



GenHET

The new EU Working Group on gender issues in
Theoretical Physics

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@XXXVI Convegno Nazionale di Fisica Teorica, Cortona, May 2018

The involvement of women string theorists in gender issues started with an EU project that ran from 2013 to 2017



MPNS COST Action MP1210

The String Theory Universe

Descriptions are provided by the Actions directly via e-COST.

Although String Theory has been around for more than forty years, it has never been so important for physical reality as it is now, due to its novel outstanding applications to different areas of Physics and Mathematics.

While the Large Hadron Collider (LHC) narrows down the experimental limits on supersymmetric particles and satellite missions such as WMAP and PLANCK probe the very early Universe, this Action aims at creating a strong European Network focused on fundamental, forefront research exploring the role played by String Theory in Particle Physics, Cosmology and Condensed Matter Physics.

The large majority of European world experts in String Theory will be involved in this Action. This will ensure a top quality research output, achieved through an intense exchange of expertise, intra-European collaboration and co-organization of scientific activities.

The Action will ensure fair gender representation and simultaneously adopt specific measures for promoting the involvement of women scientists at all levels. Moreover, it will foster the active participation of junior excellent scientists.

The outcome of the Action is expected to have a positive impact on both science and society at a European level, in line with the strategic priorities of COST.

Materials, Physical and Nanosciences COST Action MP1210

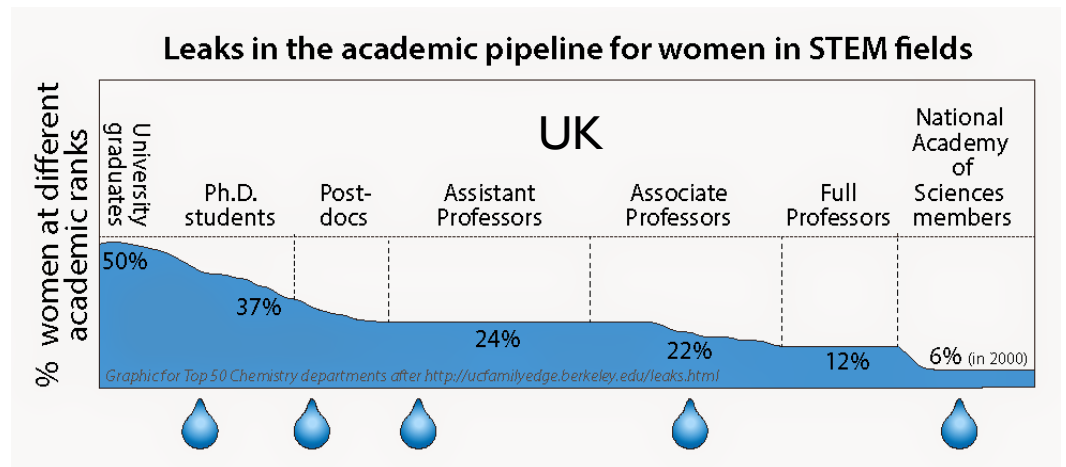
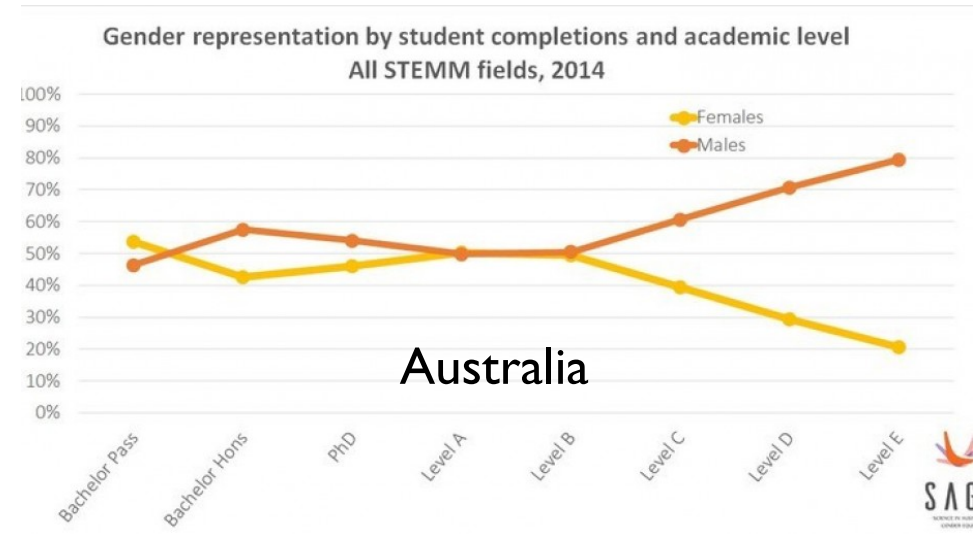
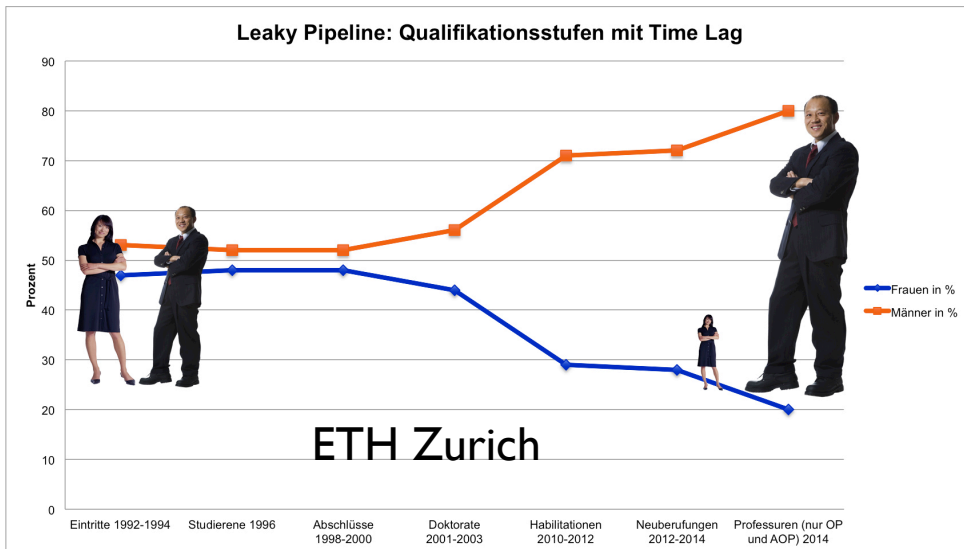
► Description

► Parties

► Management Committee

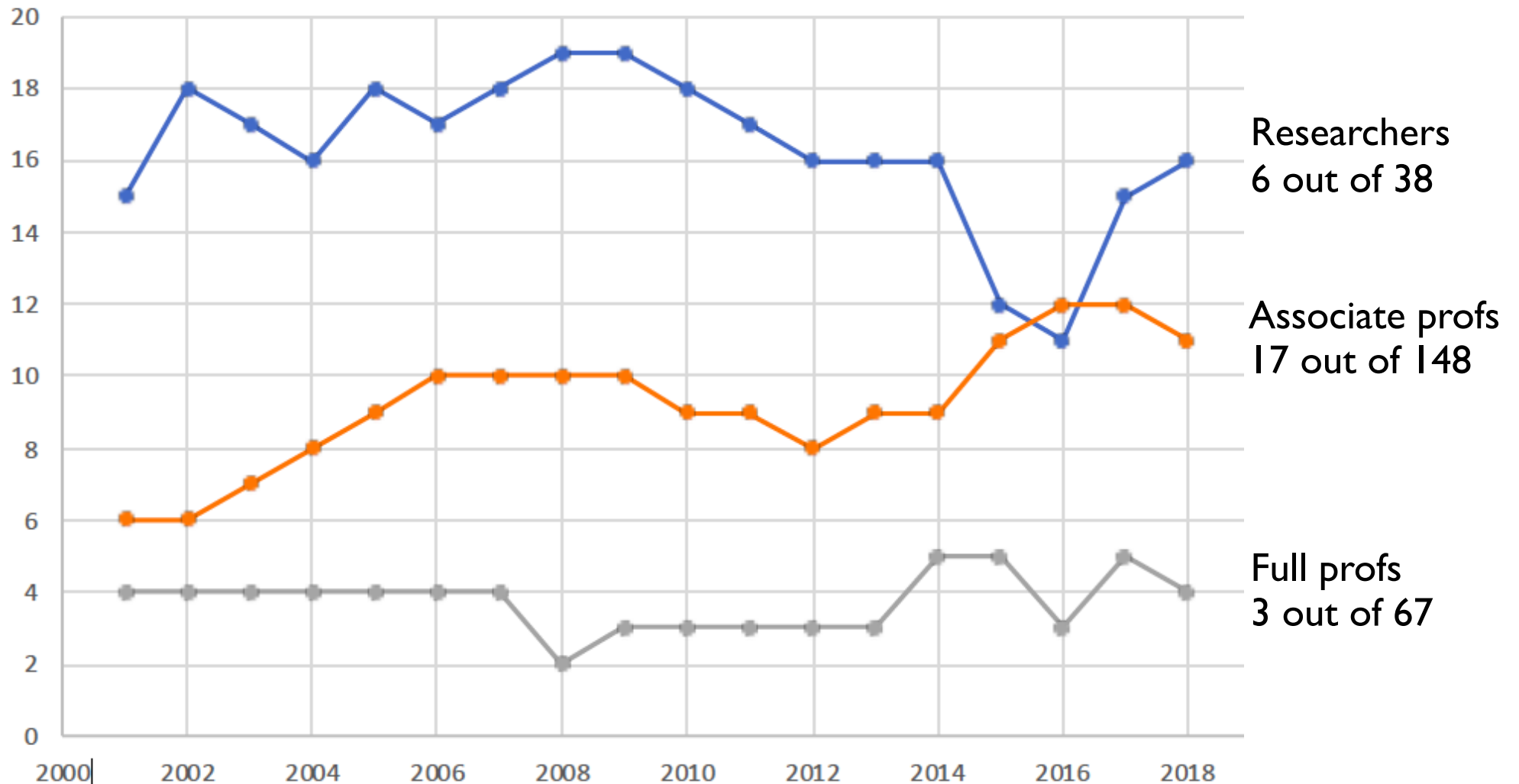
WHY ?

Although there are huge variations between countries in the percentage of females entering STEM disciplines, the career progression has the same shape



A snapshot of statistics I: MIUR data

Percentage of **women** in Theoretical Physics with permanent positions in Italian Universities, from 2001 up to now



Example:

After Gelmini's law that introduced the ASN as a necessary condition to participate in competitions for Associate and Full professor

Number of people with ASN for full professor, from 2013: 259

Men = 226 (87%)

Women = 33 (13%) (But we don't know the percentage of the applicants)

Number of people who got the full professorship: 25 (10%)

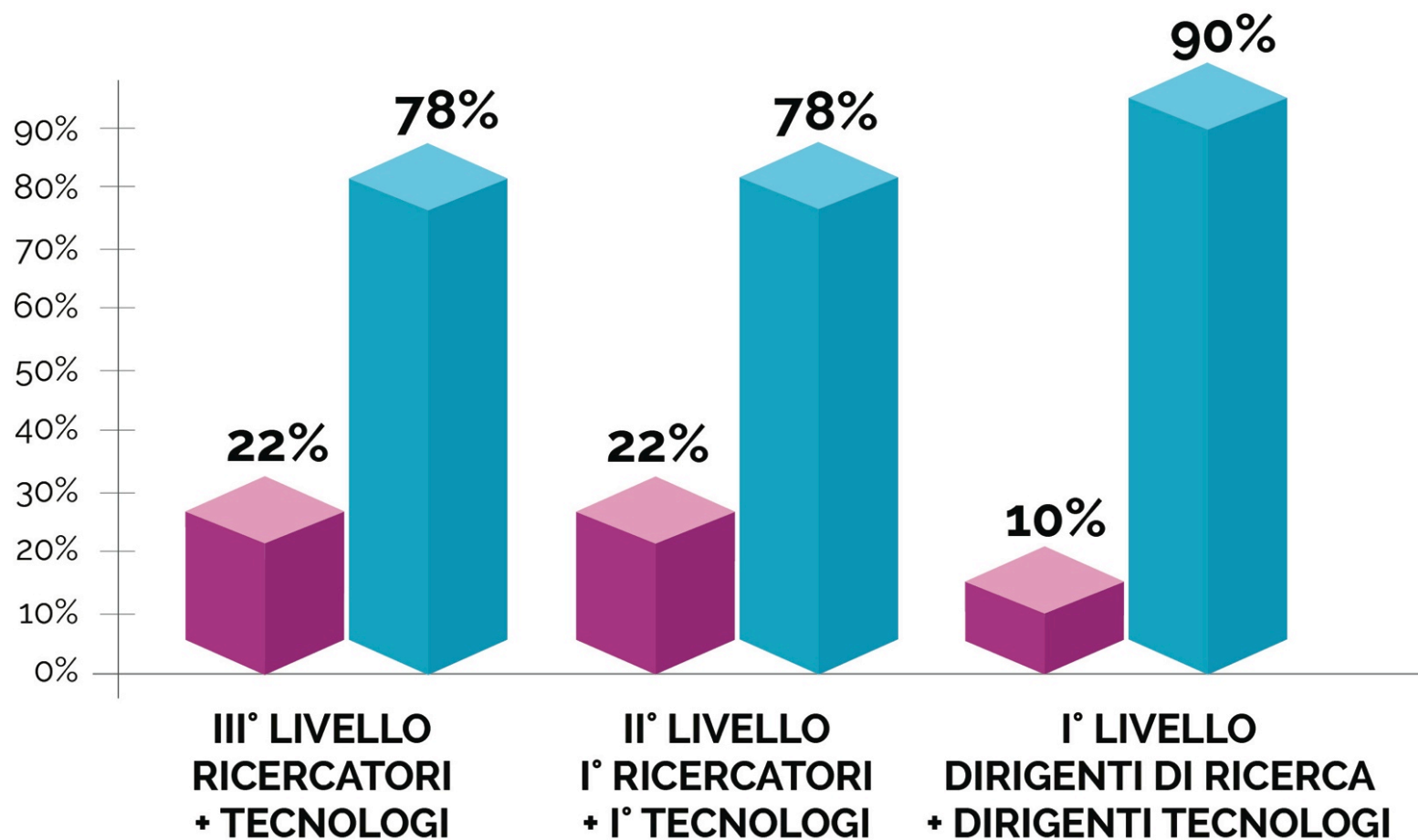
Men = 23 (92%)

Women = 2 (8%)

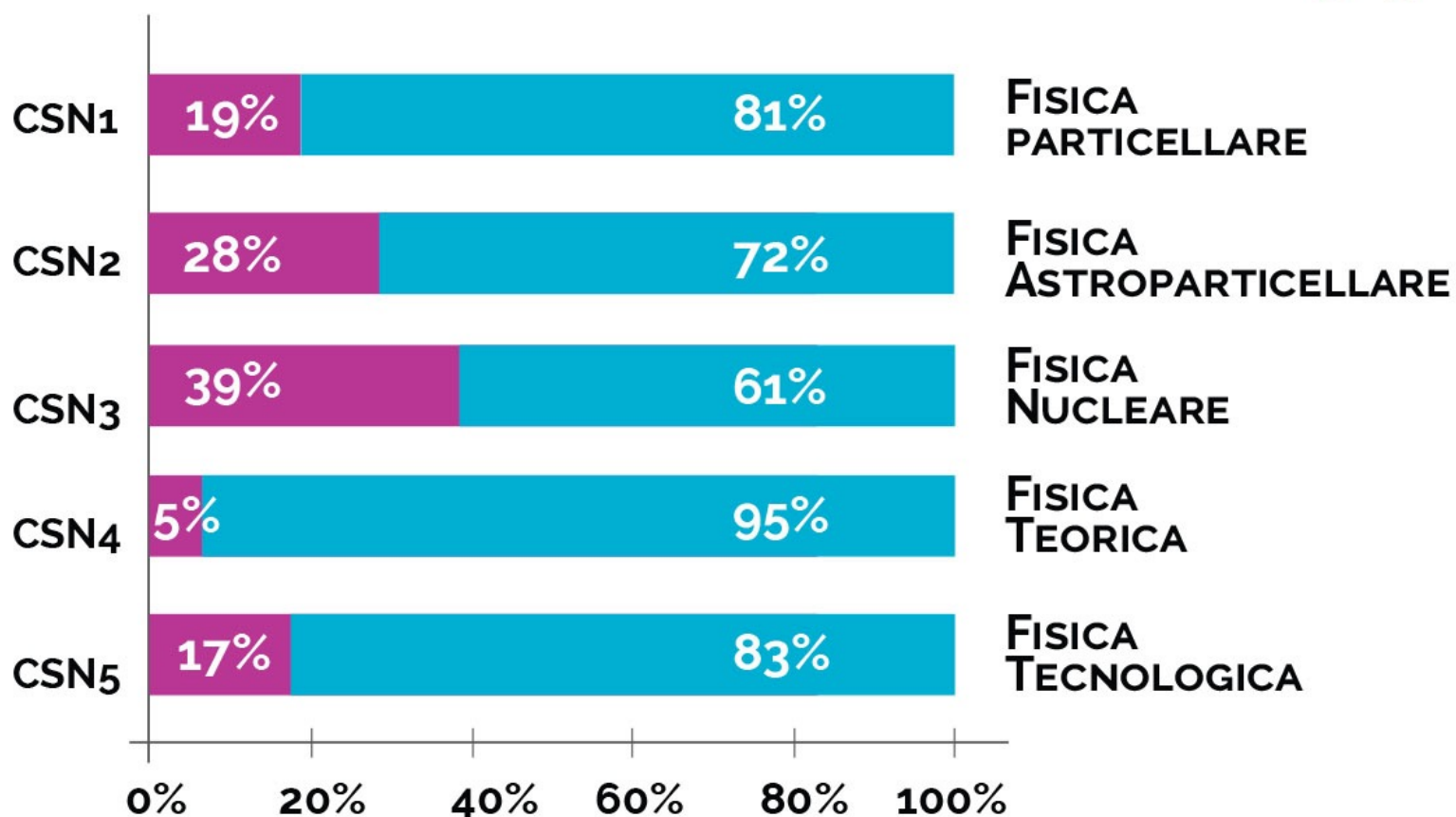
Men successful rate = 10%

Women successful rate = 6%

Il personale di ricerca dell'INFN per genere e profilo



INFN: Responsabili Nazionali di esperimento nelle Commissioni Scientifiche per genere



A snapshot of statistics II: COST Action composition 2015

Women = 72

Men = 482

PhD = 27 37.5%

PhD = 107 22.2%

Postdocs = 12 16.7%

Postdocs = 114 23.7%

Permanent = 33 45.8%

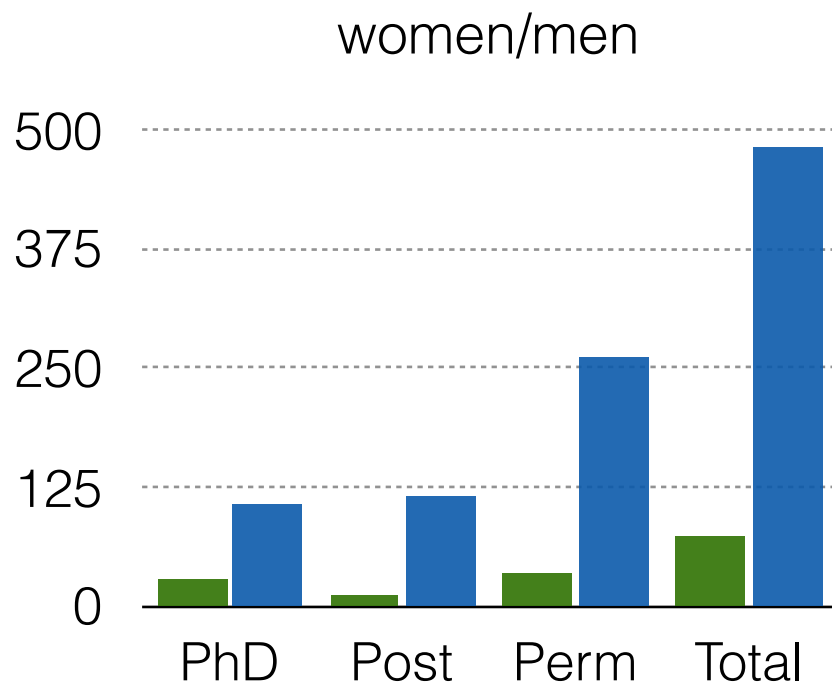
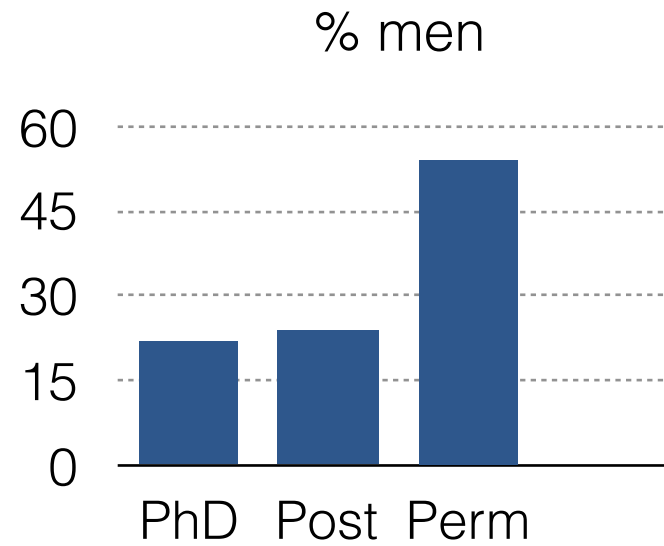
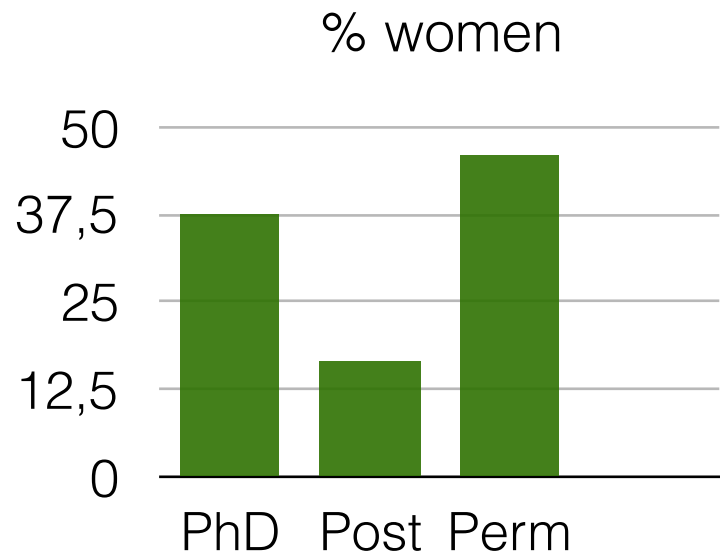
Permanent = 261 54.1%

Total = 554 (Women = 13%)

PhD = 134 24.2% (Women = 20.1%)

Postdocs = 126 22.7% (Women = 9.5%)

Permanent = 294 53.1% (Women = 11.2%)

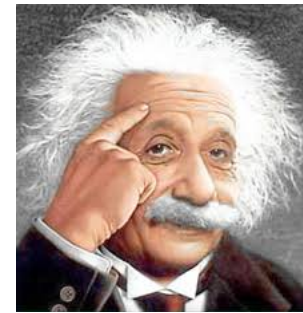


Data taken from composition of the Action in 2015

WHICH ARE THE REASONS ?

- **Cultural reasons:** STEM disciplines are primarily considered for men
- **Social reasons:** reconciling career and family is particularly tough for women, also due to the rather unfortunate synchronization of their “biological” and “tenure” clocks.
- **Unconscious bias:** we (men and women) are mentally trained to link outstanding roles with specific qualities that unconsciously we attribute only to men.

Stereotypes.....



WHY SHOULD WE CARE?

- 1) It is a big cultural problem to take care of (Diversity as a broader problem; LGBTQ+, disability, ethnicity, socio-economic background, religion ...)
- 2) Increasing diversity changes a department's culture and attracts students.
- 3) Increasing diversity generically improves performance.

First important individual step: acquire awareness of the problem and be ready to acknowledge that an unconscious (sometimes conscious) bias exists

But it is a long way

Under the COST Action we:

- Promoted the active participation of women (leading positions, speakers, members of scientific and organizing committees)
- Made the community aware of many important studies about women in STEM, unconscious gender bias, gender stereotypes,..
 - Gender events as part of each major scientific conference/workshop
 - “Workshops on String Theory and Gender”
- Conducted several surveys to know the opinions of the community

Surveys provided very interesting input

Final survey

Number of respondents: 172

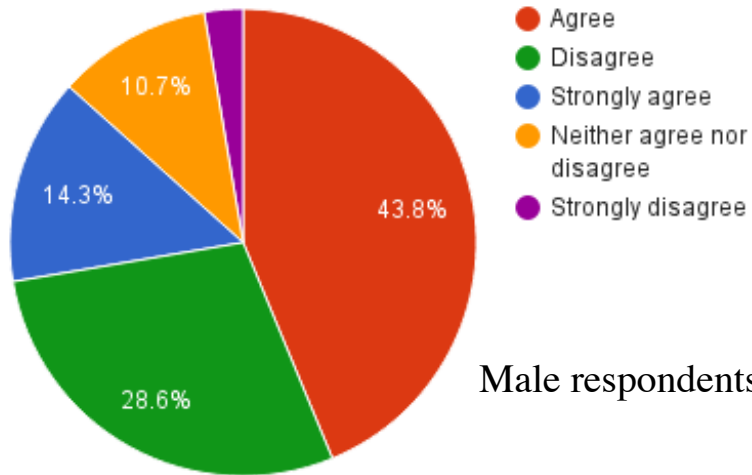
Male: 112

Female: 50

15 PhD students, 44 postdocs, 113 permanent

Surveys provided very interesting input:

Women and men in my field have equal opportunities for career advancement

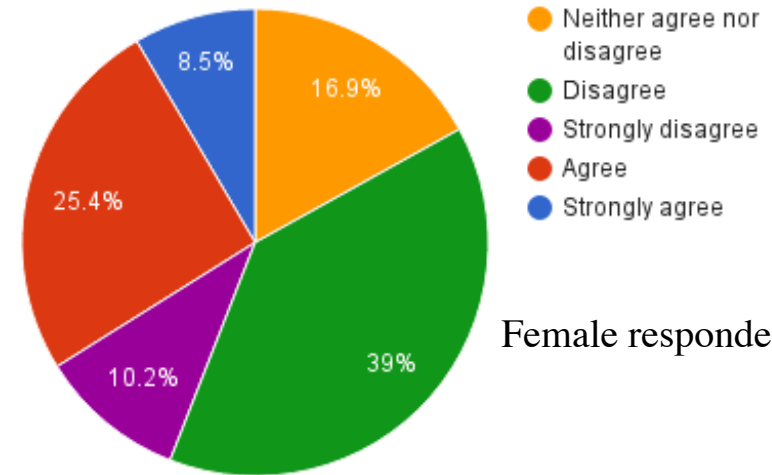


Male respondents

Male: 58.1% agree
31.3% disagree

Female: 33.9% agree
49.2% disagree

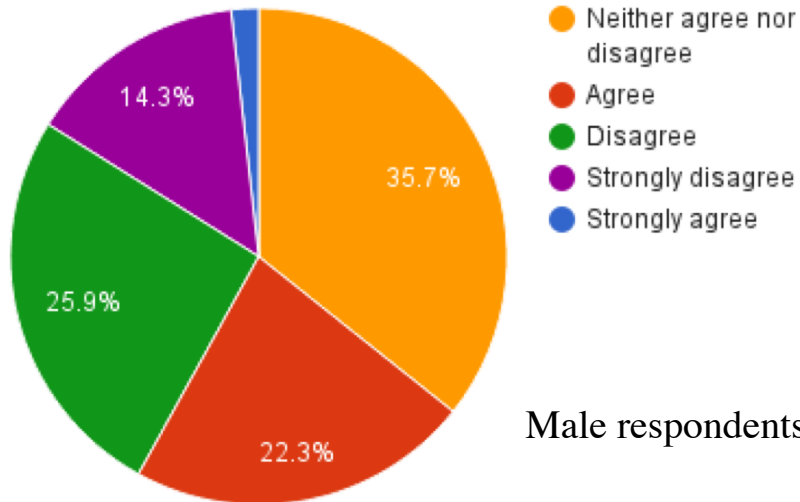
Women and men in my field have equal opportunities for career advancement



Female respondents

Many respondents argue that although on paper both genders are treated equally, conscious and unconscious biases, pregnancy and childbirth, and different expectations from society about caring roles are main sources of differences. Some men perceive better opportunities for women because of specific policies to promote them

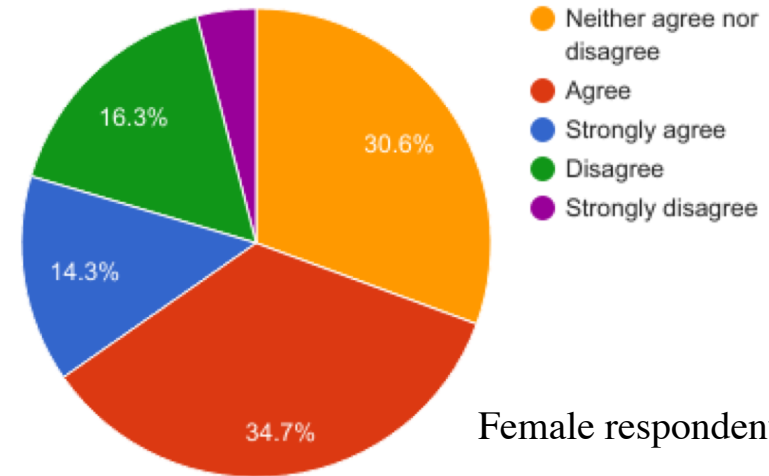
The String Theory scientific environment is particularly difficult for women compared to those of other science and engineering discipli...



Male respondents

Male: 24.1% agree
40.2% disagree

The String Theory scientific environment is particularly difficult for women compared to those of other science and engineering discipli...

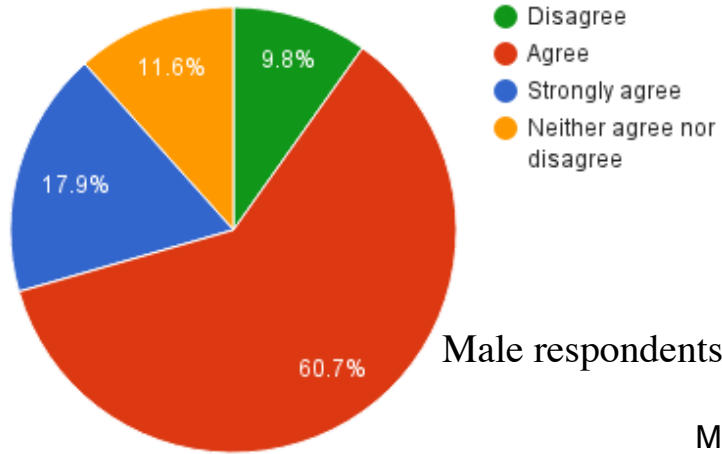


Female respondents

Female: 49.0% agree
20.4% disagree

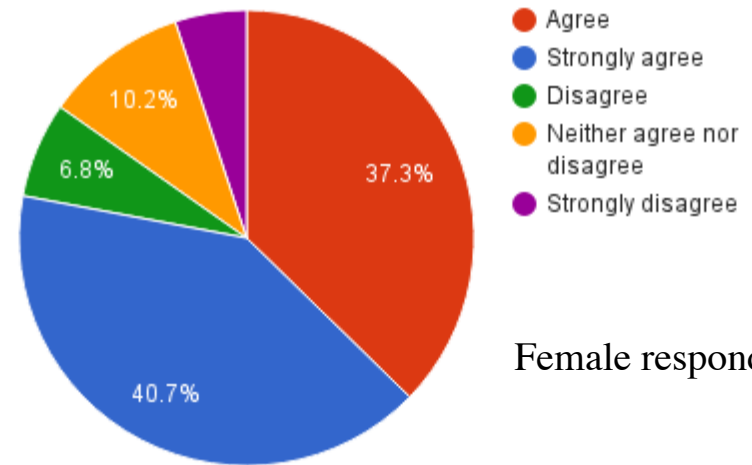
This question was intended to identify aspects of our field that could be particularly “problematic”. Respondents alluded to the already present disparity, which may psychologically disadvantage women, the long post-doc period, the lack of experimental tests in String Theory, which resonates with the unconscious bias, by associating relevant results with particular authors

Women in my field with young families or caring responsibilities are disadvantaged in their career



Male respondents

Women in my field with young families or caring responsibilities are disadvantaged in their career

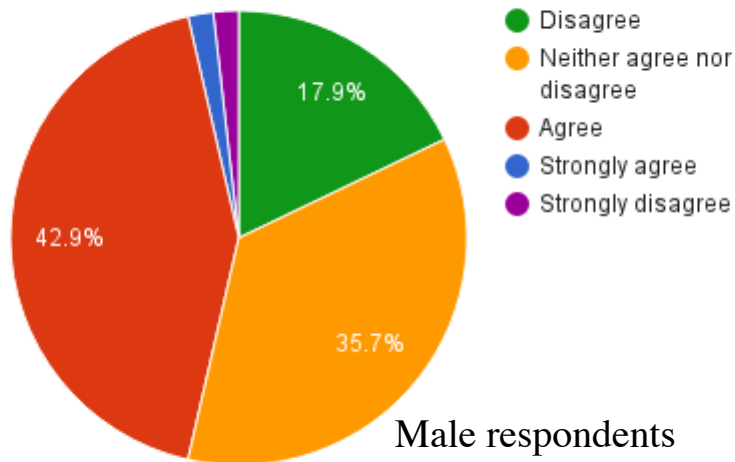


Female respondents

Male: 78.6% agree
9.8% disagree

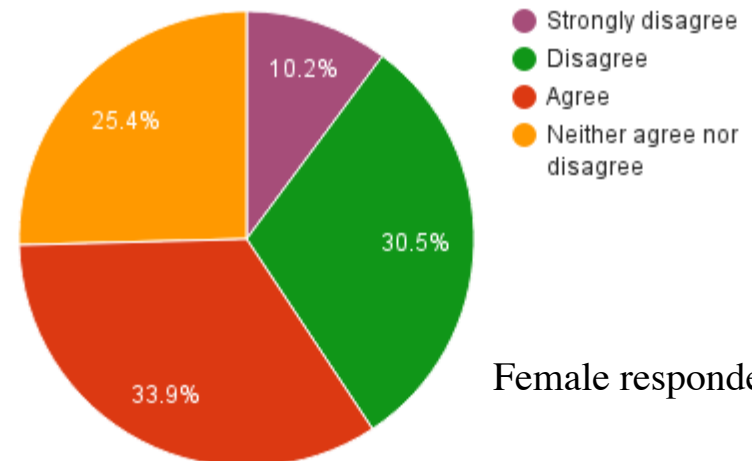
Female: 78% agree
11.8% disagree

Men in my field with young families or caring responsibilities are disadvantaged in their career



Male respondents

Men in my field with young families or caring responsibilities are disadvantaged in their career



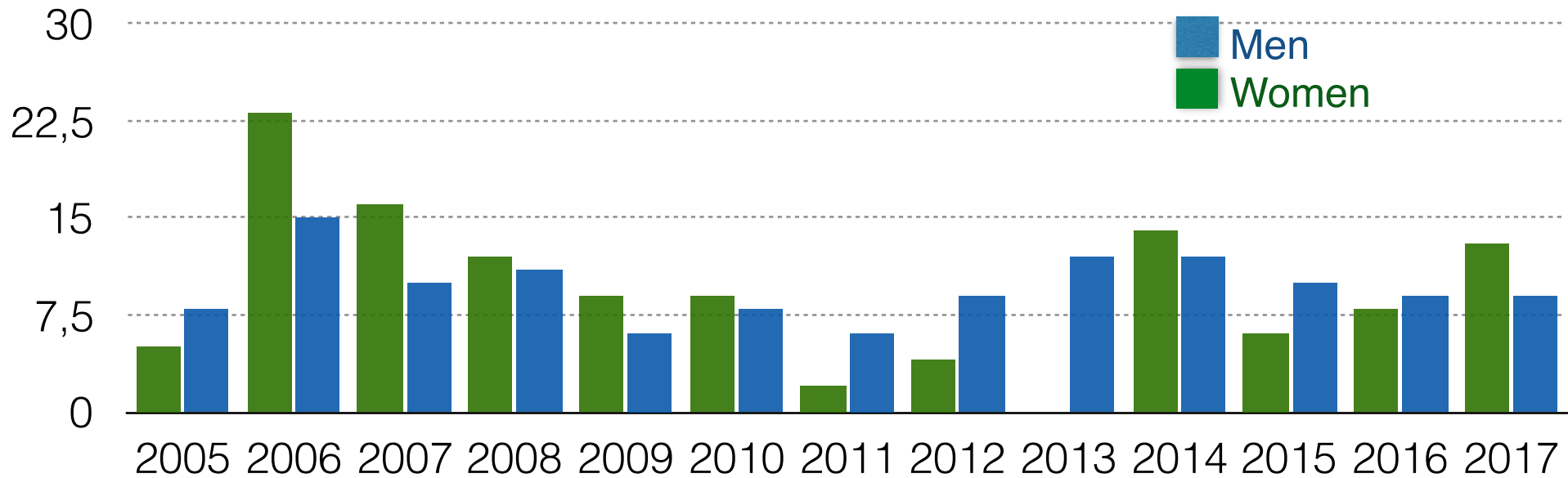
Female respondents

Male: 44.7% agree
19.7% disagree

Female: 33.9% agree
40.7% disagree

Example of the effect of good practices

success rate women/men postdoctoral applicants



Data from the European Joint Postdoctoral Recruitment coordinated by A. Van Proeyen

Good practices are:

- Advertise postdoc positions among PhD female students
- Encourage women to apply
- Presence of senior women in the evaluation committee
- Gender and diversity training against unconscious bias, bias in recommendation letters, in estimating leadership potential in women, etc....

Year	# Candidates	# Women candidates	Taken in our institutes	# Total taken % Total taken/ Candidates	# Women % W taken /W candidates	#Men % M taken / M candidates	% Women taken/ Total taken
2005	239	22 (9%)	18 (8%)	1 (5%)	17 (8%)	(6%)	
2006	207	26 (13%)	33 (16%)	6 (23%)	27 (15%)	(18%)	
2007	186	19 (10%)	20 (11%)	3 (16%)	17 (10%)	(15%)	
2008	226	26 (12%)	25 (11%)	3 (12%)	22 (11%)	(12%)	
2009	354	41 (12%)	24 (7%)	4 (9%)	20 (6%)	(16%)	
2010	400	35 (9%)	34 (9%)	3 (9%)	31 (8%)	(9%)	
2011	411	41 (10%)	25 (6%)	1 (2%)	24 (6%)	(4%)	
2012	416	55 (13%)	35 (8%)	2 (4%)	33 (9%)	(6%)	
2013	365	35 (10%)	40 (11%)	0 (0%)	40 (12%)	(0%)	
2014	438	50 (11%)	54 (12%)	7 (14%)	47 (12%)	(13%)	
2015	412	47 (11%)	39 (9%)	3 (6%)	36 (10%)	(8%)	
2016	476	37 (8%)	44 (9%)	3 (8%)	41 (9%)	(7%)	
2017	416	55 (13%)	40 (10%)	7 (13%)	33 (9%)	(18%)	

Legacy of the COST Action

- A synergic network of women string theorists has been built
- There is more awareness in the field and the discussion has been opened
- The importance of gender issues, not only sociologically but also in our scientific environment, has been transmitted
- Contacts with experts on this subject are being fostered (sociologists, economists, policy makers)

The Action has produced a very useful report, that summarizes its gender activities and the conclusions reached:

The COST Action “The String Theory Universe”: A proactive approach to gender issues in Theoretical Physics

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

But, what next?

The impact of the Action on the gender issue relies on the community's capabilities to keep alive the discussion, the various initiatives that have been taken and share good practises.

We decided to create a **permanent working group** that will take care of keeping up cooperative efforts on the gender issue

- Ensure that women in the field are given the right visibility
- Make available material that can help the community in dealing with gender issues and improve consciousness
- Expand to affine areas. Compare situations



Kickoff meeting, Torino 24.11.2017



Main goals

- Open the WG to all interested people (men&women)
- Monitor and analyse gender data in our community and compare with other STEM communities.
- Encourage young women to apply for postdoctoral positions. Mentoring activities.
- Monitor the representation of women in selecting committees at all levels.
- Monitor the representation of women at conferences and schools (scientific boards, invited speakers...).
- Monitor the representation of women in journal editorial boards.
- Promote and coordinate the “Strings and Gender” Workshops
- Develop a web resource to collect data and exchange good practises between different countries.
- Promote active participation in EU initiatives on gender.
- Promote gender and diversity training in all institutions and for all fellowship panels.

CERN's involvement

We asked CERN to host our webpage

But CERN's involvement has gone much further, thanks to the crucial support of Fabiola Gianotti and, especially, Gian Giudice

As a result: **GenHET**

A new working group has been created, that involves **all High Energy Theorists**, supported technically and financially (partially) by CERN.

This working group will deal with our previous objectives, in a wider (HET) community

This will allow us to compare the situation in different sub-fields

1st Workshop on High Energy Theory and Gender

26-28 September 2018

CERN

This workshop will both focus on recent developments in theoretical high energy physics and cosmology, and discuss issues of gender and equal opportunities in the field.

In addition to talks on nuclear and string theory, SM and BSM phenomenology, lattice field theory and cosmology, each day talks and panel discussions will be dedicated to research on gender in academia, with an aim to further the development and implementation of action plans to support women and other minorities in physics.

Since any positive change needs the support of the whole community we encourage everyone, men and women, junior and senior scientists, to participate in this workshop.

Registration: There is no registration fee. Applications to attend will be open until September 01, 2018

International Advisory Committee:

- Sonia Bacca (JGU Mainz) (Nuclear)
- Anna Ceresole (INFN Turin) (String)
- Valentina Forini (HU Berlin) (String)
- Rohini M. Godbole (Indian Institute of Science, Bangalore) (SM/BSM)
- Pilar Hernández (Valencia University, IFIC) (Neutrinos/Lattice)
- Maria Lledo (Valencia University, IFIC) (String)
- Prado Martin Moruno (Madrid University) (Cosmo)
- Yosef Nir (Weizmann Institute) (SM/BSM)
- Michela Petrini (Paris, LPTHE) (String)
- Laura Reina (Florida State University) (SM/BSM)
- Geraldine Servant (Universität Hamburg & DESY) (SM/BSM)

Organising Committee:

- Gian Giudice (CERN) (BSM)
- Alessandra Gnechi (CERN) (String)
- Mariana Grana (CEA/Saclay) (String)
- Gabriele Honecker (JGU Mainz) (String)
- Yolanda Lozano (University of Oviedo) (String)
- Silvia Penati (University of Milano-Bicocca) (String)
- Gavin Salam (CERN) (SM)
- Marika Taylor (University of Southampton) (String)
- Andrea Thamm (CERN) (BSM)
- Malgorzata Worek (RWTH Aachen University) (SM)

Gender experts (confirmed):

1. **Jessica Wade** (Imperial College) - On the Road to Equality
2. **Marieke van den Brink** (Nijmegen, Holland) - Study of professorial appointments
3. **Julie Moote** (UCL, London) - Gender and career aspirations
4. **Yosef Nir** (Weizmann Inst) -
5. A representative from **CERN Diversity Office**



Physics talks: confirmed speakers

- **Ana Achúcarro** (University of Leiden)
- **Agnese Bissi** (Uppsala University)
- **Alejandra Castro** (University of Amsterdam)
- **Laura Covi** (University of Göttingen)
- **JiJi Fan** (Brown University)
- **Elvira Gámiz** (University of Granada)
- **Silvia Pascoli** (University of Durham)
- **Tracy Slatyer** (MIT)
- **Maria Ubiali** (University of Cambridge)
- **Eleni Vryonidou** (CERN)
- **Korinna Zapp** (University of Lisbon)



The success of this initiative will strongly depend on the active involvement of everybody, **men and women**



If you are interested in joining GenHET, please contact

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