



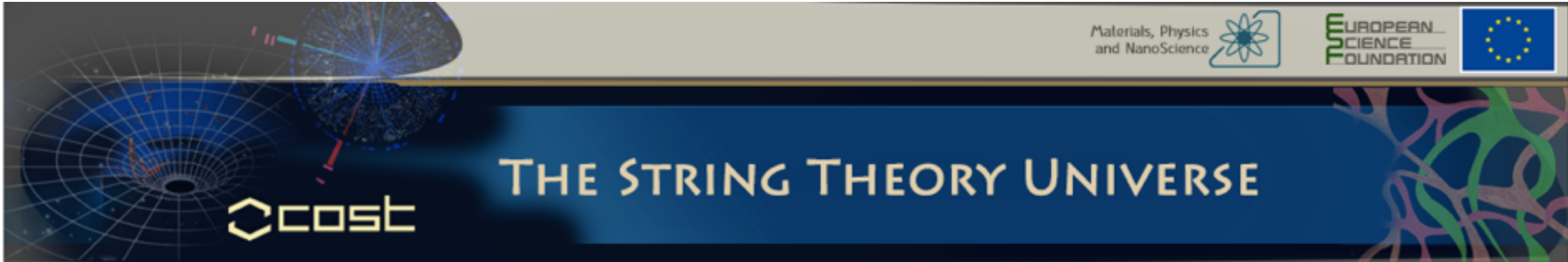
Gender and diversity issues

Marika Taylor
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Introduction

- The EU COST action “The String Theory Universe” ran from 2013-2017.
- COST actions provide funding for networking via workshops, conferences and exchange visits.
- This action was led by female scientists and one of its aims (beyond scientific excellence) was to support the development of women.

<http://www.weizmann.ac.il/stringuniverse/>



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sions, 28 June, 2015 - 02 July, 2015, Technion, Israel.

First Workshop on String Theory and Gender, (

- Home
- Composition of the Action
- Working Groups
- People
- Events
- Outreach and Gender
- Postdoc & PhD

Chair: Prof. Silvia Penati (IT)

Vice-Chair: Prof. Yolanda Lozano (ES)

As particle accelerators, such as the LHC, narrow down the experimental limits on supersymmetric particles and other possible extensions of the Standard Model, and as satellite missions, such as WMAP and Planck, probe the very early Universe, this Action aims at fundamental, forefront research exploring the role played by String Theory in these and other areas of Particle Physics, Cosmology and Condensed Matter Physics. The Action coordinates the research of European experts working in these diverse fields, while maintaining a strong commitment to promoting the presence of women in these fields.

Search people

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Gender workshops

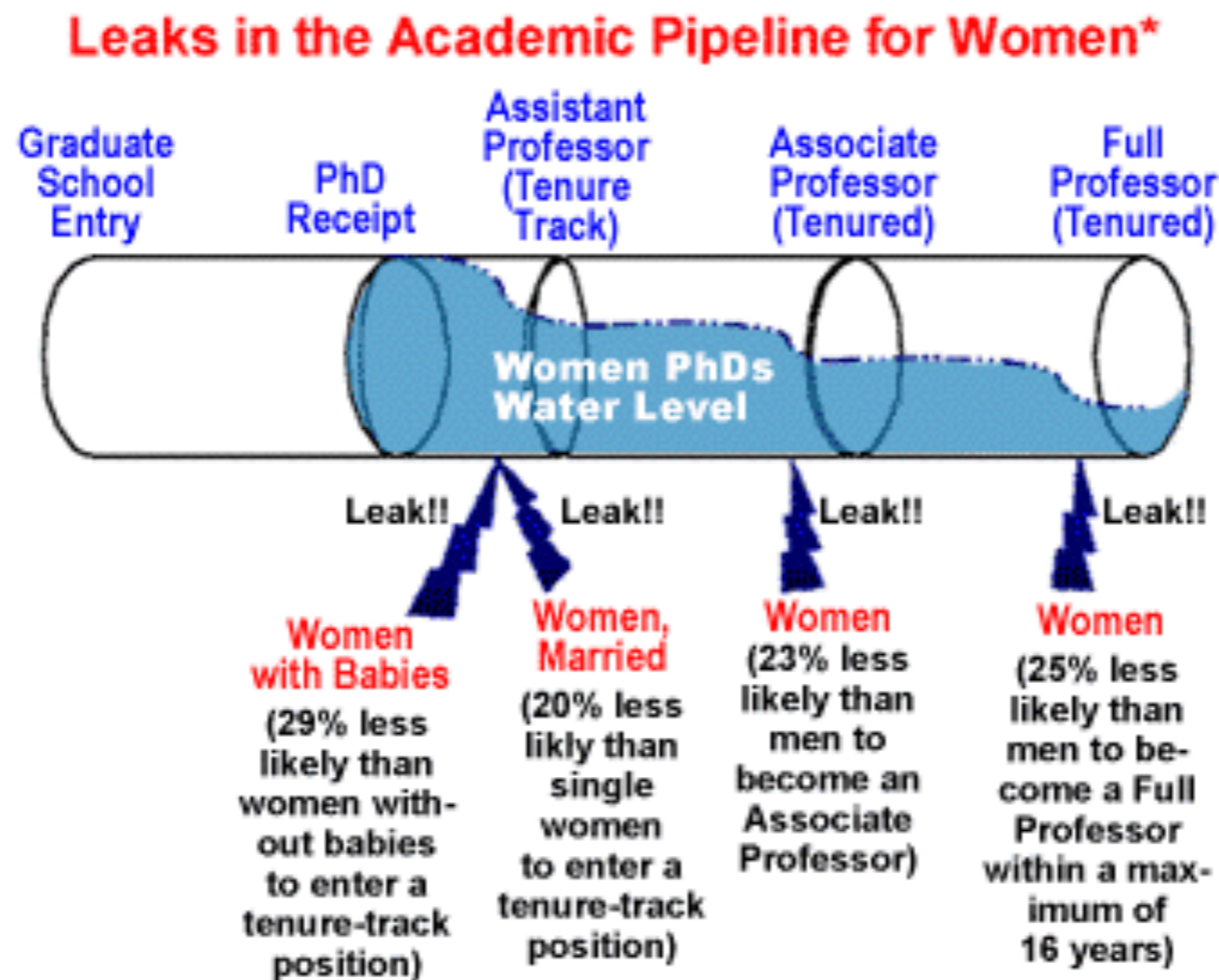
- Three workshops were held exploring “String theory and gender”: Valencia (2015); Paris (2016) and Southampton (2017).
- This talk will report on the outcomes from these meetings and ongoing actions.
- Thanks to Anna Ceresole, Sebastian Fischetti, Mariana Grana, Gabi Honecker, Yolanda Lozano, Marian Lledo, Andy O’Bannon, Silvia Penati, Michela Petrini, Kostas Skenderis for collecting data and providing input.

Diversity and gender

- Diversity: gender, LGBTQ+, disability, ethnicity, socio-economic background, religion, carers...
- Less favoured groups share many issues but some issues are specific to each group.
- *Intersectionality* is important e.g. white American Harvard educated woman typically within favoured group.

The leaky pipeline phenomenon

Leaky pipeline for women



Key transition points

- 1. Choice of high school and subjects
- 2. Choice of university undergraduate course
- 3. Entrance into graduate school
- 4. Continuation to postdoctoral research
- 5. Obtaining a long term/tenure track position
- 6. Progression to full professor
- 7. Progression to institute director, group leader etc

School, undergraduate and graduate school

- Huge variations between countries: ~15-20% women in UK physics undergraduate programmes cf ~50% in some southern European countries.
- Women are more likely to continue in physics in departments where there are more female staff.
- Women are less likely to continue in competitive environments in which students are ranked against each other.

See http://www.iop.org/education/teacher/support/girls_physics/reports-and-research/

PhD -> Postdoc -> Tenure track

- Transitions are directly under the control of the string theory community.
- Is there a leaky pipeline for women working in string theory?

Tenure track -> senior positions

- Back to cultural variations: many issues (e.g. maternity leave, childcare availability) have to be addressed locally, rather than by the string theory community as a whole.
- Conference talks, organising committees, journal editorships and other measures of esteem in our community relevant for promotion.

Effecting changes: diversity plans

- Monitor diversity **data**.
- Identify issues and analyse **causes**.
- Implement **actions** to provide support and improve working conditions.
- Evaluate **impact** of actions.
- Carrot and stick approach: satisfactory diversity plans required by some research councils and governments (UK, NL,...).

Good practice of other communities

- Many physics/astronomy research communities have well established working groups on gender and diversity.
- Actions include: sessions in major conferences; websites collecting resources; diversity representatives on organising committees; monitoring of gender statistics for fellowship and job applications; mentoring; support for harassment

Astronomy: <https://cswa.aas.org>



AAS Committee on the Status of Women



For information about the above images, click [here](#).

Contact members and associates of the CSWA

[CSWA Climate Site Visits for Astronomy Departments - Policy and Procedures](#)

Official information from the AAS

Publications

- [AASWomen](#)
- [Women in Astronomy Blog](#)
- [Status](#)
- [Facebook page](#)
- [Follow us on Twitter](#)
- [Baltimore Charter](#)
- [Pasadena Recommendations](#)
- [Strategic Plan 2009](#)
- [Annual Reports](#)

Advice

[Resources: Two-body problem, work-life balance, sexual](#)

Search the CSWA site: Choose search engine: [Google](#) [Search](#)

About the Committee on the Status of Women in Astronomy

What's New:

January 2017 - The [National Radio Astronomy Observatory \(NRAO\)](#) and the [American Astronomical Society \(AAS\)](#), with support from the [National Science Foundation \(NSF\)](#), are pleased to announce that the 4th [Women in Astronomy \(WIA IV\) meeting](#) will be held during 2 1/2 days, beginning the morning after the [230th AAS meeting in Austin, Texas](#), in the same conference hotel ([JW Marriott Austin](#)). Please mark your calendar, and watch the meeting website developments at go.nrao.edu/wiaIV. Nancy Morrison is serving as the Organizing Committee Chair and is welcoming suggestions and comments at wiaIV@nrao.edu.

August 2016 - The [AAS](#) has endorsed the [vision statement](#) that emerged from the inaugural meeting on Inclusive Astronomy. [That meeting](#) was held June 17-19, 2015, at Vanderbilt University in Nashville, TN.

January 2015 - The inaugural meeting on Inclusive Astronomy will be held June 17-19, 2015, at Vanderbilt University in Nashville, TN. [Inclusive Astronomy 2015](#) will cover advocacy and resources for the inclusion in the astronomy community of people holding various identities. The organizing committee includes members of the [Committee on the Status of Minorities in Astronomy](#), the CSWA, and the [Working Group on LGBTIQ Equality](#) of the American Astronomical Society.

January 2015 - at the 225th AAS meeting in Seattle, WA, CSWA sponsored special session 209, entitled, "What Have We Learned from the NSF ADVANCE Program and What's Next?" The organizers were Johanna K. Teske and the CSWA's Neil Gehrels, and the chair was Neil Gehrels. [Presentation materials are posted here](#).

April 2014 - At the 224th AAS meeting in Boston, MA, the CSWA sponsored a Town Hall on the topic, "Addressing Sexual Violence on College Campuses." Time and place: Tuesday, June 3, 2014, 12:45pm-1:45pm, Staffordshire (Westin Copley Place). Presenters: [Boston Area Rape Crisis Center \(BARCC\)](#).

October 2013 - At the 223rd AAS meeting near Washington, DC, the CSWA will present a Town Hall describing the results of the CSWA Demographics Survey 2013. Since 1992, the CSWA has been conducting demographics surveys of major astronomy departments and divisions since 1992 to track the representation of women across the field. Discussion about the implications for policy in our field will be invited. Organizer: A. Meredith Hughes. Tuesday, January 7, 2014, 12:45

Is diversity a problem?

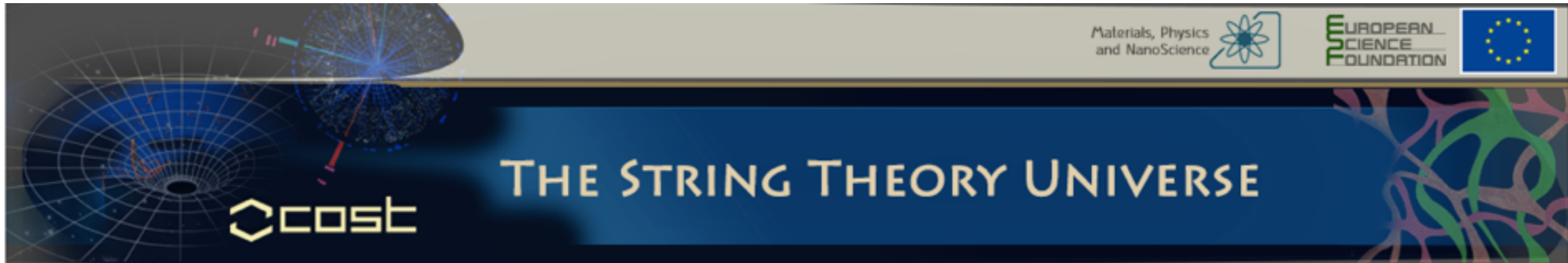
- In a crowded research field such as string theory, diversity may not be seen as a problem, as jobs are always filled by high quality candidates.
- Reasons to care:
 - *1. Increasing diversity changes a department's culture and attracts students.*
 - *2. Increasing diversity generically improves performance.*

Outcomes and actions of Gender and String Theory meetings

Format

- Networking between faculty, postdocs and students
- Exploration of common issues and potential actions
- Input from external researchers from social sciences

<http://www.weizmann.ac.il/stringuniverse/>



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Gender statistics

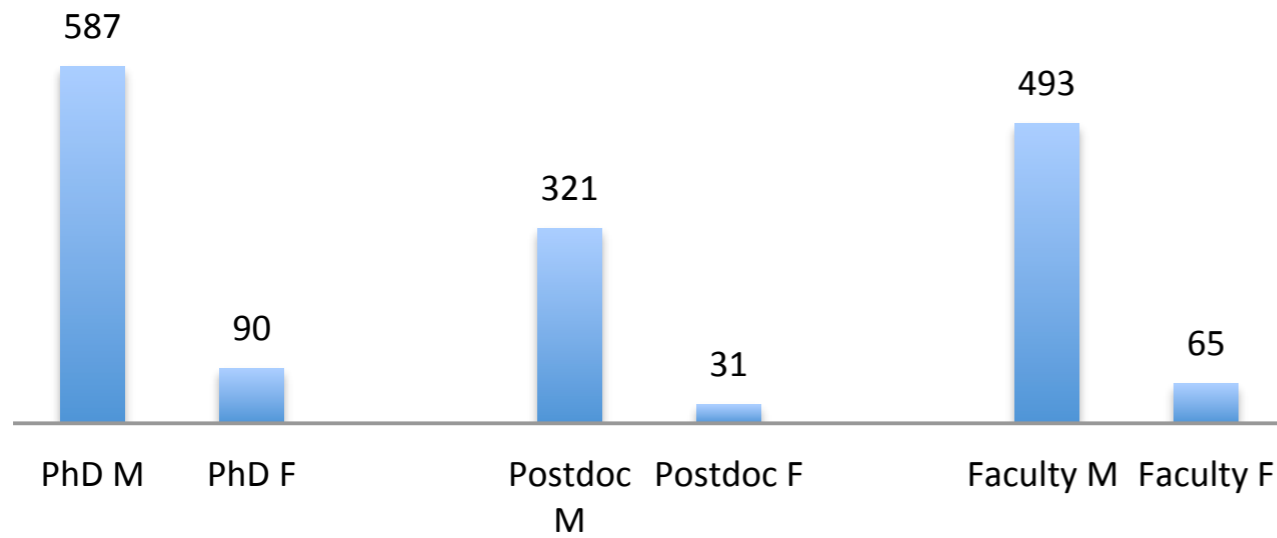
- Collected *cross-sectional** data on gender split of faculty, postdocs and students in France, Germany, Holland, Italy, Spain, UK and the US.
- Future plans: extend to more countries and collect *longitudinal** data.

* *Cross-sectional* - snapshot in time

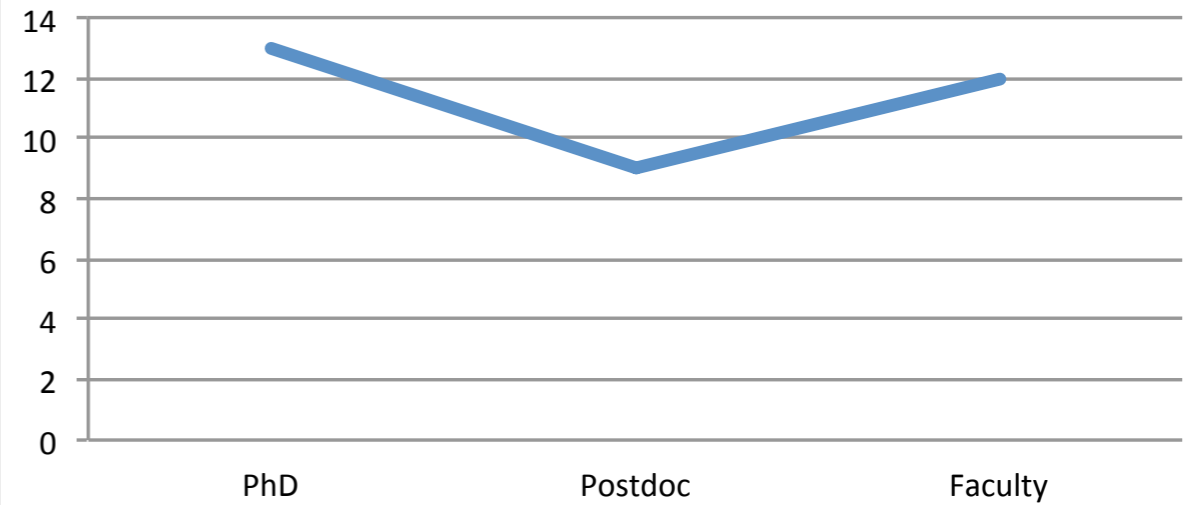
Longitudinal - selected group followed for extended period

Gender statistics

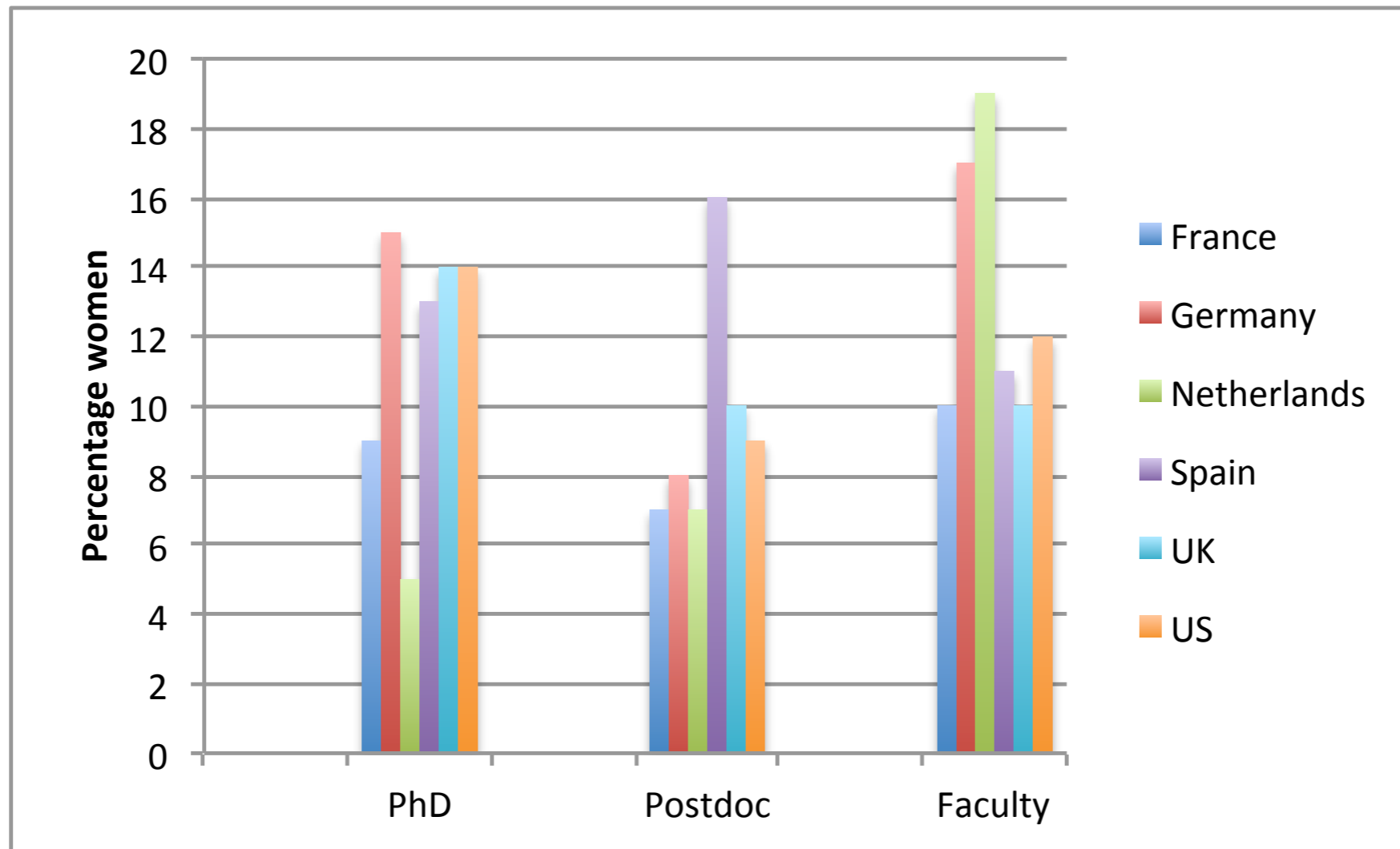
France, Germany, Netherlands, Spain, UK and US numbers



% Female - France, Germany, Netherlands, Spain, UK and US



Breakdown by country



Caveat: small numbers fluctuate considerably e.g. postdoc percentage in Spain is anomalously high this year.

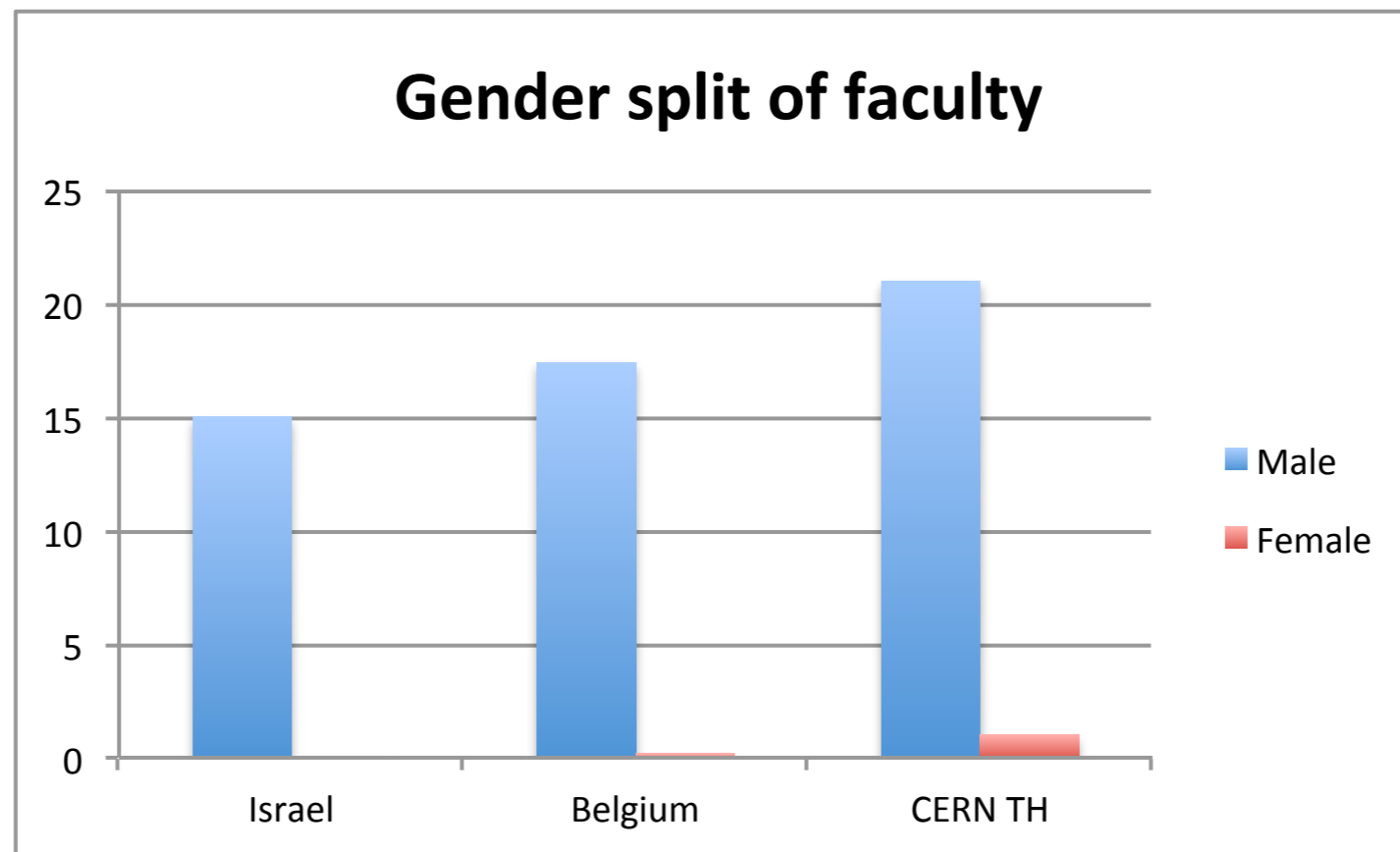
Comments on data

- Female faculty percentage in Holland affected by gender initiatives - competitive tenure track schemes for women.
- Percentage of women dips at postdoctoral level and then increases at faculty level.
- Percentage of women in hep-th is lower than in physics as a whole e.g. in US ~20% physics PhDs, ~15% physics faculty are female.

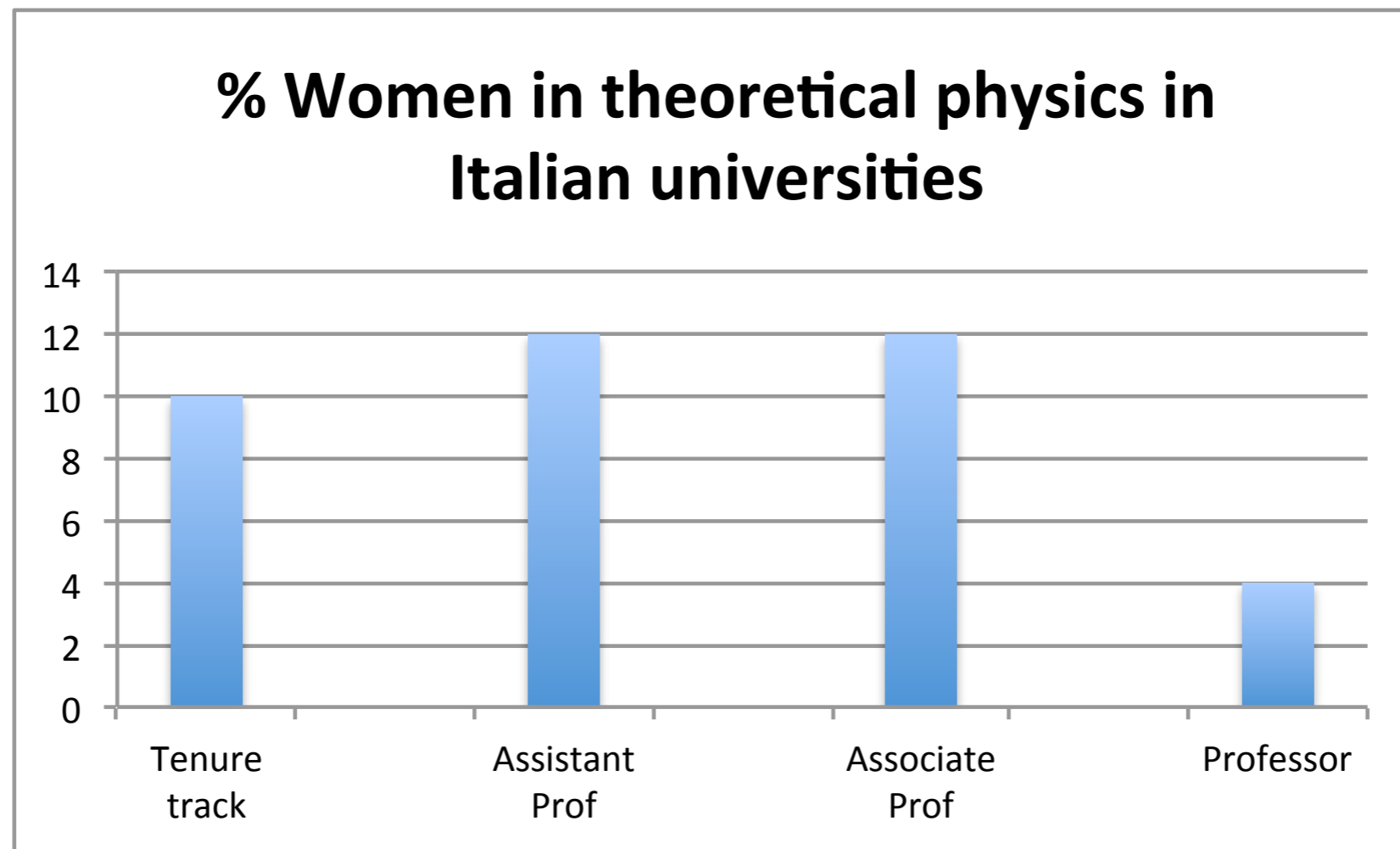


More data is required

- Need to collect data from more countries before analysing trends in detail. Some snapshots:

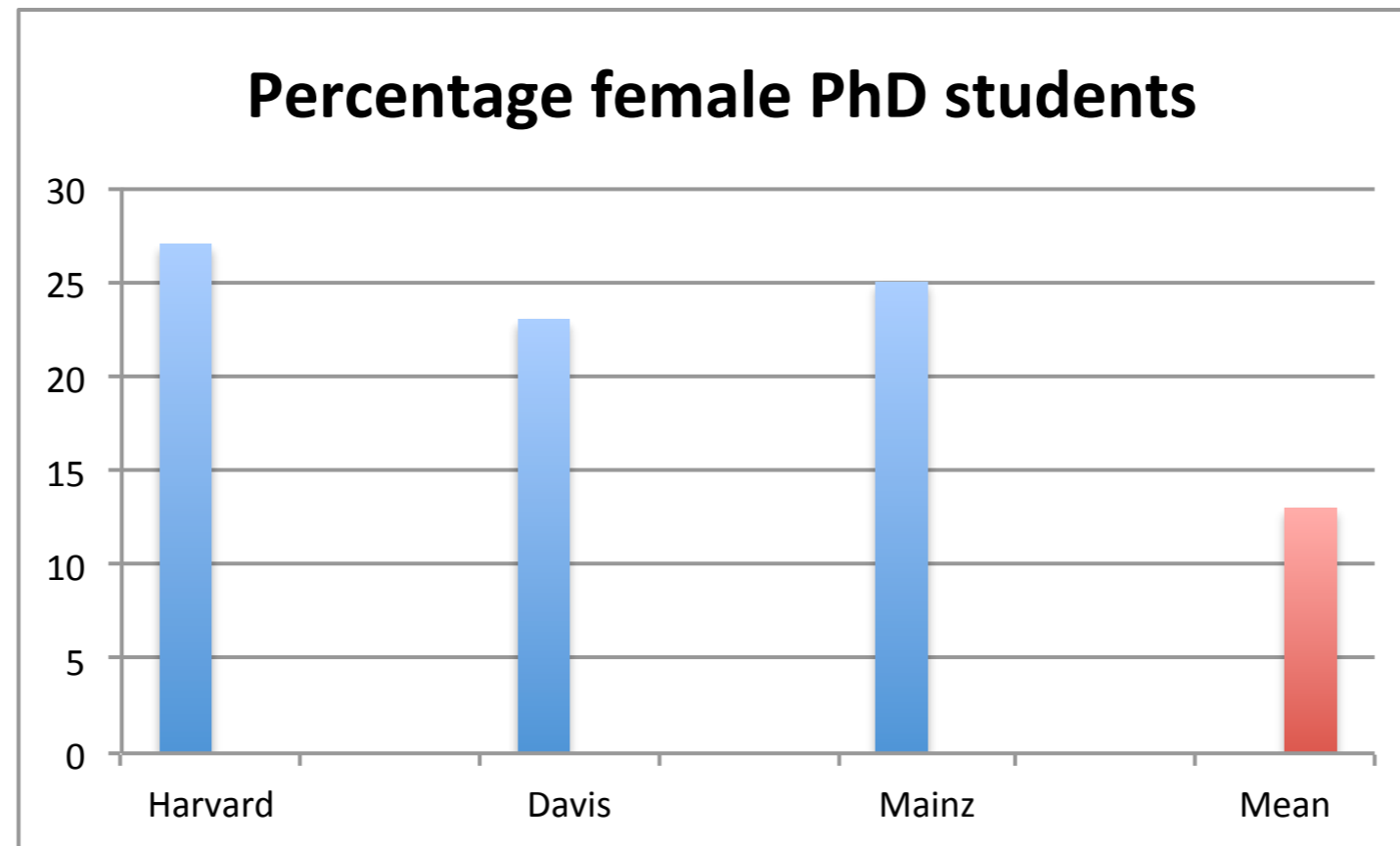


Variation by rank: glass ceilings



Around 5% of US physics department chairs are women.

Variations by group



In general, higher percentages of female PhDs and postdocs found in groups with female faculty

Analysing data

- Reasons for drop at postdoctoral level?
- Reasons for variations by country and group?
- Demographic trends may be useful beyond gender considerations e.g. in Germany faculty have on average 1.7 postdocs but in France they have only 0.3.

Other gender data

- Postdoctoral applications - gender breakdown of applications to European groups via Leuven application website is already monitored.
- Representation of women at conferences, in organising committees and in seminar series
- Diversity of journal editors

Monitoring data

- Monitoring gender data seems a passive action but it is often very effective.

Mea culpa:

- *Almost all personal fellowship applications in our group were from men -> we now proactively invite women to apply.*
- *We aim for at least 10% of speakers in our seminar series and workshops to be female.*
- *We circulate postdoc and PhD openings via women in strings mailing list and other related networks*

Working group on gender issues in string theory

Goals of working group

- Collect and analyse gender data
- Promote and coordinate the “String theory and Gender” workshops
- Develop a sustainable web resource collecting data and information on gender issues in string theory. (Following astronomy example.)

Goals of working group

- Maintain the Women in Strings mailing list:
 - *Announcements of positions, conferences, workshops, fellowship opportunities*
 - *Networking and support for young researchers*

To subscribe:

<http://pegaso.ific.uv.es/mailman/listinfo/womenstrings>

Goals of working group

- Promote gender and diversity training in all institutions and for all fellowship panels.
 - *Unconscious biases*
 - *Biases in recommendation letters*
 - *Underestimating leadership potential in women*
 - *Gender biases in citations*

Review of literature on women in physics:

<http://iopscience.iop.org/book/978-1-6817-4277-9.pdf>

More generally: provide recommendations on actions to tackle diversity.

Examples of good practice: hiring

- Gender neutral advertisements
- Invite women to apply
- Unconscious bias training for hiring committee
- Order the discussion of candidates in meetings

More recommendations:

<http://www.weizmann.ac.il/stringuniverse/>

Working group membership

- If you are interested in joining this working group, please contact me at m.m.taylor@soton.ac.uk
- Interested in a social sciences study of female leadership in physics? Please come and talk to me!

