GENDER PERSPECTIVE IN RESEARCH

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First Things First

Man, I feel like a Woman! (as the song goes)

"Gender refers to a number of roles and social relationships, personality characteristics, attitudes, behaviors, values, power and influence dynamics, that society attributes differentially to each of the sexes. Gender is a relational social construction. Gender roles, constructions and identities are not stable entities, but expressions along a continuum" (Bonder, Unesco, 2009).

Gender roles and career choices from childhood on

- In the world around us, in general terms:
  - girls are more oriented towards care and personal fulfillment through relationships with others
  - boys towards demonstrations of courage, competitiveness, and individual successes.

- Some studies indicate that by the age of 6-7, boys and girls have already internalized gender norms and stereotypes (Rippon 2019),

- 7-year-old girls already believe that they are less intellectually gifted, although their performance is not worse than that of boys (Bian 2017).

- Another research, done in Spain (Sáinz 2017), shows how most high school students understand

  - careers as engineering and physics most associated with male traits (strong character, insensitive, aggressive)
  - medicine is associated with more feminine traits (obedient, affectionate, understanding).

- Another very prevalent belief, according to the same research, is that people in engineering and physics are "geeks" and have few social skills, but instead are very smart.
- This profile does not align with the gender roles traditionally assigned to women, as they are expected to like (and be competent in) social interaction.
- The role of fiction in mass media is to be taken into account.
- Also, news (14% of women experts in science news)

- The data show that there is a high percentage of women in medicine (68%), pharmacy (70%) and biology (63%), but not in physics (28%), computer science (15%), or electronic engineering (13%).

- The percentage of women in these disciplines has been declining since the historical maximum of the early 2000s. In an increasingly digital society, it is the fields most related to the digital era that are becoming more masculinized.

- Closing this gender gap would increase European GDP a 15%

- The **horizontal segregation** contributes to the gender wage gap and hinders the overall economy.

- No matter the background (tech, economics), entrepreneurship is also considered a male activity (Gupta et al., 2009; Javadian, 2014).

- University students relate the traits corresponding to the entrepreneur to those that define masculinity (e.g. risk taker) and that are opposed to female stereotypical traits (e.g. humble) (Ahl, 2006: Pérez i Quintana, 2015)

- The successful entrepreneur stereotype has been influenced by the culturally dominant masculine attributes (Watson and Newby, 2005).

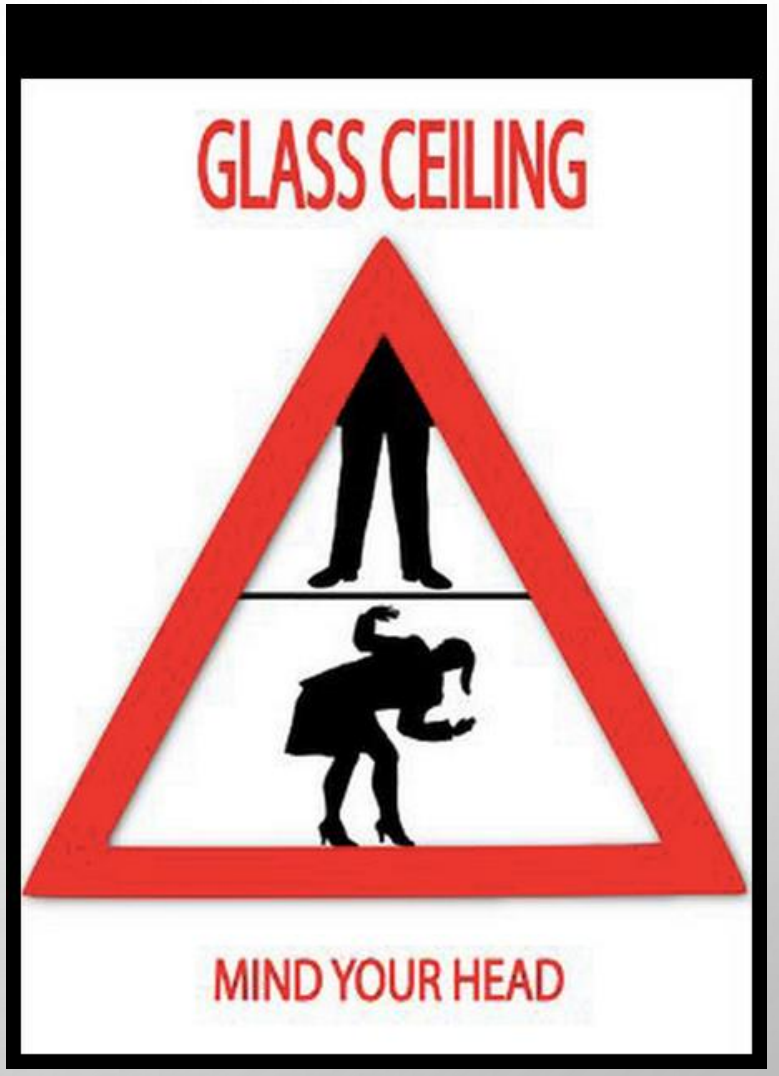
Professional contexts

Gender biases in professional contexts help the careers of men:

- Directly: through informal networks of power and information, attributing competence to men implicitly, or assuming that mothers are unreliable workers (as opposed to fathers)
- Indirectly: policing women to act according to gendered norms

The myth of Meritocracy acts to oppose real change policies

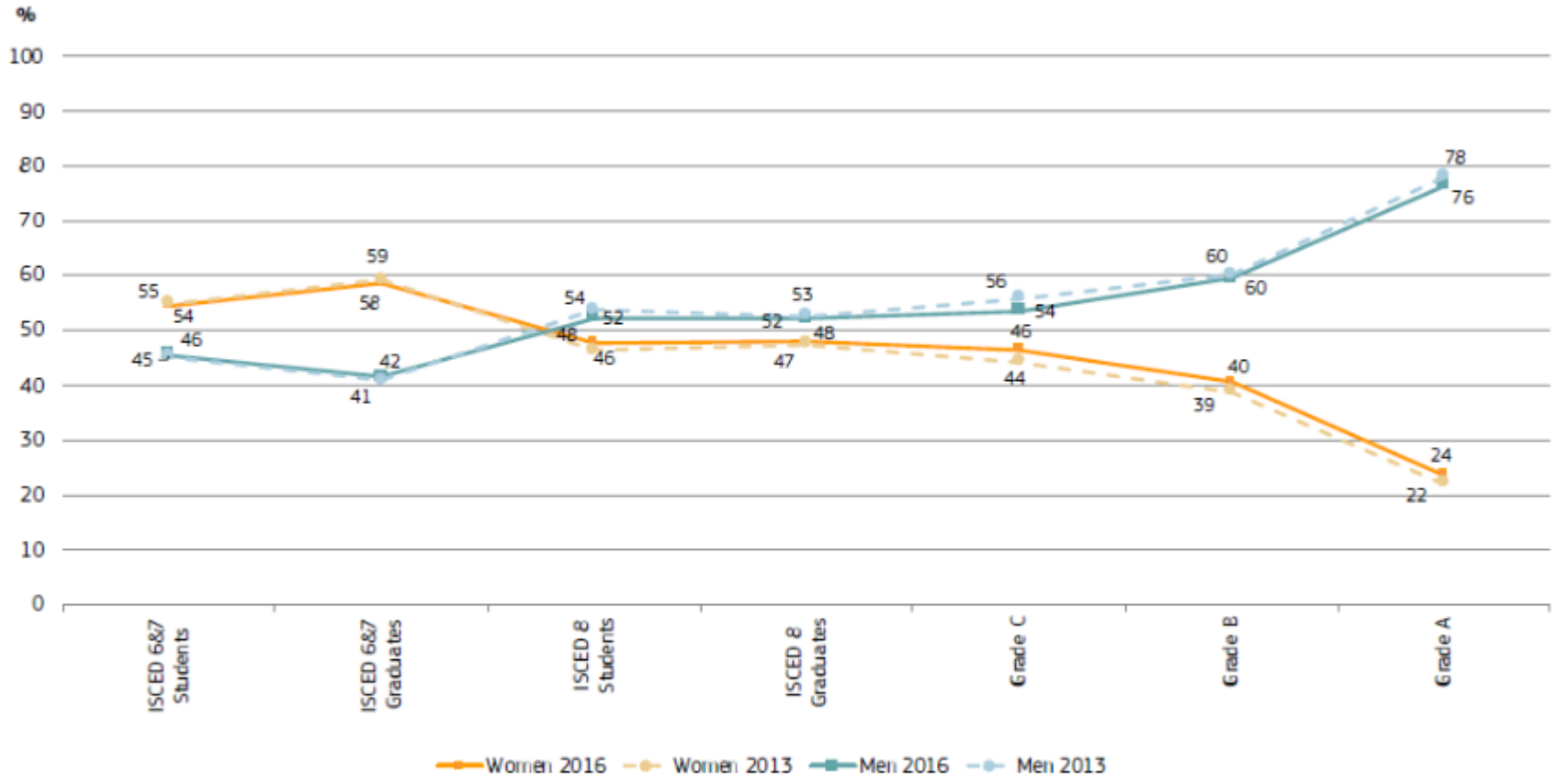
Ambivalence of Mentoring



Academia

In academia, **vertical segrega**tion is as evident as anywhere else

Figure 6.1 Proportion (%) of men and women in a typical academic career, students and academic staff, EU-28, 2013-2016



Source: She Figures 2018

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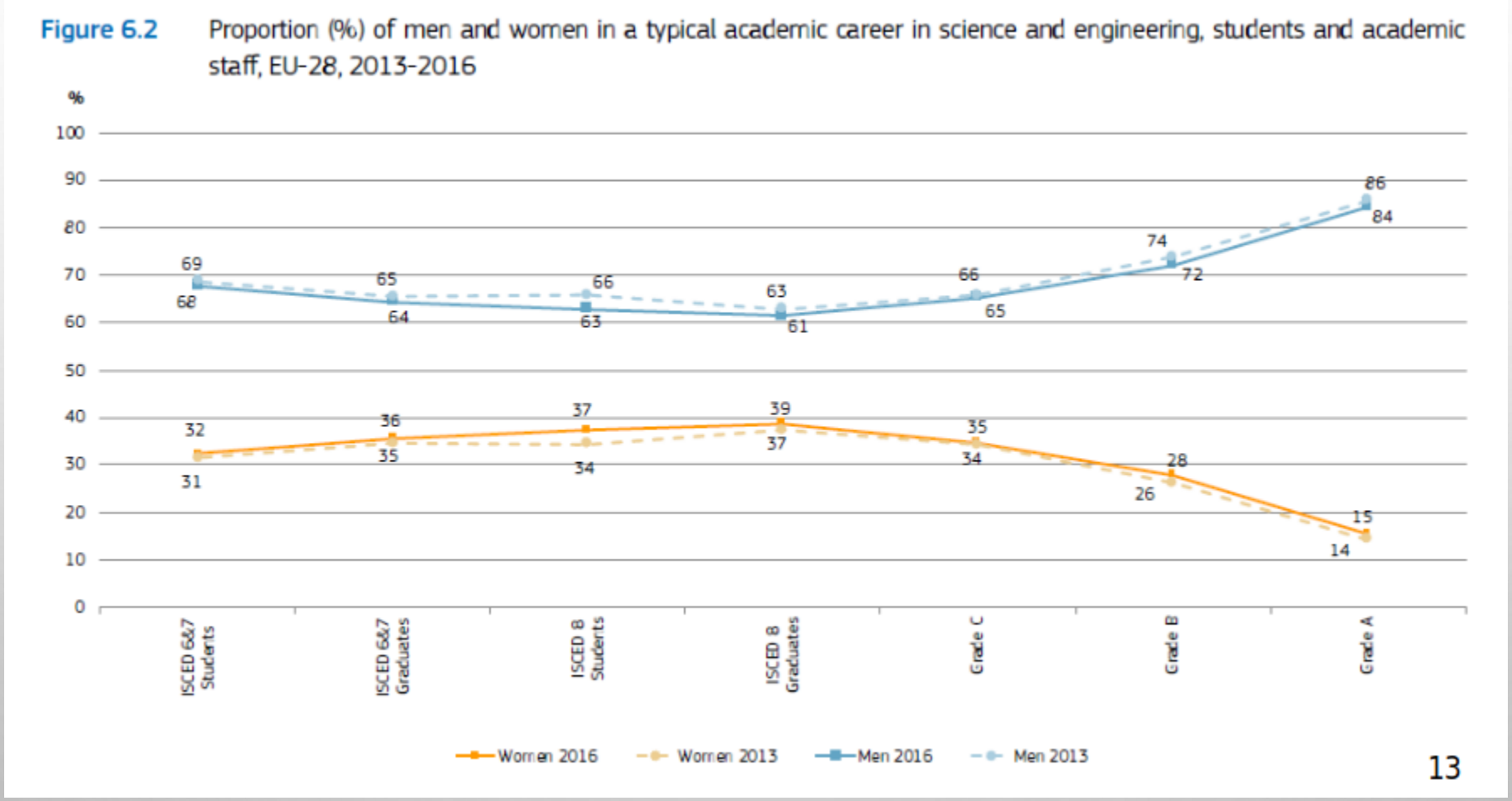

Bias, what bias?

PNAS

Science faculty's subtle gender biases favor male students

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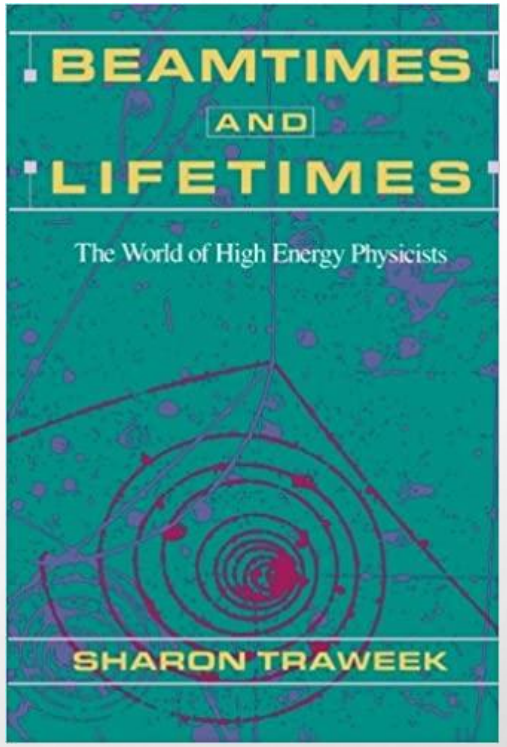


nature geoscience

LETTERS

PUBLISHED ONLINE: 3 OCTOBER 2016 | DOI: 10.1038/NGEO2819

Gender differences in recommendation letters for postdoctoral fellowships in geoscience

Kuheli Dutt[1]*, Danielle L. Pfaff[2], Ariel F. Bernstein[2], Joseph S. Dillard[2] and Caryn J. Block[2]

09 de octubre de 2020

La Unidad Mujeres y Ciencia presenta los resultados de su encuesta sobre el impacto del confinamiento en el personal investigador

- **Un total de 1.563 investigadores e investigadoras han participado en el cuestionario para conocer los efectos del confinamiento en la conciliación personal, familiar y laboral**
- **Sus respuestas muestran que la brecha de cuidados se acentuó en ese periodo y se tradujo en mayores dificultades para las mujeres para desarrollar su actividad investigadora y en una ligera menor producción científica**

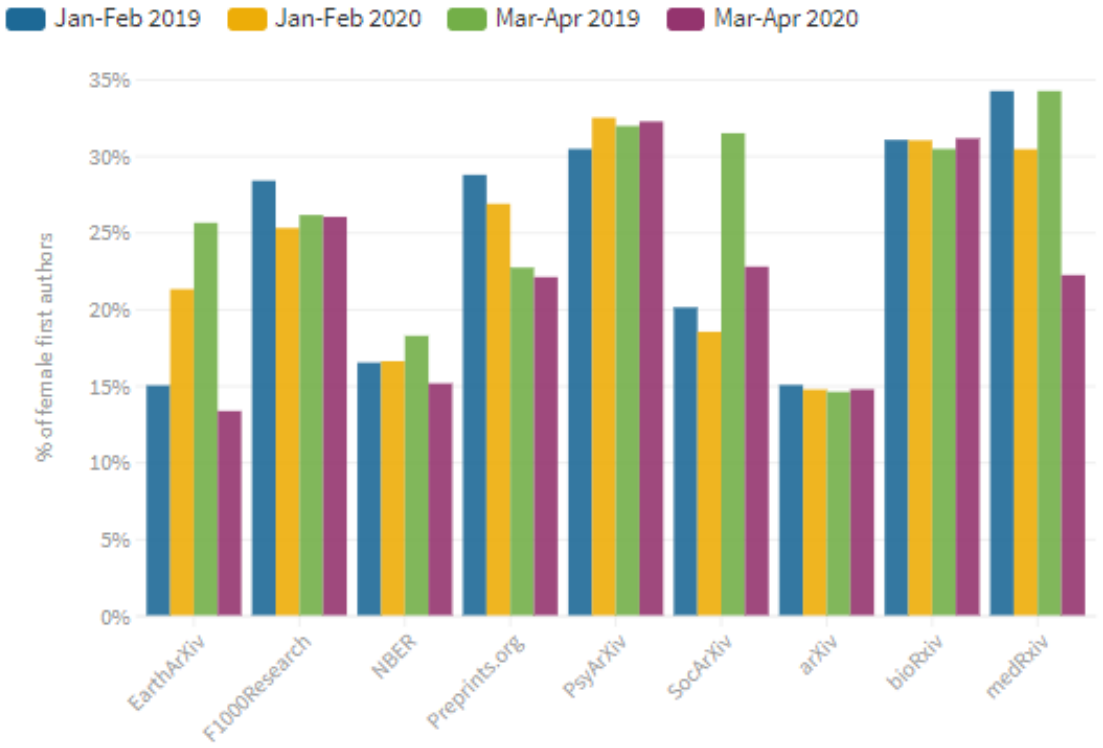
CAREER FEATURE · 20 JULY 2020

The career cost of COVID-19 to female researchers, and how science should respond

Some funders and journals are trying to support female researchers and others whose publications and positions are at risk.

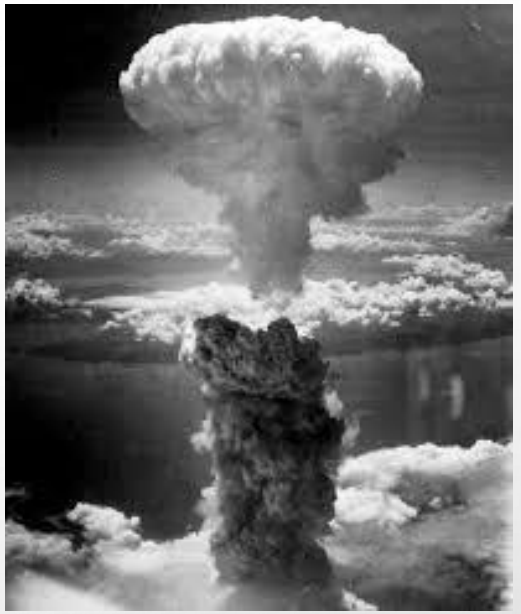
Female first authors are submitting fewer preprints

Overall, women submitted fewer papers in March and April compared to the same months in 2019, particularly to EarthArXiv, medRxiv, SociArXiv, and NBER.



Source: Vincent-Lamarre et al.

Physics and Gender



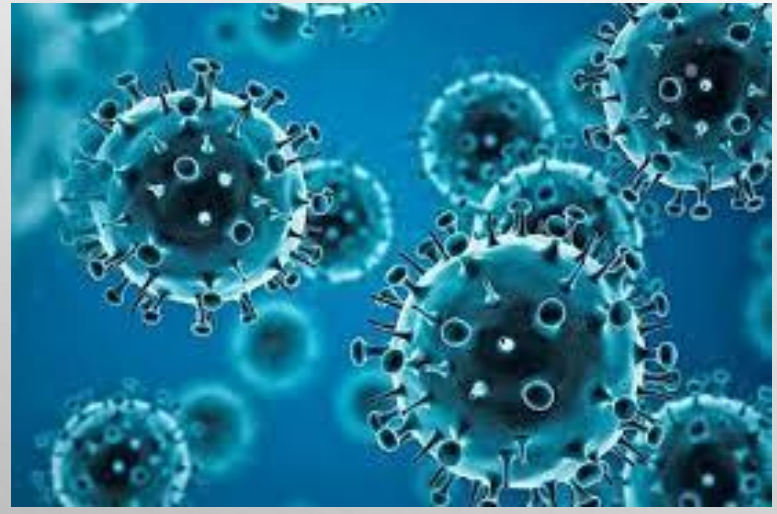
Formalism abstractions inherent to physics can make us lose sight of the fact that when we do Physics, we do gender. “Culture of no culture” [Traweek].

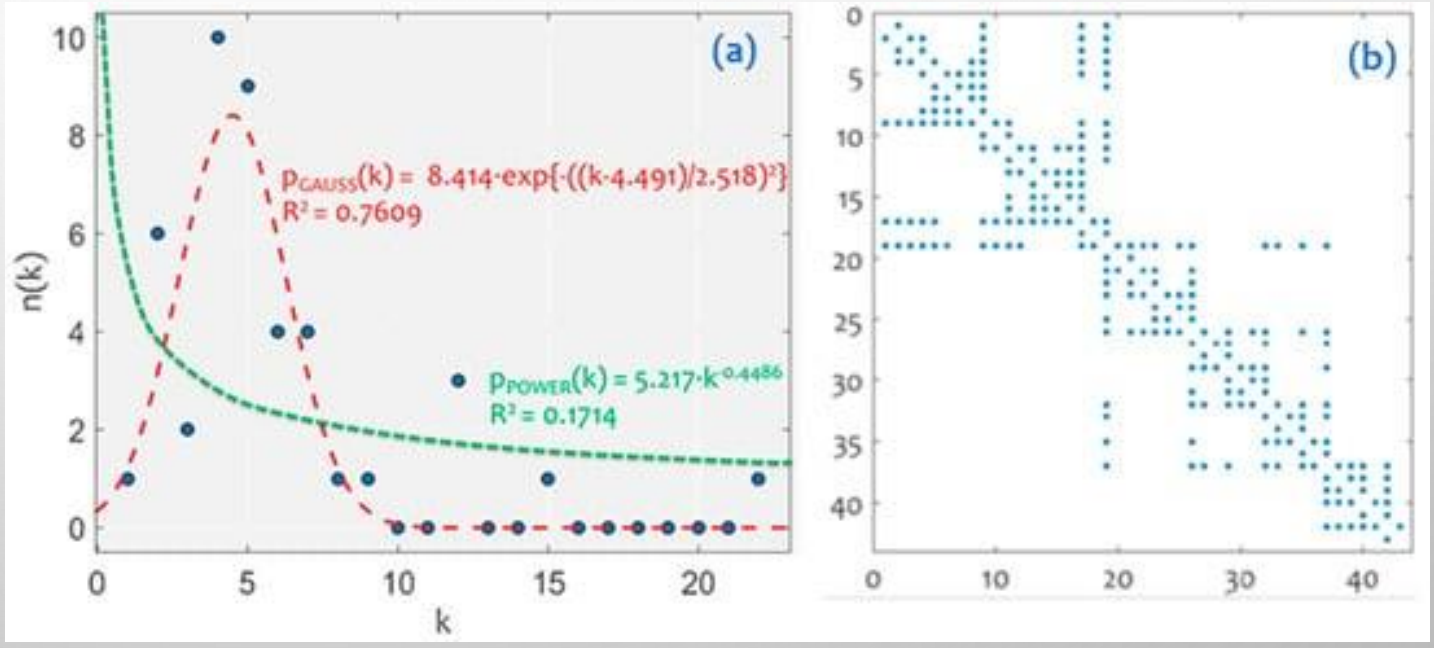
The object of study of physics is whatever happens in the material world, whatever we can observe experimentally, formalize in abstract ways, and from these abstractions, make predictions about future experimental observations.

Following Karen Barad's ideas, we understand that in experiments, in measurements, a reality materializes that did not exist before (because it was not known).

Physics and Gender

Although the answer given by nature is impossible to know a priori and cannot be followed from any discourse, the question that is asked, how the experiment is designed, what phenomenon is considered important to study, this contains the whole discursive burden of the society that produces that knowledge.





Not only that, but this response is also articulated in a discursive way, with metaphors and interpretations that respond to a contingent cultural intelligibility.

That was the beginning, and the idea seemed so obvious to me and so elegant that I fell deeply in love with it. And, like falling in love with a woman, it is only possible if you do not know much about her, so you cannot see her faults. The faults will become apparent later, but after the love is strong enough to hold you to her. So, I was held to this theory, in spite of all difficulties, by my youthful enthusiasm . . . So what happened to the old theory that I fell in love with as a youth? Well, I would say it's become an old lady, who has very little that's attractive left in her, and the young today will not have their hearts pound when they look at her anymore. But, we can say the best we can for any old woman, that she has been a very good mother and has given birth to some very good children. And I thank the Swedish Academy of Sciences for complimenting one of them. Thank you.[47]

Physics has traditionally been done by men, with genealogies of men and stereotypically masculine values.

In this sense, EF Keller tells us that to the extent that physics is defined by those who have practiced it and practice it, anyone who wants to enter that community must adapt to the existing codes.

Anyone who does physics without being a man, therefore, has, at the same time, more difficulties but also more potential to challenge these codes.

A bit of sociology: The cultures of research in Physics [Hasse]

	HERCULES	CARETAKER	WORKER BEE
Work relation	Devotion to physics. No intersection of family with work.	A healthy work life balance is prioritized. Social concern.	Research is 9-5. Private life and work life clearly divided.
Work place identity	Very individualistic. Praise initiatives, creativity. No room for weakness.	Group oriented with focus on social ties. Team can help the weak but maybe limit the creative work if the group demands it.	Work alone and keep to one self. Focus on the given task + work regulations and conditions.
Competition	One-on-one open and hidden competition is encouraged. All means are employed. Strategic thinking is necessary.	In-group competition is unacceptable–only group vs. group. The group defines the means of competition.	Uninterested & somewhat scared of competing–requires extra effort. Competition only at top-level.
Power structure	Anti-authoritarian tendencies challenge those with power through individual hidden power games.	Seemingly flat structure but entanglement of team/group and the leader's power; the leader use power to promote and protect the group. Young must earn membership are exploited by elder group members.	Clear and formal hierarchy. Distant but strong leader; one-man institutes, with many workers who can be replaced.
Gender	Being woman/mother is used negatively in competition. Gender overshadows competency–leading to cases of sexual harassment.	Group loyalty comes before gender (and competency). Few cases of conflict including sexual harassment.	Absence of competition makes gender unimportant.

Conclusions

As physicists, we are not reproducing a world, we are bringing new pieces into the wider landscape of the things that exists.

- We need diverse teams that bring diverse perspectives.
- We need to acknowledge our responsibility in what we do.
- We need to explain ourselves in a responsible matter.

Thank you for your attention!