- och åtgärdsprocess som eventuellt initieras och ta emot de stödinsatser som erbjuds dig.



General conclusions

Gender is not important:

- Stress and feelings of insufficiency
- Time spent with the supervisor
- Positive experiences from working in a group
- The approach to physics itself

Gender is significant:

- Recruitment method
- Feeling appreciated for efforts and as individuals
- How supervisor and colleagues help during the transition from undergraduate studies
- Master suppression technique *making invisible*.



General conclusions



Gender is decisive:

- Experiences from conferences and summer schools
- Master suppression technique *ridiculing*
- Sexual harassment
- Physical stress symptoms, *e.g.* headache, stomach problems and insomnia



Results: Resistance



Generally, the **normbearers** = **men** in this study can be divided into the following categories:

- The open antagonist
- The hidden antagonist
- The neutral
- The passive proponent
- The active proponent



Results: Future



Why do you think there are so few women in physics?

*“Old men hire people and run the research groups.
When they die, things will get better.”*

Is that really true?



Results: Future



- More men than women are sure they want to make a career within physics.
- More women than men are sure they do NOT want to make a career within physics.
- Open and hidden antagonists are generally more willing to continue within academia after the dissertation, than passive and active proponents.



Results: Future



Conclusions:

- Men are "enriched" in the current system.
- Open and hidden antagonists may also be "enriched".

→ This does not speak for this problem being solved by itself!



Dandelion Physicists



...what does it mean?



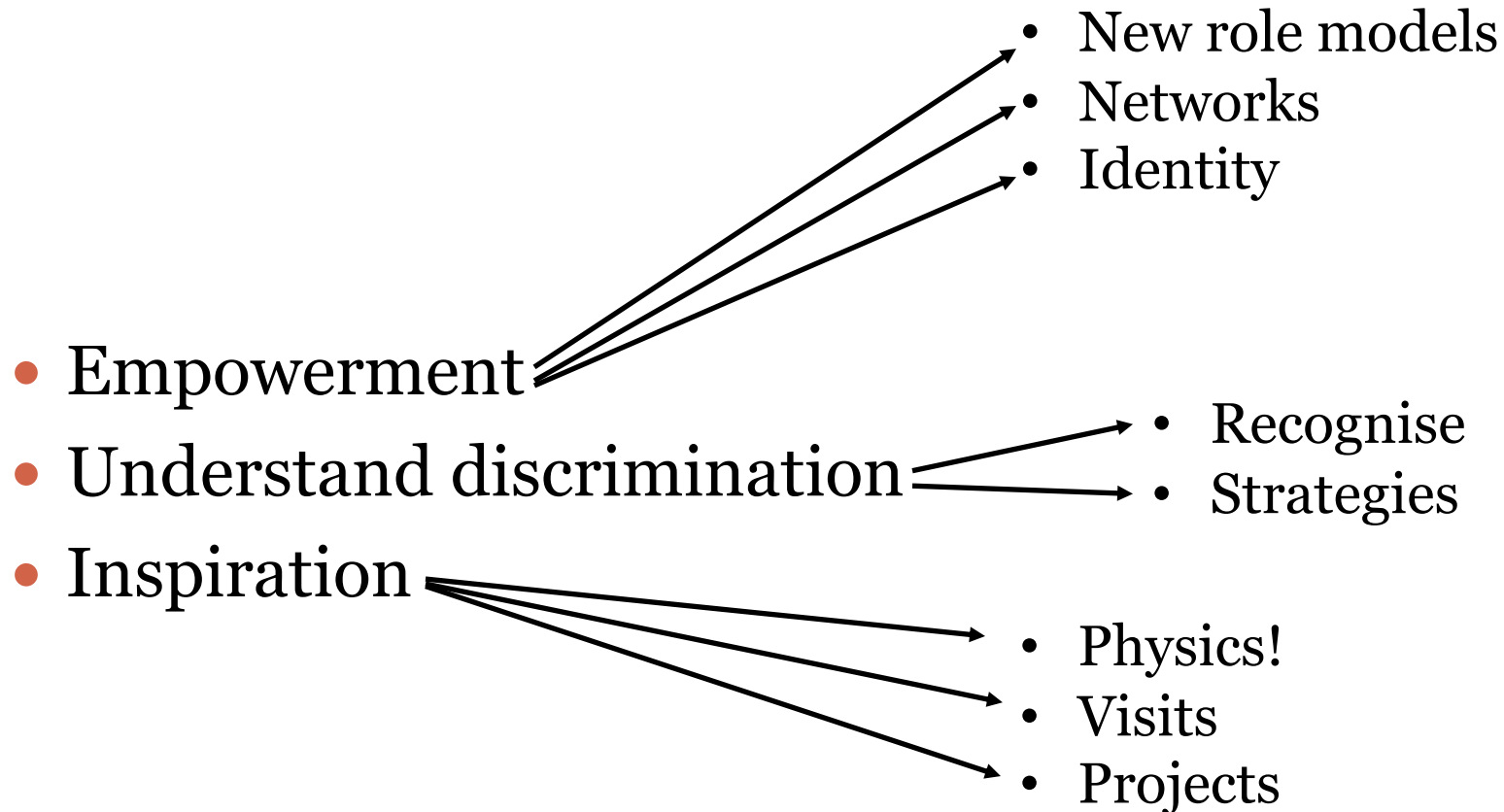
Diversity in the Cultures of Physics



Our part of the solution



Physics Summer School



Physics Summer School

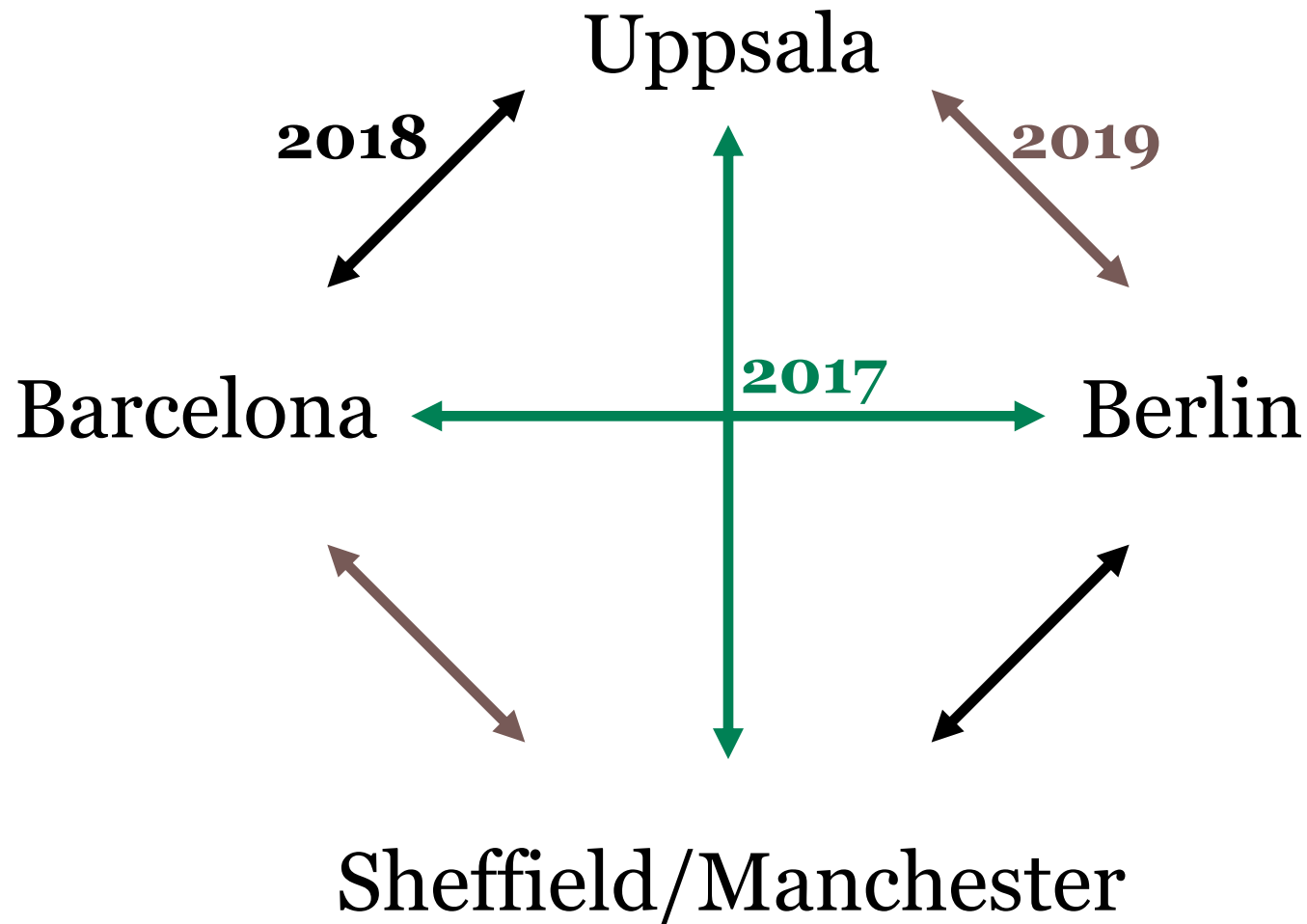


- Combines physics and gender/diversity studies
- Bilateral school targeting mainly female physics students.
- Common Erasmus funded 3-year project
 - Co-financed by Physics Dept. and the Faculty of Science at UU
- Local organisers:
 - O. Björneholm, K. Schönning, A. Gengelbach, P. Svensson



The Project is funded
by the European Union

Physics Summer School



Physics Summer School



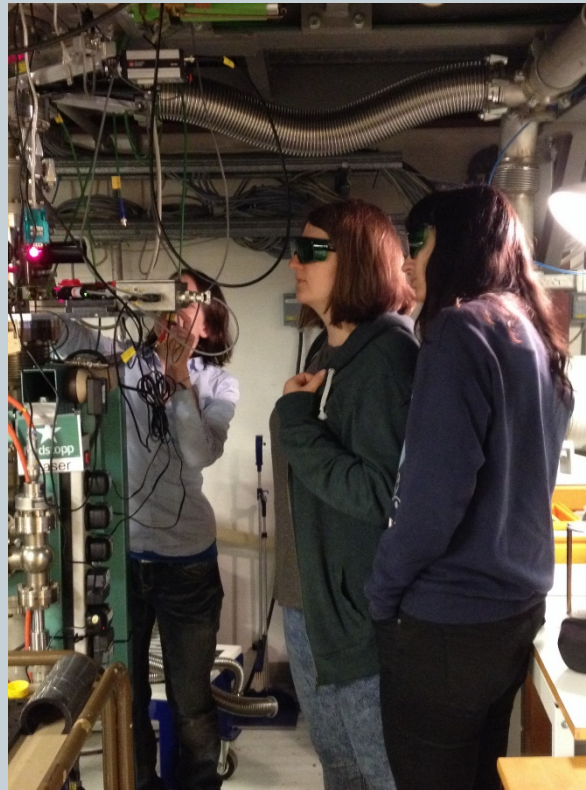
”Pilot” projects:

- 2012: Berlin – Uppsala
(Olle Björneholm, Malin Göteman, Karin Schönning)
- 2016: Berlin – Uppsala + ISP (Uganda & Kenya)
(Lena Heijkenkjöld, Karin Schönning, Aila Gengelbach, Carla Puglia)

Inspiration: Physics Projects

One mini project at each hosting institute:

- Try out a field of interest
- Meet active scientists
- Present the project



Inspiration: Research Visits



Visits at laboratories / reserach centres / companys

- ✦ Meet researchers / role models
- ✦ Discover multitude of possibilities in physics



Project on discoveries by women



- ✦ Learn about physics discoveries
- ✦ Learn about prominent women in physics
- ✦ Present the work



Quotes



*“I feel building **companionship and sorority** amongst female physicists is the key to overcome the issues we may face in the future as women in Physics”*

*“I took part of one of the **most enriching experiences of my life:** this summer school.”*

*“From the first day of the summer school **I felt like I belonged.** Almost everyone there was a stranger to me but I still felt better in their presence than in class for the past four years.”*





Thank you for listening!





What academia can do to promote gender equality



- Formal recruitment procedure, announce all open positions at well-known spots.
- Encourage female students to apply for these positions.
- Supervisors should be made aware that the beginning of the doctoral studies is crucial.
- Educate all personell, at all levels, about *e.g.* master suppression techniques and sexual harassment
- Gender equality work requires competence and takes time. People doing this work should therefore be compensated financially, otherwise it becomes a "women's trap".
- Make visible the female researchers at the department as well as the female "giants" within the field.
- Search actively for female candidates for open positions, conferences, teachers at summer schools, opponents at dissertations...