



Molecular Ultrafast
Science and Technology

National Center of Competence in Research



NCCR MUST and Gender Equality Measures

Professor Ursula Keller, ETH Zürich
Director, NCCR MUST

NCCR MUST/RESOLV Gender and Science Meeting
9 – 10 September 2019, ETH Zürich

www.nccr-must.ch



NCCR Molecular Ultrafast Science and Technology

NCCR MUST, July 2010 – June 2022

- 26 Principal Investigator (PI) groups from 6 Swiss universities and the Paul Scherrer Institute (PSI), Villigen
- Disciplines in our network: Physics, Chemistry and Biology
- Leading Houses: ETH Zürich and University of Bern
- Directors:
Prof. Ursula Keller, ETH Zürich
Prof. Thomas Feurer, Uni Bern
- PI groups distributed across Switzerland



NCCR MUST - Scientific Highlights page

How light steers electrons in metals

Physicists at ETH Zurich have measured how electrons in transition metals get redistributed within a fraction of an optical oscillation cycle

Mikhail Volkov, Ursula Keller and co-workers have measured how electrons in so-called transition metals get redistributed within a fraction of an optical oscillation cycle. They observed the electrons getting concentrated around the metal atoms within less than a femtosecond. This regrouping might influence important macroscopic properties of these compounds, such as electrical conductivity, magnetization or optical characteristics. The work therefore suggests a route to controlling these properties on extremely fast time scales.

Reference: Volkov, M., S. A. Sato, F. Schlaepfer, L. Kasmi, N. Hartmann, M. Lucchini, L. Gallmann, A. Rubio and U. Keller (2019). Attosecond screening dynamics mediated by electron localization in transition metals. *Nature Physics*. ([10.1038/s41567-019-0602-9](https://doi.org/10.1038/s41567-019-0602-9))

August 5, 2019. [More >>](#)

Recording a molecular energy machine in action

NCCR MUST (2010 – 2022)

- Time-resolved structural dynamics in atoms, molecules and condensed matter
- Observing the fastest processes in nature
- Controlling atomic and electronic motion

Furrer, S. Brünle, S. Mous, D. Ozerov, P. Nogly, M. Wang and J. Standfuss (2019). Proton uptake mechanism in bacteriorhodopsin captured by serial synchrotron crystallography. *Science* **365**: 61. ([10.1126/science.aaw8634](https://doi.org/10.1126/science.aaw8634))

July 5, 2019. [More >>](#)

Modelling of air collisions during re-entry of a space vehicle

EVENTS

Summer School: Frontiers in Time-Resolved Science: Spin, Charge and Lattice Dynamics in Condensed Matter

19.08.2019 - 23.09.2019, Bad Honnef, Germany

10th international Conference "New Generation in Strongly Correlated Electron Systems" (NGSCES 2019)

02.09.2019 - 06.09.2019, Centro Congressi Abruzzo Berti Hotels", Silvi Marina, Pescara, Italy

XXXIX. Dynamics Days Europe 2019

02.09.2019 - 06.09.2019, Rostock, Germany

News



Paths to a professorship
– 23 interviews



Google funds EPFL research

FNSNF

SWISS NATIONAL SCIENCE FOUNDATION

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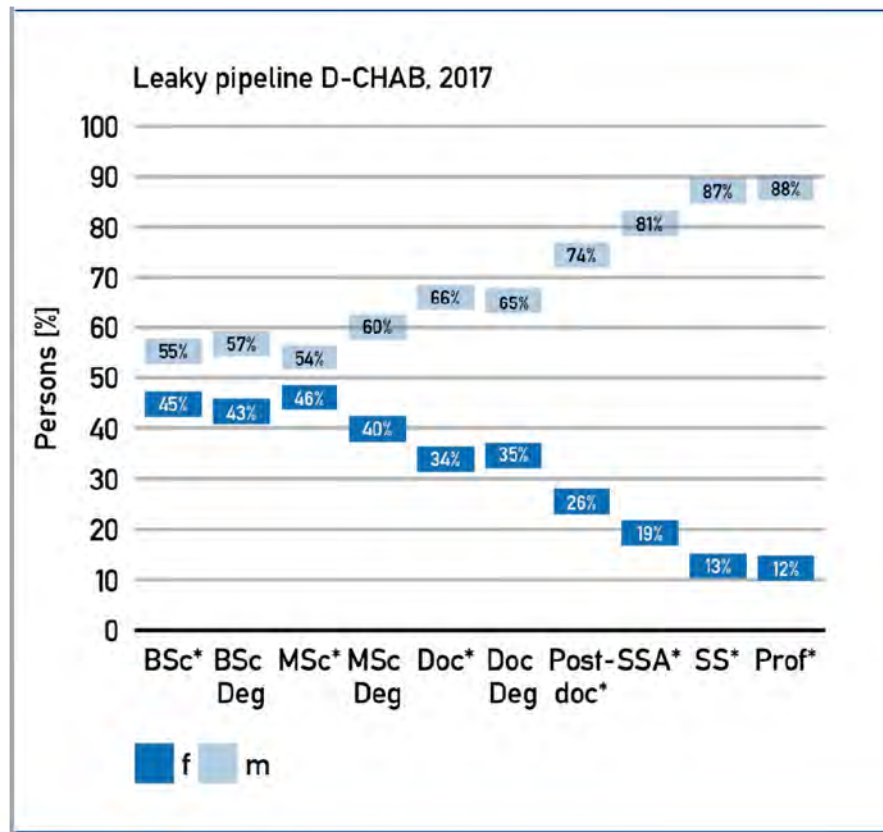
Analysis of NCCR MUST gender situation



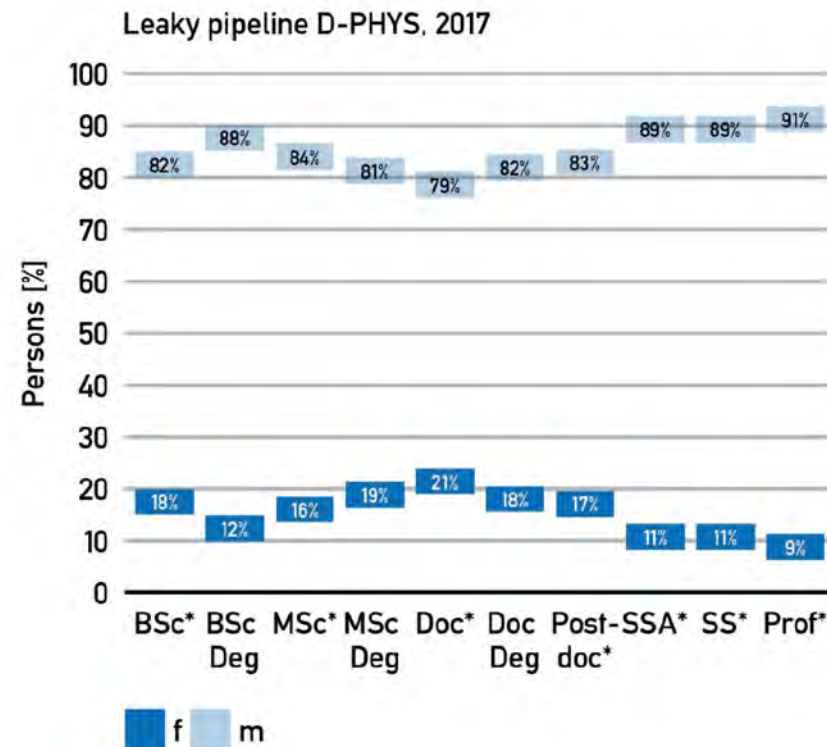
ETH Zürich Gender Monitoring Statistics 2017/18

(Prof. Renate Schubert and Romola Storjohann)

Chemistry



Physics



<https://www.ethz.ch/services/en/employment-and-work/working-environment/equal-opportunities/strategie-und-zahlen/gender-monitoring.html>

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Challenges and Positives for MUST in 2010

Challenges:

- Imbalanced gender distribution in our science network
- In Physics very low numbers of women physicists at the starting point
- In Chemistry the 50:50 gender distribution at undergraduate level does not translate into progression for women scientists
- Little progression of women scientists into leadership positions in both disciplines

Positives:

- Investment of NCCR Directors in the Advancement of Women/Equal Opportunities issue
- Two female full Professors in our network and Direction Committee (Director and our Delegate for Equal Opportunities) from beginning
- Early commitment to working on these issues
- NCCRs are a 12 year funding tool

MUST successful measures

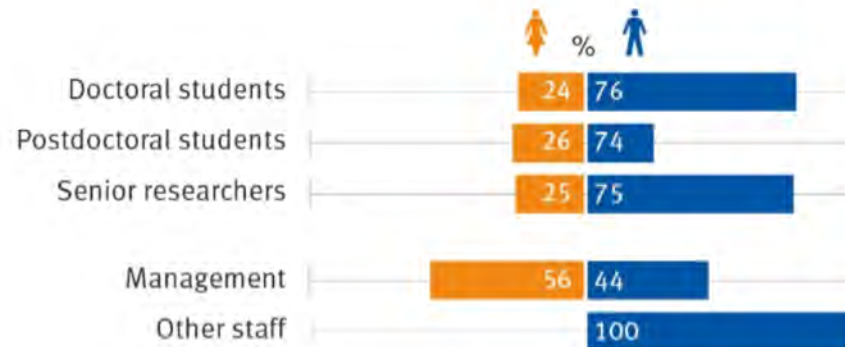
**Measure 1: Increase the Number Women at Leadership Level
and at all levels in NCCR MUST**



Improved Gender Representation in NCCR MUST

Gender in the NCCR

Data: 2018



In 2014 the gender percentage for Senior Researchers (PIs) in the network was **9% female PIs**.

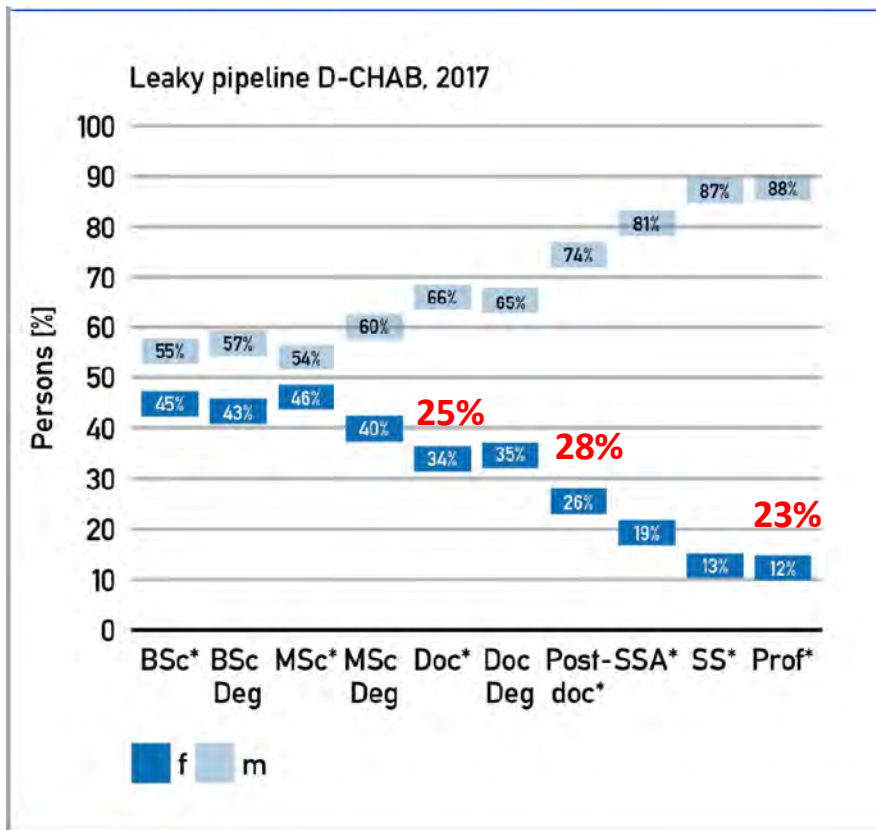
At end of Phase II we had **20% female PIs** and in Phase III we have **23% female PIs** (4 full professors and two assistant tenure-track professors)

14 new female postdocs and 28 female PhD students recruited in Phase II

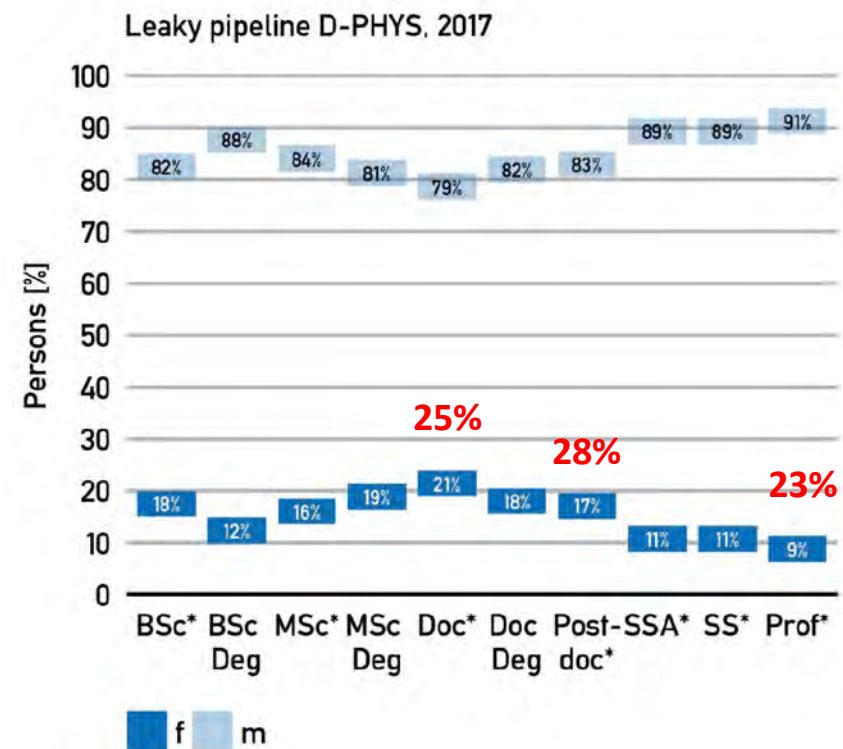
ETH Zürich Gender Monitoring Statistics 2017/18

(Prof. Renate Schubert and Romola Storjohann)

Chemistry : MUST figures 2019



Physics: MUST figures 2019



<https://ethz.ch/services/en/employment-and-work/working-environment/equal-opportunities/strategie-und-zahlen/gender-monitoring.html>

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MUST successful measures

Measure 2: Networking Initiatives for Women in Leadership

ETH/EPFL WPF, <https://eth-wpf.ch>



EVENTS »

Currently, no new events are planned.

ETH/EPFL WPF, <https://eth-wpf.ch>

What we do

Members of the ETH Women Professors Forum encourage young women to pursue a career in science or engineering. They make their expertise available within and beyond ETH Zurich and EPF Lausanne, as well as support related Swiss initiatives in favor of equal opportunities among the sexes.

[Read more »](#)

Who we are

Our members are distinguished, worldwide recognized experts in their scientific fields and experienced in leading and working in an international environment. All women professors of ETH Zurich and EPF Lausanne (full, associated, assistant, adjunct) are entitled to become a member of the Forum. More than 80% of them are already ETH WPF member. The association is kindly supported by the ETH Zurich.

[Read more »](#)

NEWS »

News

New book : "Inspiring Conversations with Women Professors"

Book review on the ... [\[Read More...\]](#)

Congratulations to Prof. Ursula Keller

Prof. Ursula Keller has been named as the 2020 recipient of the SPIE ... [\[Read More...\]](#)

[Survey of Issues Important to women](#)



Prof. Dr. Sonia Seneviratne
D-USYS
More on the [ETHZ](#) website



Prof. Dr. Dagmar Iber
D-BSSE
More on the [ETHZ](#) website



Hélène Fueger
More on the [EPFL](#) website



Prof. Dr. Lesya Shchutska
D-PHYS IPHYS
More on the [EPFL](#) website

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Miscellaneous

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Contact

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Send us an [E-Mail](#).

Address

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8000 Zurich

ETH Women Professors Forum (ETH WPF)

NCCR MUST creates and
establishes ETH WPF
2011 - 2013

Ursula Keller, President; Janet Hering, Vice-President
Anna Garry, MUST, Coordinator

Consolidation Phase at ETH Zürich
2014 - 2016

Ursula Keller, President; Janet Hering, Vice-President
Daniela Meier, Coordinator, ETH Equal Office
Creation of Website: www.eth-wpf.ch

Expansion Phase to EPFL in 2016

Janet Hering, Chairwoman, 2 Vice-chairs, ETHZ + EPFL
WPF moves to ETH Domain office, Zürich. Ursula Keller
steps down from Board after 2 periods in office.
[NCCR MUST supports transition](#)

ETH Domain and new Forums
2016 - 2019

First ETH/EPFL General Assembly, 29.3.2017
Ursula Keller supports new WPFs in Ruhr Bochum and
Oldenburg, Germany
[NCCR MUST supports WPF financial side](#)

eth-wpf.ch

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The ETH WPF goals

- to become the **advisory board** for the ETH “Executive Board” for women in leadership positions
- to increase **women leadership participation** within ETH
- **building membership and collegiality between ETH women professors:** monthly scientific lunches, social events, etc.
- **networking**, support, exchange of experience, inter-disciplinary and inter-departmental information flow
- to **nurture and promote** excellence of women scientists
- to provide **successful role models** for our students and encourage (our mostly Swiss) undergraduates to set and achieve higher goals for their careers
- to **help to develop working “structures” for more diversity**, for dual career couples and families (optimized for different departments)
- to reach out to Swiss industry: board members, consultants
- to reach out to women in Swiss politics
- to collaborate with other networks for women in leadership positions

The ETH Women Professors Forum 2019:

ETH Domain (ETH, EPFL, Research Institutes) www.eth-wpf.ch

6th Assembly Meeting, 28 March 2019, ETH Zürich – joint meeting with EPFL professors



Plans for 2019 and beyond:

Network and knowledge exchange, outreach, support advancement and recruitment of women faculty, co-operation with Equal Opportunity Offices

Membership of female professors in 2019: 70 (ETHZ, 70%), 47 (EPFL, 87%)

ETH WPF: A Survey of Issues Important to Women Professors at EPFL and ETHZ, 2019

Published and for download here

http://www.nccr-must.ch/nccr_must/news_4.html?4518

Or here

<https://zenodo.org/record/2710622#.XXTsoy2B1dC>



AUTHORS

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EPFL Commission on Status of Women Faculty, established March 2019 (follow MIT Report 1999)

<https://www.epfl.ch/about/equality/equalityepfl/commission-status-women-faculty/>

Established in response to ETH WPF – EPFL Survey, reported in 2019

Members: Five male and five female professors (one from each of the larger schools), Human Resources Director, Gender Equality Delegate, Administrative support

Part 1: data gathering to collect data on the gender distribution for a number of parameters: Salary Space Financial resources Hiring and promotion Leadership and named chairs Awards Teaching Grievances Extramural fundraising

Part 2: Interviews 30 women professors and 15 male professors by Prof. Eric Davoine from the University of Fribourg

Part 3: Reporting: Focus group to discuss the findings Recommendations will be articulated Report will be finalized
(4 meetings already in 2019, next one September)

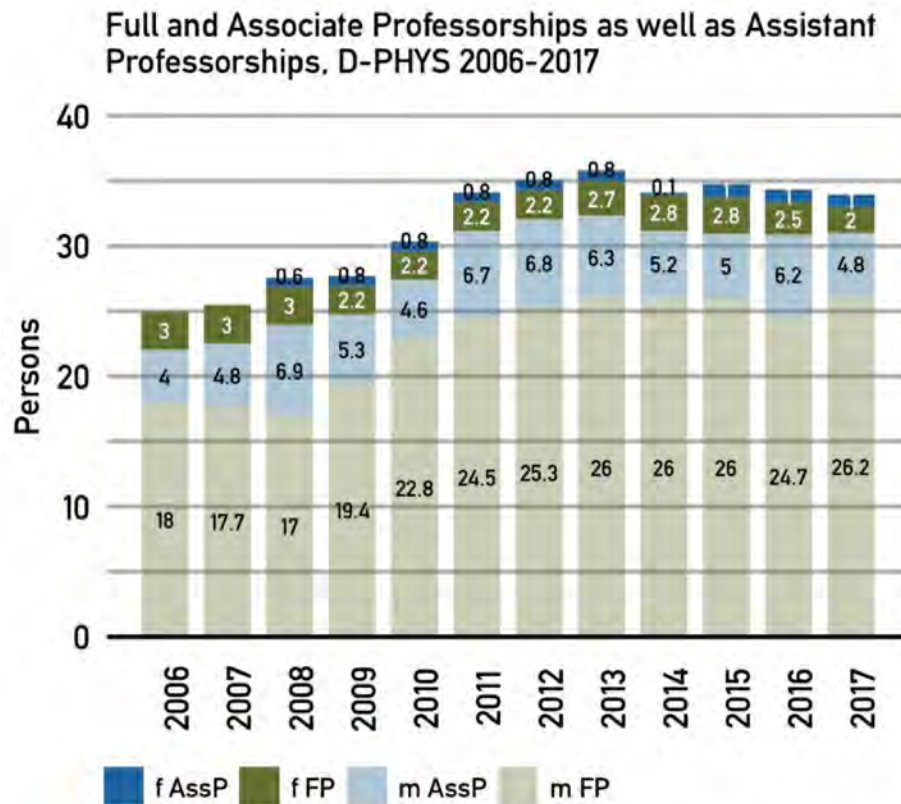
D-PHYS : Open Faculty Search for female professors: calls

ETH Zurich, Gender Monitoring

<https://ethz.ch/services/de/anstellung-und-arbeit/arbeitsumfeld/chancengleichheit/strategie-und-zahlen.html>

2017 28.2 Full and associate Professors, 2 women (Keller and Carollo) **7%**

2019 27.2 Full and associate Professors, 1 woman (Keller) **3.7%**



In comparison to the previous year, the number of full and associate professorships at the department of PHYS expressed in full-time equivalents increased by 1.0 to 28.2 in 2017. 2.0 full-time equivalents thereof were filled by women (minus 0.5 full-time equivalents compared to the previous year).

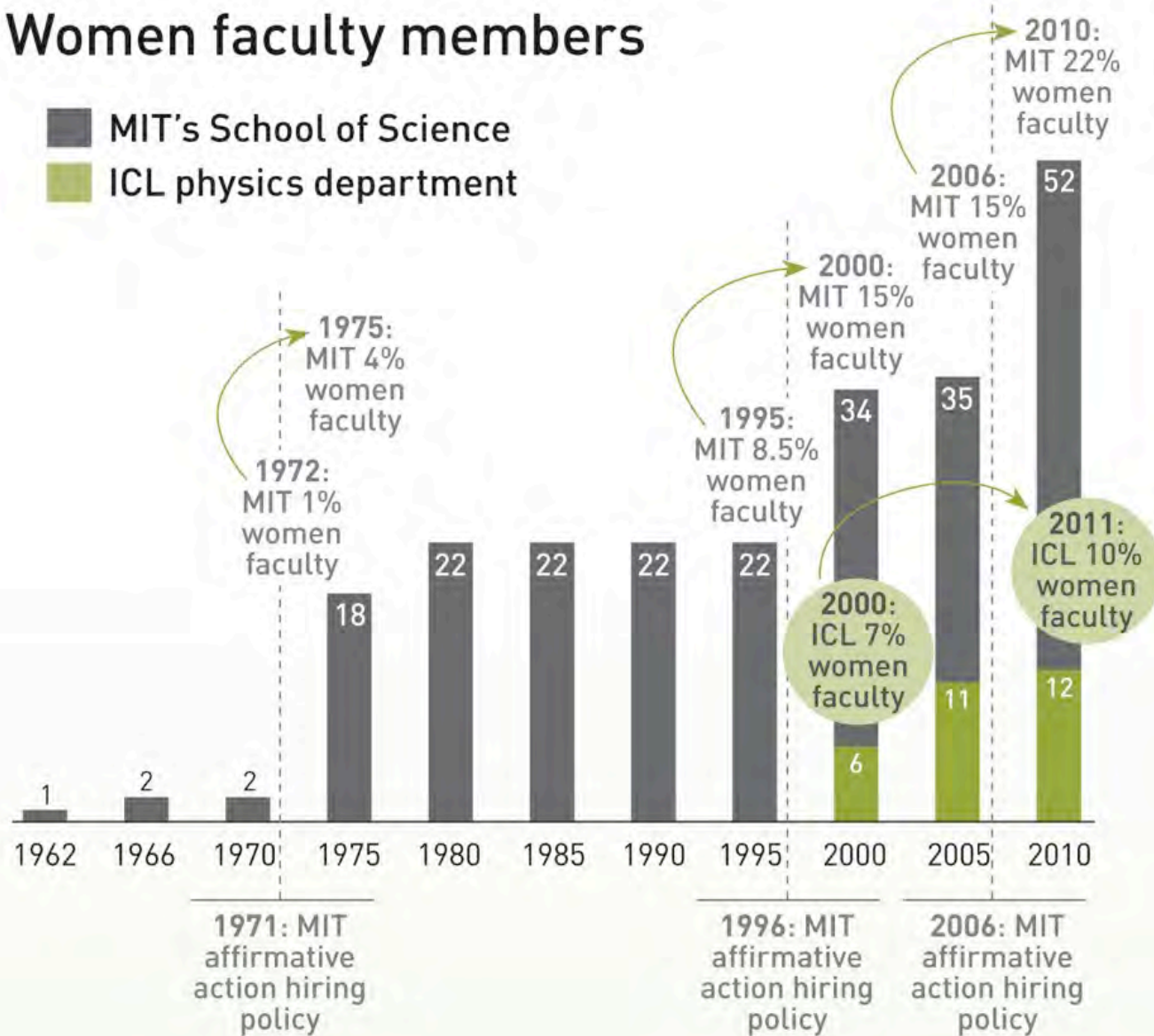
In 2017, assistant professors were occupied in the amount of 5.8 full-time equivalents at the department of PHYS (minus 1.4 full-time equivalents compared to the previous year). 1.0 full-time equivalents were held by female assistant professors.

The proportion of women among professorships reached 8.8% in 2017 and thus lay 1.3 percentage points below the previous year's value.

MIT USA (2010 22% women faculty)

Women faculty members

■ MIT's School of Science
■ ICL physics department



MIT applied affirmative action hiring policies: 1971, 1996, 2006

1994: establishing a committee on women faculty in the school of science

16 out of 17 tenured women Professors

MIT report 1999

“the feeling of an injustice, the anger that accumulates from this recognition, and the strong desire for change for themselves and future generations”

Source: OSA, OPN, April 2015

D-PHYS : Open Faculty Search for female professors: calls

Open Strategic Searches: (under D-PHYS head Prof. Simon Lilly)

2017/18 special search for female professors to fill Assistant Tenure Track positions in IQE and Solid State Physics:

- 6 invited for interviews and presentations at a departmental symposium
- 3 Assistant Professors offered and accept positions, with the formal announcement of third in Dec. 2018 (tenure track)

A second round will open in 2019 (goal is to increase >30%)

28 Full and associate Professors, 4 women (Keller and 3 current Ass. Prof.) **14%**

28 Full and associate Professors, 4 + 5 (resp. 6, Keller retire 2024) women **39%**

Measure 2: Networking Initiatives for Younger Women Scientists

NCCR MUST Women Scientist Network est. 2011

132 women scientist members including alumni in 2019

After consultation - identified potential issues for our women scientists:

Isolation, lack of self-confidence, difficulties with male-dominated environment, uncertainty about a science career working with family life

(Physical Review, Physics Education Research, 12 August 2016 – same concerns)

Created a MUST community:

Individual support and advice from MUST office: email news, two career and skills workshops per year, mentoring, increased visibility, information on available provisions in universities (e.g. Réseau Romand de Mentoring, Fix the Leaky Pipeline, NCCR workshops, new science awards), maintain contact with alumni members

Other outcomes:

Creates future science networks, cross boundaries, embeds our gender work in science environment



NCCR MUST Women Scientist Network 2019

- MUST workshops and training activities, alumni members as role models, and currently returning members to MUST science network
- Annual Meeting Grindelwald, Careers Workshop with Prof. Enrica Bordignon and Prof. Clara Saraceno, Ruhr Bochum University, January 2019
- Pls support program with time and travel expenses



Measure 3: Gender and Science Initiative with RESOLV

MUST/RESOLV Gender and Science Meeting

September 13 -14, 2017, ETH Zürich, Switzerland

Biennial meetings (2013, 2015, 2017, 2019):

- 84 participants (professors, junior research leaders, postdocs and Ph.D. students)
- Directors of MUST/RESOLV (Ursula Keller and Martina Havenith) Prof. Angelika Kalt, Director of SNSF, Prof. Tomas Brage, D-Phys, University of Lund, Sweden; Prof. Lesley Cohen, D-Phys, Imperial College, London; Prof. Doris Wastl-Walter, Vice Rector, University of Bern; Prof. Teresa Montaruli, D-Phys, Uni Geneva; Maya Widmerformer SNSF head of gender office
- Contributions from student associations Phimale, WINS, VSETH
- Workshop on preparing applications for ERC starting grants



Measure 4: Inter-MUST Women Postdoc Awards

Inter-MUST Women Postdoc Awards Phase I, II, III:

Support for women scientists at the stage when most leave academia

Objective: to **both** increase and strengthen research between PIs in our network **and** boost women postdoc numbers in MUST

The award: Collaborating PIs receives 50% of the postdoc's salary over two years

Criteria for applications:

- Research project has to involve 2 or more MUST PIs working together
- Direction Committee (12 members) approves the application

Availability:

- 2 awards in Phase I (2010 – 2013)
- 4 awards in Phase II (2014 – 2018)
- 2 awards in Phase III so far

The **number of female postdocs has increased** from **10 (12%)** at the end of Phase I to **23 (28%)** (incl. 3 Inter-MUST) at the end of Phase II

N.B Other NCCRs have now introduced awards for female postdocs too!

Measure 5: Highlighting progression and advancement of women scientists

Advancement of MUST Women Scientists



Natalie Banerji: Postdoc, Ambizione Award 2011

SNSF Prof. 2014, Associate Prof. Fribourg 2015

MUST PI, 1 December 2015

Full Professor, University of Bern, 1 August 2017

First female professor in D-Chemistry and Biochemistry, Uni Bern

(n.b. now there are 3 more female professors in Chemistry!)



Arianna Marchioro: Roke Group, EPFL

Former PhD student in Moser Group

Postdoc, D-Chem, University of Washington, 2014 – 2016

Ambizione Award, 2017



Elsa Abreu, Johnson Group, ETH Zürich

Postdoc

Ambizione Award, 2018

Advancement of MUST Women Scientists



Clara Saraceno: PhD and Postdoc, Keller Group, ETHZ (till 2016)
Sofia Kovalevskaja Award 2015
Tenure-track ass. Prof. (2016-2018), Associate Professor (since 2019),
Ruhr Bochum University
ERC starting grant 2018



Alexandra Landsman, Postdoc, Keller Group, ETHZ (till 2014)
Group Leader, Max Planck Institute for Physics of Complex
Systems, Dresden, 2014-2019

Associate Professor, Ohio State University (OSU), USA, since 2019



Laura Cattaneo , Postdoc, Keller Group, ETHZ

Measure 6: Communication

- OPN Column “Reflections in Diversity”
- Inspiring stories from women professors

OSA: OPN “Reflections in Diversity” Column

http://www.nccr-must.ch/advancement_of_women/opn_column_reflections_in_diversity.html

Established by MUST in 2012 – commissioning editors: Anna Garry and Ursula Keller



Frederique Vanholsbeeck, *A Journey to Equality and Diversity*, July 2017



Sile Nic Chormaic, *Challenging a Culture of Inequality*, October 2017



Jie Qiao, *Being the CEO of your own Career*, **March 2018**



Thomas Bergdörfer, *GENERA: towards equity in Physics*, September 2018



Renate Schubert, *Treat Each other Respectfully*, November 2018



Thomas Brage, *What does Gender have to do with Physics*, February 2019

Annual OPN readership: **in print 20,000 readers and on-line 137,000**

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3 columns per year. next out September 2019

Inspiring Conversations with Women Professors: the many routes to career success, Elsevier 2019

Inspiring Conversations with Women Professors

The Many Routes to Career Success

by Anna M. Garry

Foreword by Ursula Keller



Conversations with 23 professors
See talks later today!



Measure 6: Initiatives for mothers and parents

Fellowships for Postdoc Mothers: Career Retention Measures

DECEMBER 2016, OSA
OPTICS & PHOTONICS
NEWS, p. 19



iStock

REFLECTIONS IN DIVERSITY

Retaining Postdoc Mothers in an Academic Career



D-PHYS Initiative: Fellowship for Postdoc Mothers, since 2018

Female postdoc who becomes pregnant and wants to pursue a career, can apply for a fellowship to finance a PhD student for four years, co-supervised within the group of her professor/supervisor.

Conditions and rules:

- Submits a scientific proposal during pregnancy outlining the PhD project, which will start before she goes on maternity leave.
- Successful candidate must be paid 100% by her PI, and can conduct her working life with flexibility in the early stages of motherhood, whilst supervising the PhD student.
- Postdoc mother is released from teaching for one year.
- Costs: around 60 kCHF per annum per pregnancy.
- Second pregnancy: no need to reapply if within 2 years of first fellowship.



SNSF 120% Childcare Support for NCCR PhDs and Postdocs

SNSF 120% support grant

- PhDs (since 2016) and Postdocs in NCCRs can apply for funds to: Pay for childcare of preschool children whilst they develop their careers or pay for some assistance in labs during absence
- Application needs to be supported with a career development letter from their PIs (postdoc eligibility is up to 5 years after they received their PhD)

MUST offers to pay hotel and travel expenses for a partner to accompany a parent to look after the children during the annual meeting

Conclusions

Summary of Achievements from these Measures

- The creation of **ETH Women Professors Forum** – a network of women professors working to influence recruitment, tenure, working environment and retention
- **Advancement** of women in our network into leadership or promoted positions in MUST and in other institutions
- A successful network with RESOLV on gender – now FP-RESOMUS
- Active and growing MUST Women Scientist Network
- MUST Women Postdoc award increases numbers of female postdocs and benefits MUST interdisciplinary science

New challenges for excellent women

Andrea S. Kramer and Alton B. Harris,

"It's not you, it's the workplace: Women's conflict at work and the bias that built it."

<https://www.johnmurraypress.co.uk/titles/andrea-s-kramer/it's-not-you-it's-the-workplace/9781473697287/>

- “Bitches” – i.e. how women sometimes describe female bosses
- ... but female bosses treated these women just as many men did – but they are judged more harshly
- Evidence and facts however show: “more women than men are paying it forward to ensure the future advancement of women (and men) who work for them”
- Workplace gender bias is serious – we need special measures!

Speaking Out (ETH/EPFL WPF, president, Prof. Janet Hering)

ETH News

Newsletter

Archive

Apps

Editorial team

Further news

Zukunftsblog

Magazine Globe

Podcast

Social Media

Events

Media information

Learning for Leadership

22.03.2019 | [Zukunftsblog](#)

By: [Prof. Janet Hering](#) | [3 Comments](#)

What does it mean when the first professor recommended for dismissal in 164 years is female? Eawag Director Janet Hering addresses three areas to develop in terms of ETH governance.



ETH Zurich appointed its first female professor in 1985, 130 years after opening its doors; by the end of 2017, 14% of the professors were women. It could be just a coincidence that the first formal action to dismiss a professor involves a female professor, but it could also tell us something about the challenges that female faculty face as an isolated minority within ETH Zurich. To identify these challenges is not a claim of gender-based discrimination. Rather, it is an attempt to address the gender dimensions of this case as well as issues that arise for individuals belonging to other minority groups.

I would like to highlight three issues that disproportionately affect female faculty: dual career situations, unconscious bias, and poor governance. I highlight these issues because ETH Zurich's leadership is just beginning to

Zukunftsblog

About the author

Janet Hering

Professor for Environmental Biogeochemistry at ETH Zurich, Director of [Eawag](#) and Chairwoman of the [Women Professors Forum](#)

[Information on the author](#) →

[@JanetGHering on Twitter](#) →

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<https://www.ethz.ch/en/news-and-events/eth-news/news/2019/03/blog-janet-hering-leadership.html>

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- “Bitches” – how women often describe female bosses
- ... but female bosses treated these women just as many men did – but they are judged more harshly
- Evidence and facts however show: “more women than men are paying it forward to ensure the future advancement of women (and men) who work for them”
- Workplace bias is a serious – we need special measures!

Solutions:

- **New challenge:**
many women are confronted with the accusation that they are leading wrong / bad
- **Hire more women professors** (with additional measures)
- **Implement better “corporate governance”** (i.e. better for all and improve “culture”) participation, rule of law, accountability & transparency, responsiveness, consensus orientation, equity, inclusiveness, effectiveness & efficiency

MUST2020

10 Years of NCCR MUST

6– 10 September 2020, Grindelwald, Switzerland

Save the date!

