Creating a university culture where women thrive: statistics and special measures

Ursula Keller

Department of Physics, Institute for Quantum Electronics, ETH Zurich, Switzerland

I, Scientist – the conference on gender, career paths and networking
Konstanz, 16. Sept. 2020
• **Get informed:**
  statistics and survey for ETH Zurich and EPFL

• **Recognize and acknowledge the issues and challenges**

• **Take measurable actions:**
  we need special measures for progress
  we want more excellent women empowered to shape our future
Frauenstreik Schweiz 1992
The first 11 tenured women professors at ETH

ETH Zurich: the first 11 tenured women professors, ETH Zürich: Die ersten 11 Professorinnen auf einem Lehrstuhl, d.h. Ausserordentliche oder Ordentliche Professorinnen

<table>
<thead>
<tr>
<th>Name</th>
<th>a.o. or o. Prof.*</th>
<th>until</th>
<th>STEM field of research</th>
<th>Department (now)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Flora Ruchat-Roncati</td>
<td>1985</td>
<td>em.* 2002</td>
<td>Architecture</td>
<td>D-ARCH</td>
</tr>
<tr>
<td>2 Melitta Schachner</td>
<td>1988 left 1995</td>
<td>Biology</td>
<td>D-BIOL</td>
<td></td>
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<tr>
<td>3 Marlis Buchmann</td>
<td>1990 left 2005</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Silvia Dorn</td>
<td>1992 Jan. em. 2013</td>
<td>Agricultural and Food Sciences</td>
<td>D-USYS</td>
<td></td>
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<tr>
<td>6 Renate Schubert</td>
<td>1992 Nov.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Ursula Keller</td>
<td>1993</td>
<td>Physics</td>
<td>D-PHYS</td>
<td></td>
</tr>
<tr>
<td>8 Helga Nowotny</td>
<td>1995 em. 2002</td>
<td></td>
<td>D-GESS</td>
<td></td>
</tr>
<tr>
<td>9 Moira Norrie</td>
<td>1996</td>
<td>Computer Science</td>
<td>D-INFK</td>
<td></td>
</tr>
<tr>
<td>10 Judith McKenzie</td>
<td>1996 em. 2007</td>
<td>Earth Science</td>
<td>D-ERDW</td>
<td></td>
</tr>
<tr>
<td>11 Sarah Springman</td>
<td>1997</td>
<td>Civil Engineering</td>
<td>D-BAUG</td>
<td></td>
</tr>
</tbody>
</table>

Previous ETH positions as Titulary or Assistant Professor at ETH:
(5) Heidi Wunderli-Allenspach: 1986-1992 Assistant Professor
(9) Judith McKenzie: 1988-1996 Titulary Professor (Titularprofessorin)

Sources:
- “Wege in die Wissenschaft. Professorinnen an der ETH Zürich”. ETH Zürich, September 1997
- Internet and ETH for complementary information

Remarks:
- “a.o. or o. Profs.”: Associate or Full Professors; Ausserordentliche oder Ordentliche Professorinnen
- “em.” : retirement, becoming Professor emerita (ETH has generally a mandatory retirement age)

1985 First Woman Professor at ETH Zurich in architecture
1988 in biology (Schachner – left 1995)
1992 "Frauenstreik” more political pressure

First women hired in:
earth science (1996 McKenzie)
civil engineering (1997 Springman)

Many of us were not really welcome …

D-GESS: Department of Humanities, Social and Political Sciences
End of 2018
13.3% female full professors (53 female, 346 male)
21.9% female assistant professors (not all tenure track)
(20 female, 71 male)
Leaky Pipelines Chemistry versus Physics

Chemistry

Physics

Leaky pipeline D-CHAB, 2017

<table>
<thead>
<tr>
<th>Level</th>
<th>Chemistry</th>
<th>Physics</th>
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<tbody>
<tr>
<td>BSc* Deg</td>
<td>55%</td>
<td>62%</td>
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<tr>
<td>BSc* MSc* Deg</td>
<td>57%</td>
<td>86%</td>
</tr>
<tr>
<td>MSc* Doc* Deg</td>
<td>54%</td>
<td>84%</td>
</tr>
<tr>
<td>Doc* Post-SSA*</td>
<td>45%</td>
<td>88%</td>
</tr>
<tr>
<td>Prof* SS*</td>
<td>26%</td>
<td>79%</td>
</tr>
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Leaky pipeline D-PHYS. 2017

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<thead>
<tr>
<th>Level</th>
<th>Chemistry</th>
<th>Physics</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSc* Deg</td>
<td>18%</td>
<td>12%</td>
</tr>
<tr>
<td>BSc* MSc* Deg</td>
<td>16%</td>
<td>16%</td>
</tr>
<tr>
<td>MSc* Doc* Deg</td>
<td>19%</td>
<td>21%</td>
</tr>
<tr>
<td>Doc* Post-SSA*</td>
<td>21%</td>
<td>18%</td>
</tr>
<tr>
<td>Prof* SS*</td>
<td>12%</td>
<td>11%</td>
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</tbody>
</table>

Hiring statistics in the physics department at ETH:

1993

direct hire (i.e. “Direktberufung”) of two women professors:
   Ursula Keller, tenured associate professor
   Felicitas Pauss, assistant professor

1994 – 2016 (i.e. for 22 years)

All professor selection committees resulted in hiring a male professor with 24:0

One dual-career appointment: Prof. Marcella Carollo (2002)

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Hiring top people in the academic world requires a good dual-career program

Prof. Carollo was qualified on her own merits as a professor at Columbia University, USA
When I began my career 30 years ago, I was convinced that all I had to do in order to become a successful scientist was to be very good at my job and to excel in my scientific expertise. I believed that there was no longer discrimination against women in science, and I was positive that I wanted to build a career and, if I chose to, have a family. Now, as a tenured female professor with a spouse and children, I look back on my career and find that the issue of women in science is much more complicated than I had initially thought.

Don’t get me wrong: I have an exciting, exhilarating and fulfilling job. Yet I still find myself hesitating to characterize the experience as wholly positive. While I’ve engaged in many wonderful research collaborations with my colleagues, I have also experienced a number of incidents that have led me to conclude that there is something systematic going on in science. Women and some men are experiencing discouraging behavior and attitudes that provide disincentives for them to remain in academic science.

In my early career at Stanford University and Bell Laboratories, one of the most motivating pieces of advice I received from a scientific colleague and mentor was: “No one said it would be easy; just try harder.” That powerful statement became a mantra for me. I kept it in mind as I built up a large research group, raised two children, and established a scientific track record. I have now been a tenured professor for 17 years, and I currently serve as the director of a multi-collaborative Swiss National Science Foundation project. I became a successful science professor. However, my adviser was right. It has not been easy.

As a tenured female professor with a spouse and children, I look back on my career and find that the issue of women in science is much more complicated than I had initially thought.
ETH Women Professors Forum (ETH WPF)

ETH WPF Executive Board (Elected during first assembly meeting, 7 March 2012):

Ursula Keller, Physics, President
Janet Hering, EAWAG Director, Vice President
Marcella Carollo, Physics
Silvia Dorn, Environmental Systems Science
Gudela Grote, Management Sciences
Renate Schubert, Delegate for Equal Opportunities to ETH President, Humanities, Social and Political Sciences
Viola Vogel, Health Sciences and Technology

With financial support from
Swiss National Science Foundation
(with NCCR MUST)

ETH Zurich
61 women Prof.
as of Feb. 2013
75% are members
(i.e. 45 Profs.)

History: http://www.nccr-must.ch/equal_opportunities/eth_women_professors_forum.html
I commend this study of Women Faculty in Science to all of my faculty colleagues. Please read it, contemplate its messages and information, and act upon it personally and collectively.

I learned two particularly important lessons from this report and from discussions while it was being crafted. First, I have always believed that contemporary gender discrimination within universities is part reality and part perception. True, but I now understand that reality is by far the greater part of the balance. Second, I, like most of my male colleagues, believe that we are highly supportive of our junior women faculty members. This also is true. They generally are content and well supported in many, though not all dimensions. However, I sat bolt upright in my chair when a senior woman, who has felt unfairly treated for some time, said “I also felt very positive when I was young.”

We can take pride in the candor of dialog that these women have brought to this issue and in the progress that we have made, but much remains to be done. Our remarkably diverse student body must be matched by an equally diverse faculty. Through our institutional commitment and policies we must redouble our efforts to make this a reality.

[Charles M. Vest can be reached at cmvest@mit.edu]
How to create a WPF in your university?

First year activities: building up membership and collegiality
- organized scientific lunches
- social activities
- increase number of women professors in important leadership positions within ETH (e.g. Forschungskommission ...)
- first meeting with ETH president (getting to know each other ...)
- one-day retreat meeting 8. April 2013 to develop recommendations for ETH executive meeting on 28. May 2013

OSA OPN article March 2014

2017 Interview with Ursula Keller:
Development of a network … motivation and lessons learned

Get senior successful women involved!

See also:

NCCR MUST webpage (with English translation for download):
http://www.nccr-must.ch/equal_opportunities/eth_women_professors_forum.html
2019 Survey of Issues Important to women Professors at EPFL/ETHZ:
https://eth-wpf.ch/category/publications/
Published on NCCR MUST: http://www.nccr-must.ch/nccr_must/news_4.html?4518
Published on zenodo.org: https://zenodo.org/record/2710622#.X19S-S2w1MC

• Main issues: work culture, (unconscious) bias, lack of proper grievance processes:
  Work atmosphere plays an important role in success of women (96%)
  Most damaging behaviors are (a) the systematic dismissal of suggestions/ideas of women and (b) condescending remarks (88%)

• A separate survey showed a disproportionate number of grievance cases targeting women professors with a 2-3 times higher probability

• Not enough women full professors (98%) and too few women in decision-making boards (94%)
19. May 2020: ETH Zurich professor survey published


- at least **23% female professors indicated that they felt discriminated against** at ETH Zurich within the previous two years (versus 5% of male professors)
- **Grievance processes** considered generally not good enough, but “women in particular rated the complaints process for discrimination as rather negative to very negative.”
- … numerous comments … calling for more institutional action for women support
Survey on Status of Women Faculty at EPFL

Published July 2020: Report of the commission on the Status of Women Faculty at EPFL

Serious issues that negatively affect the gender climate are:

• **Grievance procedures** – is considered a major source of undue stress and women are "targeted" with a much higher probability than men
  
  **Need complete overhaul of grievance procedures**

• Reported **lack of respect** for women professors

• **Gender bias**

• **Male dominated management culture** and predominance of men in numbers and in leadership positions affects women disproportionately

• **Not sufficient accountability and transparency** with regards to resource and space allocation, committee work, teaching load, and most importantly, the decision making process
We need a culture change

"When a woman excels at her job, both male and female co-workers will remark that she may be accomplishing a lot but is ‘not as well-liked by her peers’. She is probably also ‘too aggressive’, ‘not a team player’, ‘a bit political’, ‘can’t be trusted’ or ‘difficult’.

- Unconscious bias by both men & women [1]
- Women punished significantly more than men [2]
- A change of culture is often necessary [3]

Recognize the problem: unconscious bias

Unconscious bias with implications on chance to get
• grant proposals accepted (Wenneras & World 1997 Nature)
• access to further useful resources (Wenneras & World 2000 Nature)
• adequate credit for research result and academic teaching (Bug 2011 Physics World, same CV with John versus Jennifer)

Single bias: may seem subtle, but bias accumulate over time.

Result: “chronic subtle bias may harm women within academic science”

Moss-Racusin et al. 2012 PNAS

Recognize your own bias: http://implicit.harvard.edu/implicit
Even scientists trained by objective are biased

John vs. Jennifer (same CV but name changed)

- **Research by Moss-Racusin et al. 2012 PNAS**
- **Participants**: professors in biology, chemistry, physics, 6 universities
- **Task**: evaluate application from graduate for lab manager
- **Result**: John average score 4, vs. 3.3 for Jennifer
  John to be given more career mentoring
  starting salary Jennifer $26’508 vs. John $30’238
Peer-review is not gender blind

40’000 reviewers in project funding 2009-2015

Women are rated lower (by men and women)

Rating of female reviewers lower (of men and women)
How the system selects

"First they ignore you, then they laugh at you, then they fight you, then you Win."
– Mahatma Gandhi

The Royal Society, 2010 The Scientific Century
Manager Magazin 2020

Mission: Character Assassination

Thomas Sattelberger:
“This is a career risk, especially for women”
Accusation

“significant misconduct in management or inappropriate leadership”

The accusers remained anonymous … … this can be a way of removing unwanted competition.

Prof. Heike Egner

The allegations were aimed at their personal integrity!

Prof. Tania Singer

Prof. Marcella Carollo
Weaponizing a “disgruntled” group member

- We know of many cases where “disgruntled” or “frustrated” PhD students or “overly ambitious” post-docs have been exploited (“instrumentalized”) to increase pressure on “unwanted” professors
- This happened very often (but not only) to women professors
- Related to “hostile” working culture for many women professors at different departments at ETH and EPFL
  … many still believe in ”reverse discrimination” (i.e. the traditional white male has a lower chance to be promoted and is even discriminated against)
Weaponizing a “disgruntled” group member

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  … we need to better educate and engage our community for change

Reverse discrimination is not taking place
Look at the facts!
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  ... we need to better educate and engage our community for change.

- Women and any outside group often have a much lower mistake tolerance.

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A PERSON WHO NEVER MADE A MISTAKE NEVER TRIED ANYTHING NEW.
- ALBERT EINSTEIN

Would be nice if this also applies for women scientists.
Summary current issues

• Issues are systemic and not single cases
  • We need to better protect the rights of all parties in disputes
  • We need to respect the right and responsibility of faculty to voice criticism
  • Prevent "win-lose" scenario with long-term “lose-lose” outcome
  • Stop escalation with over-using and even weaponizing administrative instruments and “disgruntled” group members

• Issues are very similar:
  confront gender harassment and academic mobbing

• Cases are often unnecessarily escalated, partly because staff members/institute and department heads involved do not have the proper background and unclear responsibilities of staff members

• decisions are based on rumors and personal opinions rather than facts

• Nontransparent conflicts of interest

• Lack of sufficient training and procedures to address diversity issues

• Not all stakeholders are engaged. Learn better from current and previous cases to make sustainable improvements
Recommended additional reading

specially recommended: Chapter 3, “The role of passive evil in perpetuating downward academic mobbing” on page 57: “One of the most disheartening findings in many published studies on downward academic mobbing is that university HR departments, in particular, are not only unhelpful to victims (either by failing to recognize the mobbing or mismanaging the cases brought before them) but in many cases actually protect and assist unethical administrators in their framing and abuse of targets.”
• The “good old” ways [1]:
  "Wichtiger wäre es, die bestehenden Regeln konsequent aber auch mit Augenmass anzuwenden und auf Regel-Perfektionismus zu verzichten."
  Am Schluss im letzten Paragraph steht noch:
  "Wenn man die Leute von oben «verknurrt», dann werden diese Bemühungen nicht viel fruchten. Dann werden die Professorinnen und Professoren kreativ, wie sie all die Regeln und Auflagen unterwandern, damit sie noch im Geschäft bleiben können."

• How do we decide about the right “Augenmass”? 
  We depend on personal decisions on how we do or do not want to follow the rules! Do some feel they have the divine right to decide, which rules to follow?

• Many current problems could have been prevented if we actually followed our current rules!

• Serious issue: “Augenmass” opens doors for gender (resp. diversity) bias

• How can we implement an “Ermöglichungskultur” [1] for ALL?
What do we need?

• **More women in STEM as students and in leadership positions**
  We want more excellent women empowered to shape our future

• **We need additional measures to drive cultural change**
  Goal for each department >30% women
  (e.g. MIT affirmative action / culture change / good corporate governance)

• **Elements of good corporate governance:**
  • Participation and inclusiveness (majority rule still requires other check and balances)
  • Accountability & transparency (rule of law)
  • Effectiveness & efficiency (credibility and trust in leadership)
  • Increase diversity and international competitiveness

“having a seat at the table does not guarantee one will be heard, minorities need greater support and additional measures to participate fully”
14 recommendations for …

Effective Practices for Faculty Recruitment and Retention

1. Consider what steps you will take to ensure faculty retention. Since universities make a tremendous investment in faculty, often recruiting and hiring them at great expense, it is important to think long term from the beginning. Look at the startup packages offered—if faculty seem unaware of what is often included, do you offer a list of standard elements you usually provide? Do you expect them to negotiate and make a case for what they will need to succeed, and do you communicate these expectations? Given that faculty have highly specialized talents, ensure they don’t waste time struggling in a bad environment by making sure they know who to come to for advice before they are on campus.

2. Enable the hiring of the best available candidates by paying attention to the application process, selection of short list, faculty visit experience and by working to minimize the impact of unconscious biases.

3. Set a high standard in treating all faculty with respect, and promote a positive environment for everyone. If you cannot achieve this, seek guidance from within the university, schedule a site visit, or appoint
MIT applied affirmative action hiring policies:

1994: establishing a committee on women faculty in the school of science
16 out of 17 tenured women Professors

“the feeling of an injustice, the anger that accumulates from this recognition, and the strong desire for change for themselves and future generations”
Hiring statistics in the physics department at ETH:

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direct hire (i.e. “Direktberufung”) of two women professors:
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One dual-career appointment: Prof. Marcella Carollo (2002, fired 2020)

2017
Prof. Simon Lilly husband of Prof. Carollo and head of physics department, initiated an emergency program to appoint female tenure-track faculty

2020:
4 women tenure-track assistant professors hired
Rachel Grange, Yiwen Chu, Daniela Rupp, Anna Soter
Fellowships for postdoc mothers, D-PHYS, ETH Zürich

https://www.phys.ethz.ch/research/research-promotion.html

This fellowship program aims to support female postdoctoral researchers who are simultaneously starting a family and pursuing a research career. It gives them the opportunity to gain a fully funded PhD student in their research area, enhancing the research direction of the mother. The fellowship is fully funded by the Department of Physics of ETH Zurich for the standard period of a PhD thesis of four years.

4 successful applications in 2019, with 3 PhD students appointed
(1 postdoc moved to MPI, Heidelberg into Group Leader position)

OPN column Dec. 2016:
New initiatives in the physics department

Pilot peer mentoring program, D-PHYS, ETH Zürich, from September 2020

https://www.phys.ethz.ch/studies/mentoring-for-female-students.html

Joint project between D-PHYS, NCCR MUST and NCCR QSIT to establish as support network for first year female undergraduates: 18% of 1\textsuperscript{st} year intake
Current Issues for women professors

- Challenge “Autonomy of Departments”: large differences in quality of governance – some have very limited accountability and transparency
- Professor ETH/EPFL surveys 2019 & 2020: significant gender discrimination confirmed (culture, grievance processes, male dominated leadership …)
- There are some important issues that need to be addressed now
  - Avoiding conflict of interests (e.g. scientific misconducts, ombudsperson, confidant, …)
  - Avoiding concentration of authority – committee versus single person & with shared leadership as a strategy for diversity, equity and inclusion (having a seat at the table does not guarantee one will be heard, minorities need greater support to participate fully)
  - Appropriately engaging professional expertise
    retired professors are more likely to be subject to conflict of interest than external professionals
  - Clearly distinguishing between informal and formal processes
  - Protecting the rights of all parties in disputes
    “Fürsorgepflicht” of employer, maintaining “Rechtsaatliche Prinzipien” for ALL
  - Respecting the right and responsibilities of faculty to voice criticism
  - Generally following international best practices of good governance such as transparency, accountability and fairness
  - Hire a critical mass of women professors (>30% in each department)

- Give the leading women some support, even if they do not seem to need it.
  Basic issue of **competent but not likable**: if women are successful in a "male" field, they are considered less likeable and more interpersonally hostile than “man”
Some final remarks

• Need an independent, credible assessment of current issues before too many new rules are put in place
  “the path to hell is paved with good intentions”

• Even with clear legal requirements with regards to equal opportunities, independent checks, balances, and grievance procedures are necessary for sufficient oversight – and ultimately credibility – in the existing university culture.

• Many of these measures can be achieved efficiently and without significant cost to the university – if the political will and leadership is behind these changes.

• In the end, the benefits flow to the entire university (including male professors and staff, and any other person or group which could be marginalized) and makes the university more attractive and competitive in the top international playing field.