NARROWING THE GENDER DIVIDE

Presentation for
Italian GENDER IN PHYSICS DAY
Aula Convegni CNR Roma
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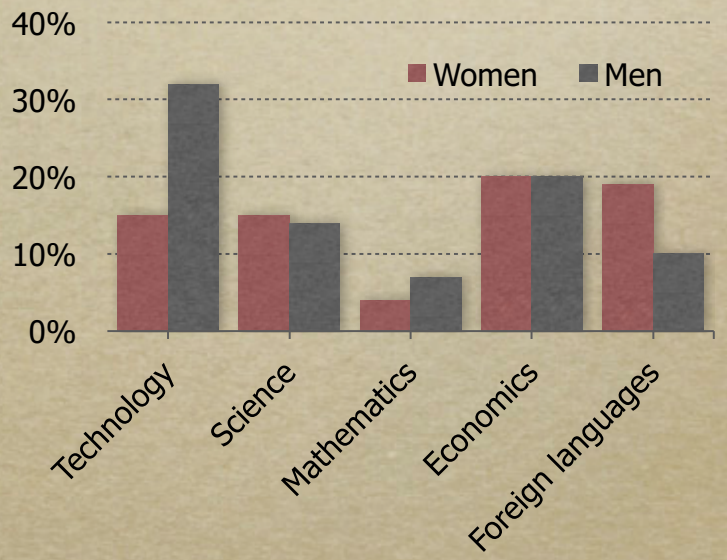
GENERA

Millennials and the Gender Gap

"Which field of study is most important for your personal future success?"

- Globally, 29% of women identified **technology** compared with 42% of men. **Science** did less well - about the same results for women and men: 11%-12%, respectively.
- Western Europe - only 15% of women identified **technology** compared with 32% of men. About the same share of women (15%) as men (14%) identified **science**.
- Central/Eastern Europe - 21% of women and about half of the 40% of men identified **technology**. **Science** did less well and true to trend in Western Europe, about the same share of women (9%) as men (10%) saw science as important for their future success.
- North America - about the same share of women identified **technology** (21%) or **science** (22%). For men, 35% identified fields of technology but only 15% science.
- Asia - role of **technology** is clear: 40% of women and 49% of men identified technology as most important. Among the regions examined here, Asia showed the lowest shares for **science**: only 7% of women and 11% of men.

Favoured fields by gender, Western Europe, 2013.

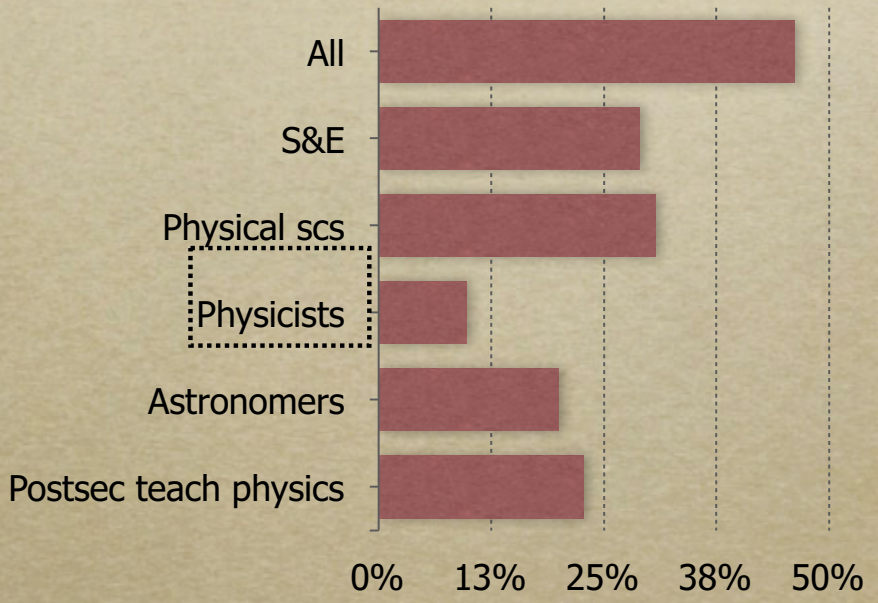


Source: based on data from telefonica.com/millennials, 2013.
Note: figures for Western Europe include Spain, UK, Germany, Italy and France.

Women in Physics Occupations

- In the US in 2013, 29% persons employed in science and engineering were women.
- Among the physicists, only 10% were women, and among astronomers, 20%.
- Women have higher representation in teaching of physics – postsecondary teaching of physics, almost one quarter were women.

Women as a share of employed, selected fields, United States, 2013.

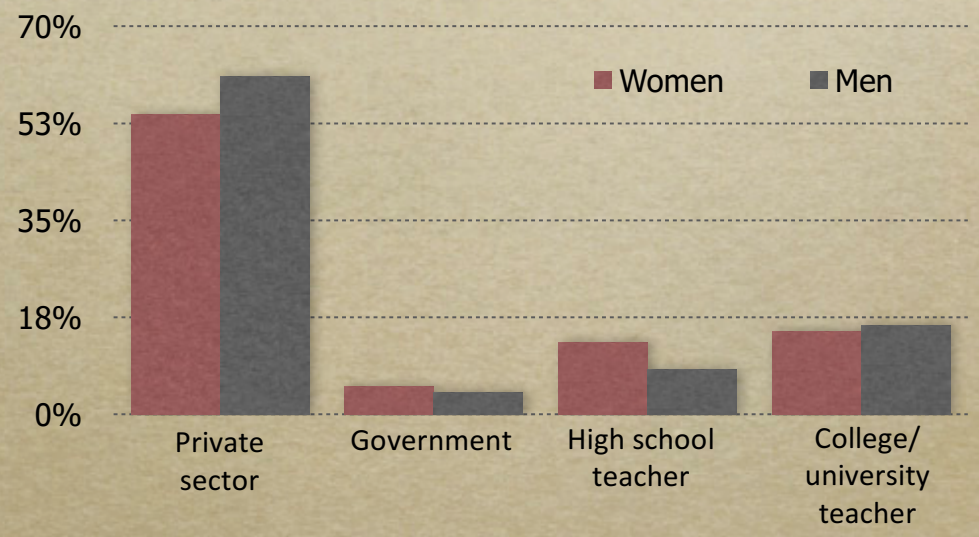


Source: NSF, Science and Engineering Indicators, 2016.

Initial Employment of Physics Graduates

- About the same share of women and men went into the workforce after graduation: 43% of the women and 46% of the men.
- Women were less likely to go into the private sector compared with men.
- Women were as likely as men to teach college or university BUT women were more likely to teach highschool than men.

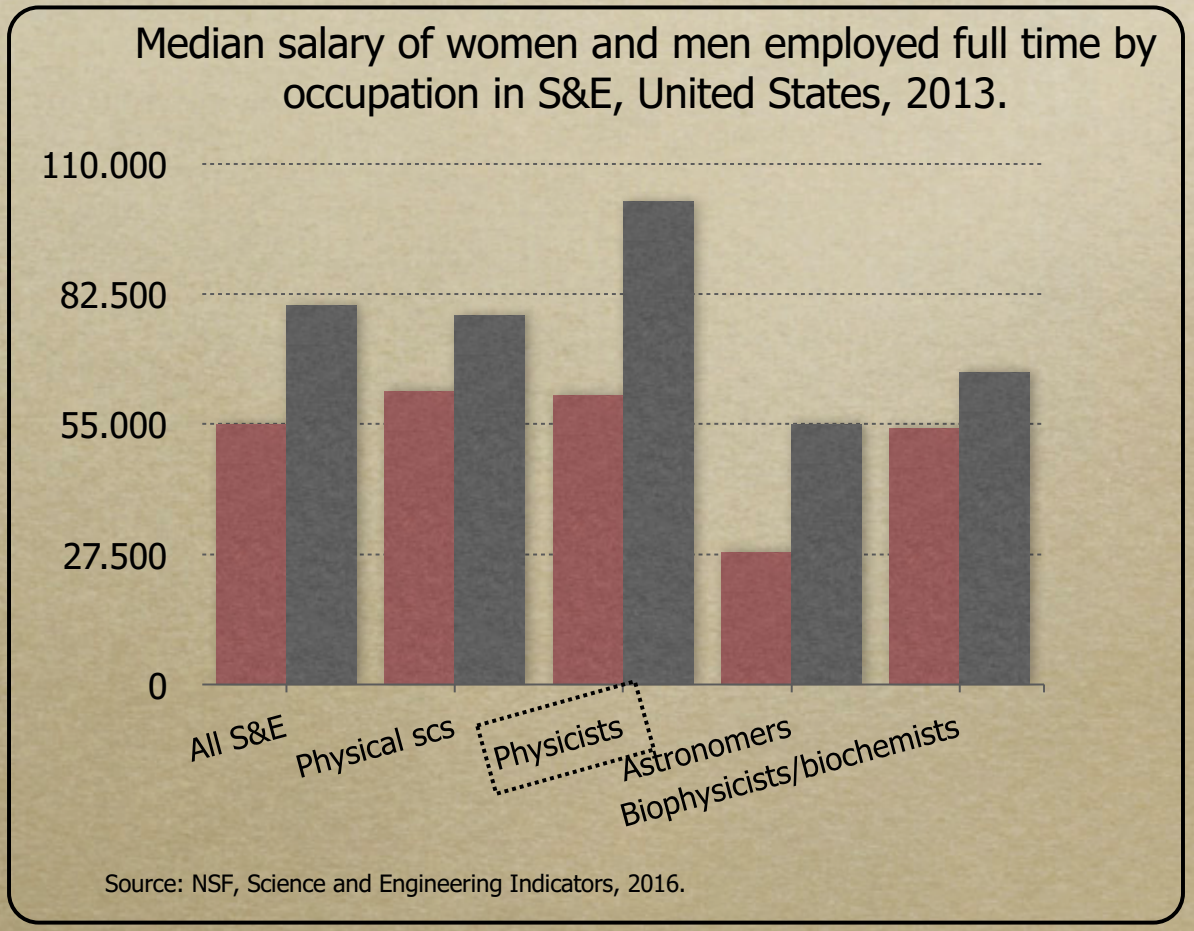
Initial employment of physics bachelor graduates, United States, 2013 and 2014 (combined).



Source:based on data from American Institute of Physics.
Note: College/university includes affiliated research institutes.

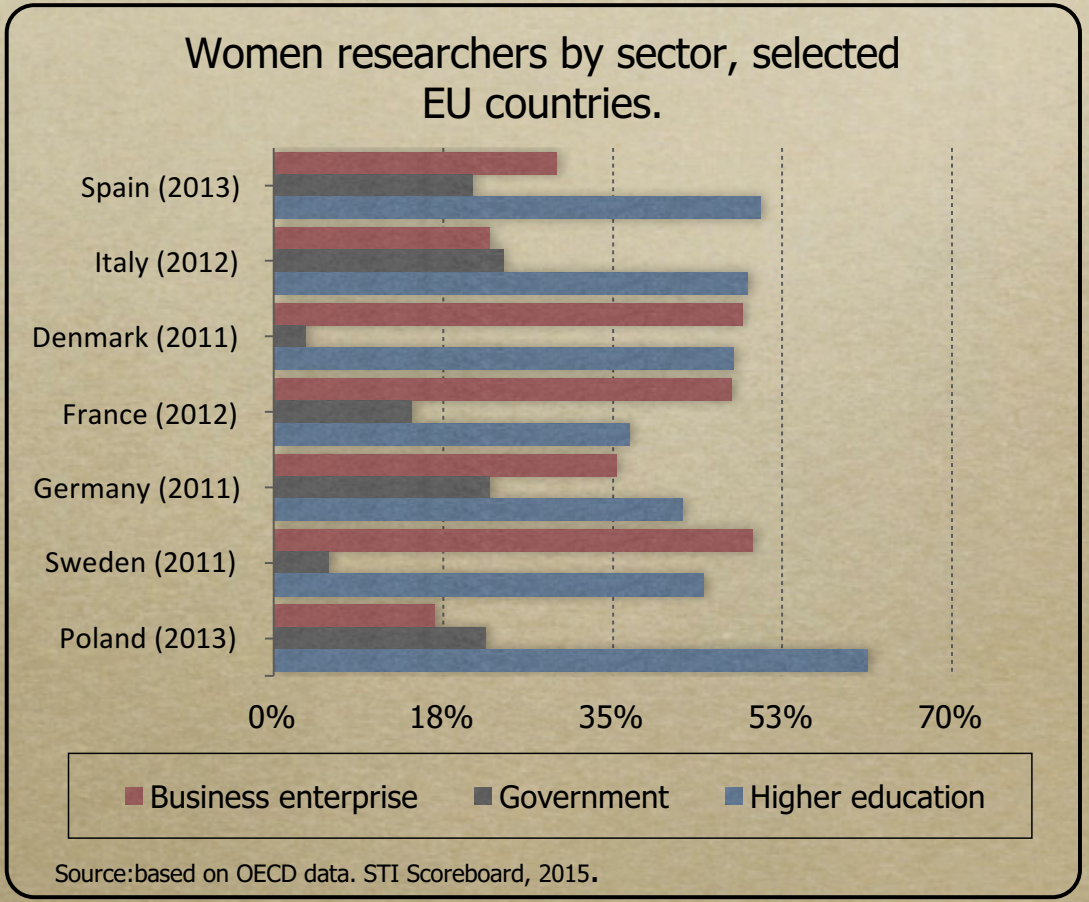
A Wide Divide - Employment Earnings of Women and Men in Physics

- In the US in 2013, there was a wide salary gap among physicists: the median salary for women was $61,000 and for men $102,000.
- Women astronomers also reported about half the median salary of men.



Women in Research in Europe

- In Poland most of the women researchers were in the higher education (61%).
- In Denmark, France, and Sweden, close to half of women researchers were in the business enterprise sector; Germany ranked lower with about a third of women researchers in the business enterprise sector.



Source:based on OECD data. STI Scoreboard, 2015.

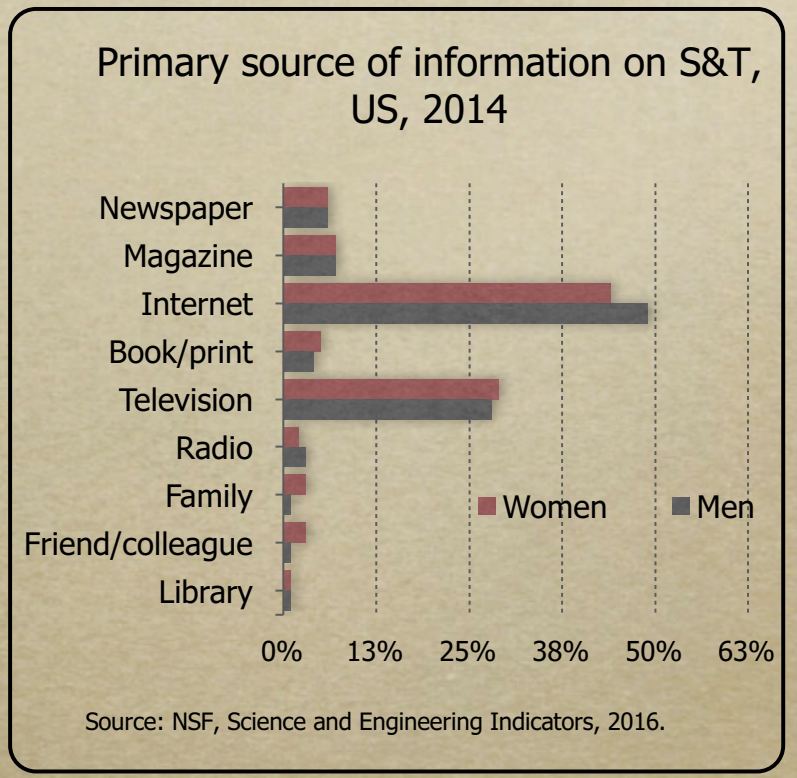
Advance Information to Advance Women

- Timely, comparable gender disaggregated data is an essential tool for gender mainstreaming:
  - Systematic data collection - piecemeal approach to gathering information to address gender gap is costly and inefficient.
  - Optimization of rich and timely information and experiences through international projects like GENERA.

No Single Cause - No Simple Answer

- Education and career choices are the sum of multiple factors (e.g. personal characteristics, background, learning experiences, knowledge, opportunities).
  - A US survey shows that women rely somewhat more on family and friends for information about S&T whereas men favour the Internet as a source of information on S&T more than women.

- International mobility – job opportunities
  - The ability to bring your family with you - one of the largest obstacles is cost.
  - Women's wages in science tend to be lower than men's.
  - Observation? Woman may have less opportunity for international mobility and so international mobility may be subject to gender bias. (NordForsk, 2014).



Lessons from Other STEM Fields

- Learn from 'best practises' that address gender disparities in other STEM fields.
- Is the 'width' of the gender gap discipline specific?
  - What is unique about physics?
  - What challenges for gender balance does physics share with other fields in STEM?

Context is Everything

- Need to consider economic, social and cultural landscapes:
  - Gender disparity varies by field and occupation, by organization.
- Gender disparity is derived from broader influences of economic, political, social and cultural aspects.
  - Traditional hurdles of 'hard science' or socio-economic factors (e.g. relative size of public research sector, private research sector).

Narrowing the Gender Divide Reaps Benefits

- Women are a valuable resource for European research community.
- Lack of women in management positions in research organizations can introduce gender bias on direction of research and on advice to senior management and politicians.
- Research suggests gender-heterogenous working groups produce higher quality science.
- Institutional gender mainstreaming practices can enhance an institute's reputation and position.

Women in Physics Triumf

Lene Vestergaard Hau - Professor of Physics and Applied PHysics, Harvard Department of Physics, Hau Lab http://web-static-aws.seas.harvard.edu/haulab/

Danish-born physicist - from Aarhus Denmark to CERN to Harvard. Research: 'stopping light' and implications for quantum computing and quantum cryptography.

Discovery podcast @http://www.radiolab.org/story/267124-speed/

Fabiola Gianotti - Director-General CERN,and honorary Professor with University of Edinburgh.

Italian-born physicist wtih PHD in experimental particle physics from from University of Milano.
Research at CERN included detector R&D, construction, software development and data analysis.

Dr. Gianotti ranked as one of the "Top 100 most influential women" by Forbes (2013), 5th in Time magazine Personality of the Year (2012) and among "Top 100 most inspirational women by the Guardian newspaper (2011).

Dr. Gianotti is the first woman to be Director-General of CERN, Europe's Organization for Nuclear Research.