



Women in HPC

Breaking Barriers and Shaping the Future

EuroSciPy 2025 | Anna Lührs



Mitglied der Helmholtz-Gemeinschaft

 **JuWinHPC** | **W**HPC

 **JÜLICH**
Forschungszentrum

Forschungszentrum Jülich



Jülich Supercomputing Centre



- National research centre in Germany
- One of the biggest research centres in Europe
- 15 Institutes, >7,000 employees
- Interdisciplinary research: energy, information, bioeconomy

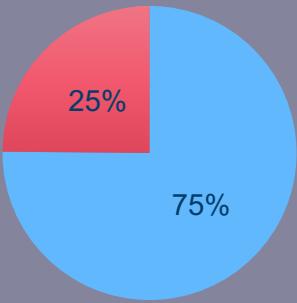
Part of the GCS alliance, which comprises the three national supercomputing centres in Germany: HLRS (Stuttgart), LRZ (Garching), JSC (Jülich)

Home to Europe's first exascale computer: JUPITER
Top500: #1 in Europe



Jülich Supercomputing Centre

Employees



■ Men ■ Women

- 11 of 55 division and team leaders are female
- **~19% women in STEM**
- Higher numbers of women in administration, coordination, education and services
- At least one woman in every STEM group:
 - Networking/Communications
 - Software/Applications
 - HPC/Storage/Cloud infrastructures
 - AI/ML
 - Quantum



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The WHPC Mission:

"To promote, build and leverage a diverse and inclusive HPC workforce by enabling and energising those in the HPC community to increase the participation of women and highlight their contribution to the success of supercomputing.

To ensure that women are treated fairly and have equal opportunities to succeed in their chosen HPC career.

To ensure everyone understands the benefits of promoting and achieving inclusivity."



Women
in HPC
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Women in HPC

Women in HPC (WHPC)

* Slide borrowed from Eleanor Broadway's WHPC presentation

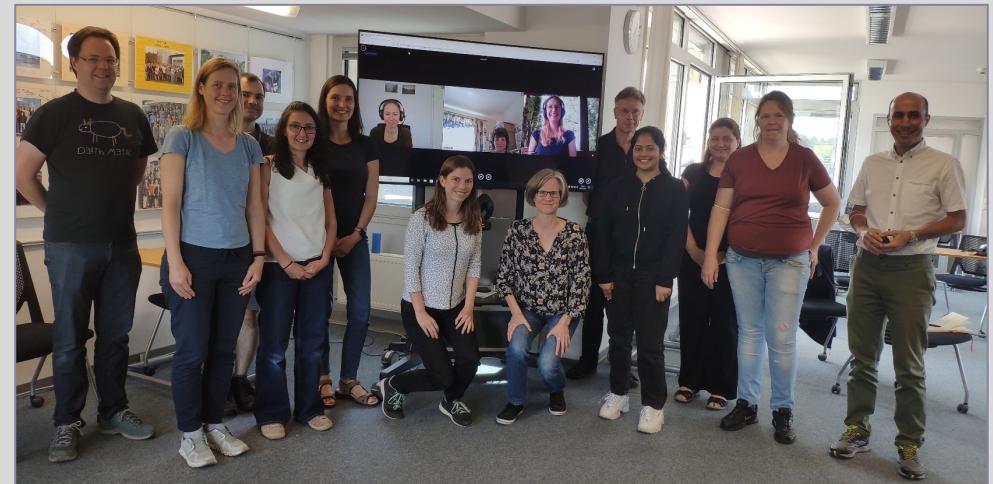
History of WHPC

Apr 2013	WHPC is launched at epcc
Nov 2014	Start of regular workshops at SC and ISC
Nov 2015	Website launch
Feb 2018	Chapters and Affiliates Programme
Mar 2019	Global Mentoring Programme
May 2023	Travel Fellowship Initiative
Feb 2024	Re-launch of Global Mentoring Programme
May 2024	ISC become an official collaborator

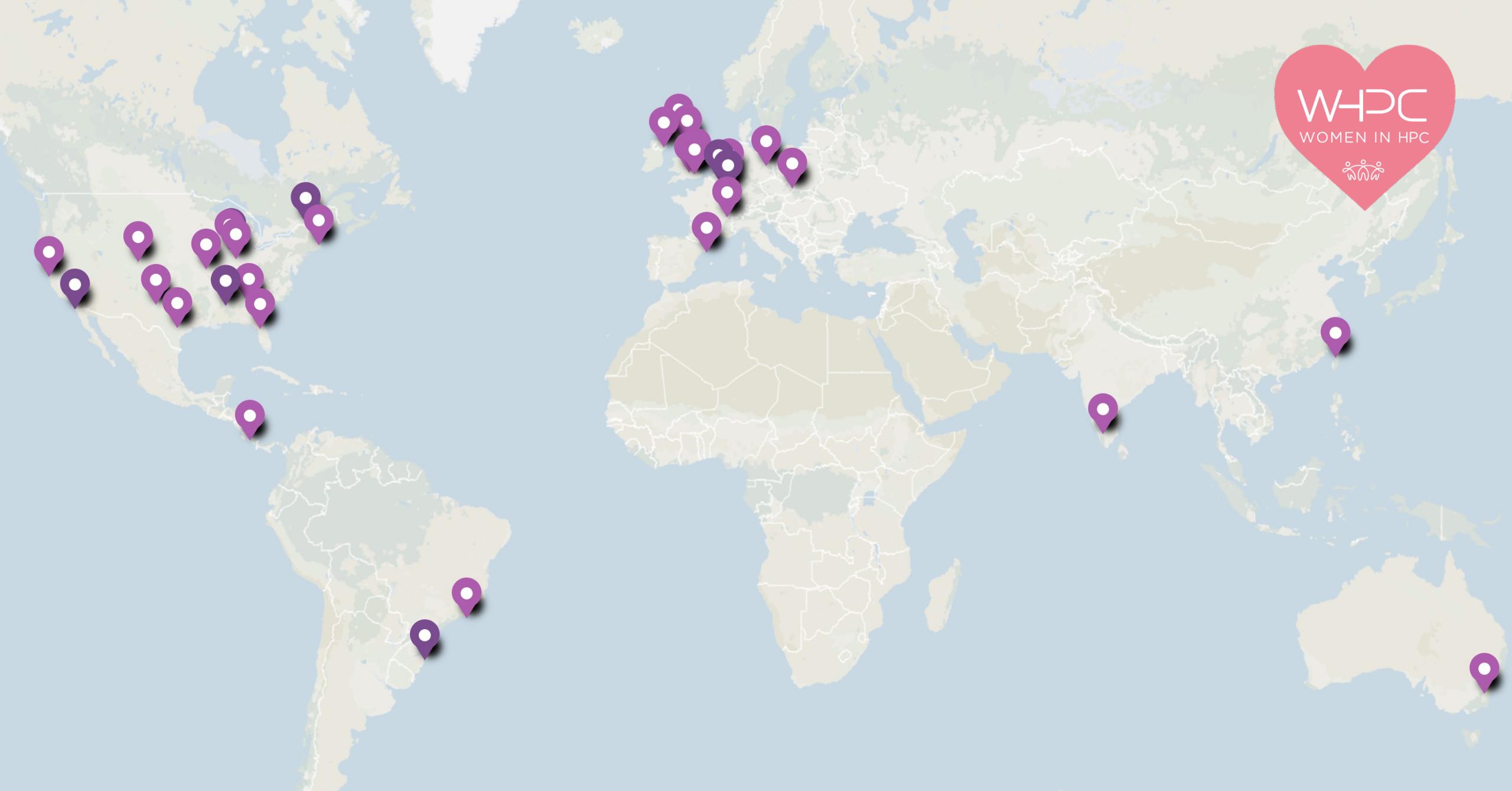
10 years of Women in HPC

Jülich Women in HPC (JuWinHPC)

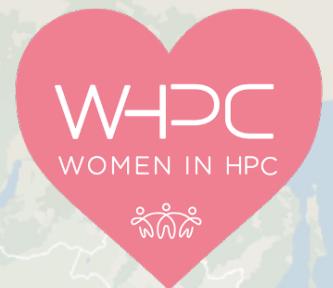
- Founded in 2022 as the first WHPC chapter in D
- Bottom up initiative, with full support from FZJ's Board of Directors

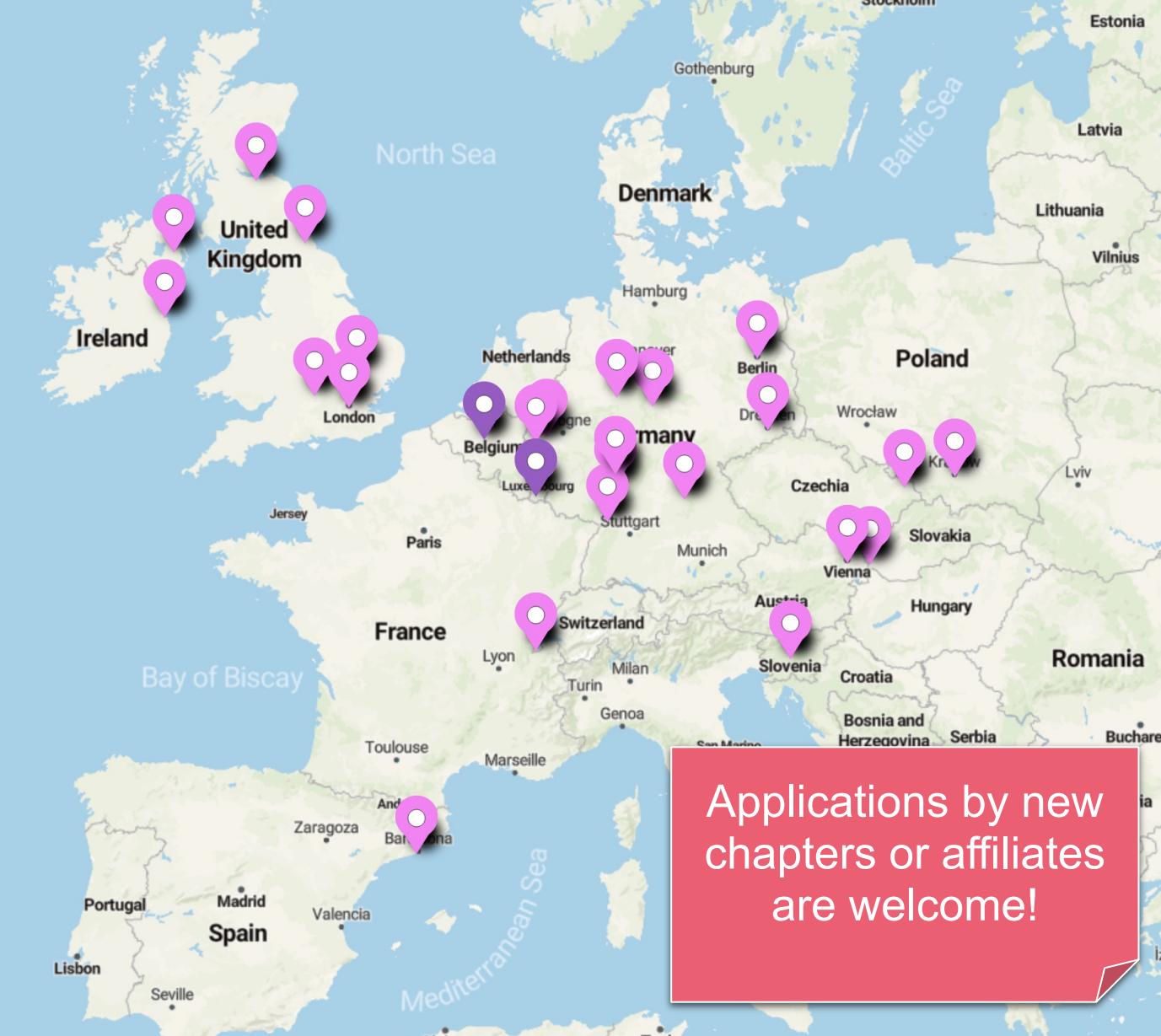


HPC wire Women in HPC Expands in Germany with 1st Chapter December 8, 2022



29 Chapters & 7 Affiliates around the Globe





Chapters & Affiliates in Europe:

- EPCC at the University of Edinburgh (UK)
- NAG (UK)
- WHPC London (UK)
- N8 Centre of Excellence in Computationally Intensive Research (N8 CIR; UK)
- JuWinHPC at Forschungszentrum Jülich (Germany)
- IDEAS4HPC (Switzerland)
- Mediterranean and Related (MAR)
- National High Performance Computing Alliance (NHR) (Germany)
- Central European Chapter including IT4Innovations (Czech Republic), ACC Cyfronet AGH (Poland), Vienna Scientific Cluster (Austria), Arctur d.o.o (Slovenia), Computing Center of the Slovak Academy of Sciences (Slovakia)
- Cambridge & East Anglia (UK)
- WHPC Ireland (Ireland)
- PRACE (Belgium; affiliate)
- LuxProvide (Luxemburg; affiliate)



Why do we CARE?

Mitglied der Helmholtz-Gemeinschaft



Why we founded JuWinHPC



Underrepresentation and
invisibility of women

Mitglied der Helmholtz-Gemeinschaft

 JuWinHPC | WHP

 JÜLICH
Forschungszentrum

Why we founded JuWinHPC

Network of female peers, role models and mentors

- Feeling welcome
- Career advice
- Life planning

Share experiences as minority member

- Only female applicant wins award
- Career success/failure

Mutual support

- Fighting imposter syndrome
- Sharing experiences
- Especially for young talents

Create a welcoming environment for everyone

- Hiring skilled people can be challenging: be attractive and support them staying



What do we DO?

Mitglied der Helmholtz-Gemeinschaft





Online &
Offline

Varying
days and
times

Networking
during
Breakfast
or Lunch



(Joint)
Events

Gender
dimension in
AI, Male
Inclusion,
Diversity, ...

Female
visibility!

JuWinHPC
Voices Blog



Conference
Talks and
Panels



Super(computing)heroes sessions

At ISC24, SC24 and ISC25; submitted for SC25

- **Dynamic and interactive format:** attendees engage with influential and diverse women in HPC, providing inspiration and fostering valuable connections.
- **Goals:** increase the visibility of women in HPC, provide strong role models, facilitate the exchange of ideas and experiences, create networking opportunities, identify and celebrate “superheroes” in the field, and inspire attendees with relatable stories and achievements.
- **Very well attended**, also by male “allies”
- Former participants became future panelists



Gender Dimension in AI

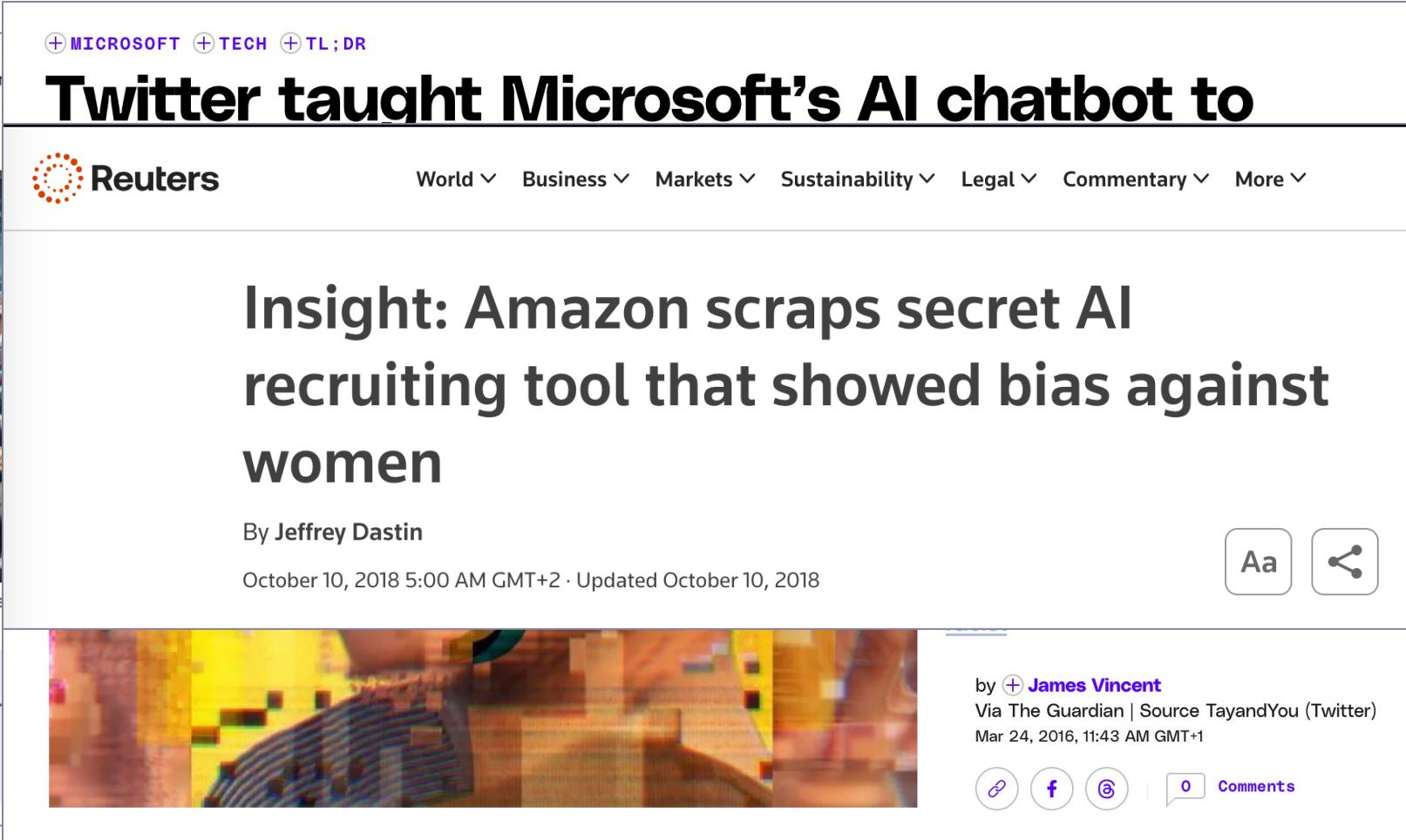
Event on International Women's Day 2024

- Talk by our colleague Carolin Penke followed by an inspiring discussion:
What could possibly go wrong – Dangers of recent AI advancements from a diversity perspective
- 30 participants on site,
another 10 online
- Jointly organised with FZJ's Equal Opportunities Bureau (BfC) and the Equal Opportunities Officer



Gender Dimension in AI

Event on International Women's Day 2024



The screenshot shows a news article from Reuters. The headline is "Twitter taught Microsoft's AI chatbot to". Below the headline is a sub-headline: "Insight: Amazon scraps secret AI recruiting tool that showed bias against women". The article is by Jeffrey Dastin, published on October 10, 2018, at 5:00 AM GMT+2, and updated on the same day. The text discusses how AI recruiting tools, particularly one used by Amazon, showed bias against women. The article includes a photo of a classroom and a snippet of AI-generated text. The right side of the screen shows a sidebar with various links and a "Comments" section.

Microsoft Tech TL;DR

Twitter taught Microsoft's AI chatbot to

Reuters World ▾ Business ▾ Markets ▾ Sustainability ▾ Legal ▾ Commentary ▾ More ▾

Insight: Amazon scraps secret AI recruiting tool that showed bias against women

By Jeffrey Dastin

October 10, 2018 5:00 AM GMT+2 · Updated October 10, 2018

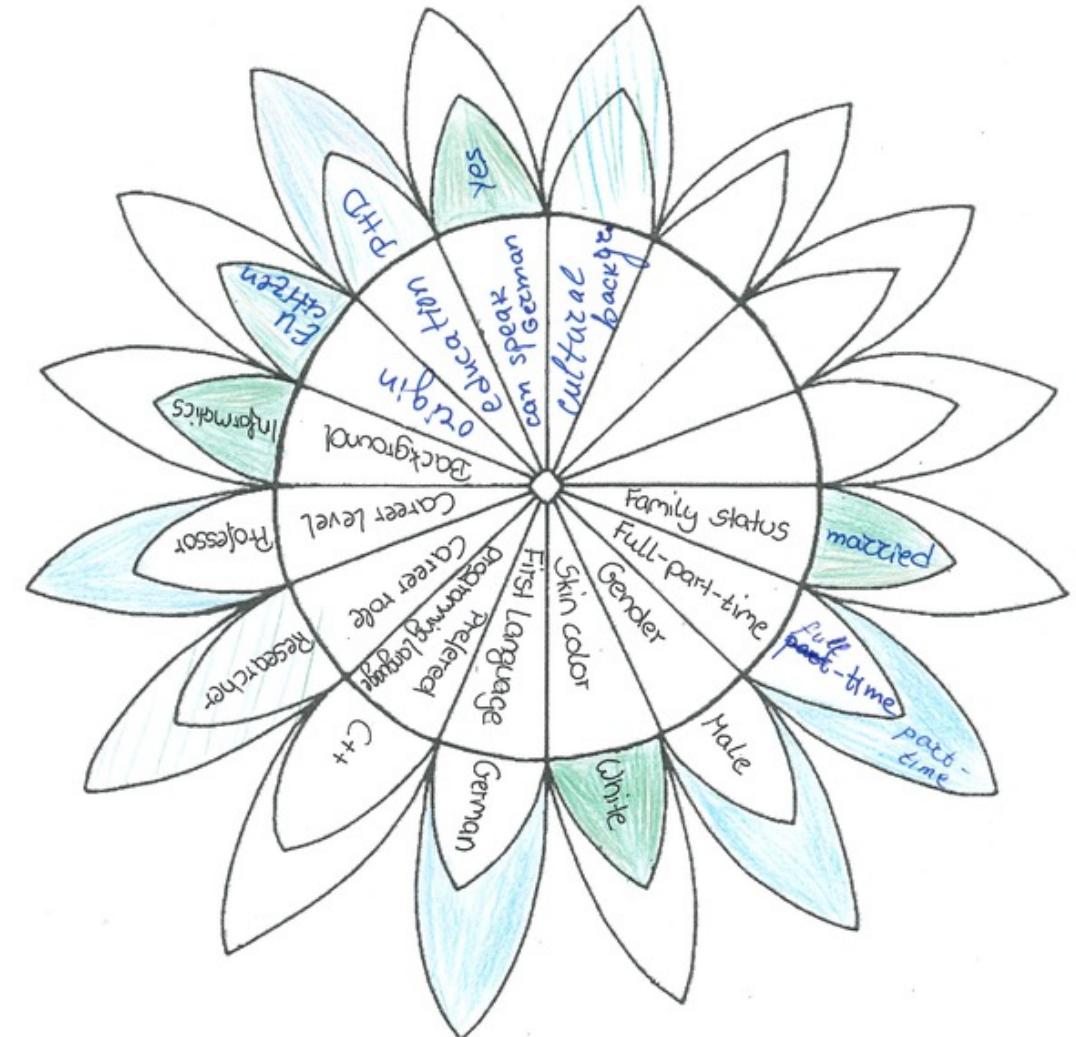
by [James Vincent](#)
Via The Guardian | Source TayandYou (Twitter)
Mar 24, 2016, 11:43 AM GMT+1

[Comments](#)

Class room with a diver

Community breakfast: “Diversity & Inclusion”

- “Power Flower” for self-reflection: Where am I privileged? Where do I have disadvantages?
- Challenges parents face at work
- Working part-time: feeling of being left out
- Fathers assumed not be the care-takers for their kids
- Speaking German as local language: documentation or notes only available in German
- Having a PhD (or not)
- International travel: always the same faces...



The one about (male) inclusion

Offering space for our male colleagues and their thoughts & opinions

- Lively discussion with interesting outcomes.
- We did not find an agreement on all points – but we agreed that diversity (in all possible aspects) is key to make sure that everyone's boundary conditions and opinions are well reflected in discussions and decision-making
- How to make job postings more inclusive?
- How to attract and hire (more) women?
- How to make them stay?



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Coming up: Fighting Stereotypes in Early Education Settings

Morning discussion with coffee, tea and cake (yes! we go the extra mile to attract participants! ;-)

From the toys we're given as children to the language used in classrooms, gender stereotypes can take root early. Together, we'll share personal experiences and ideas on how we can recognize and challenge these patterns.

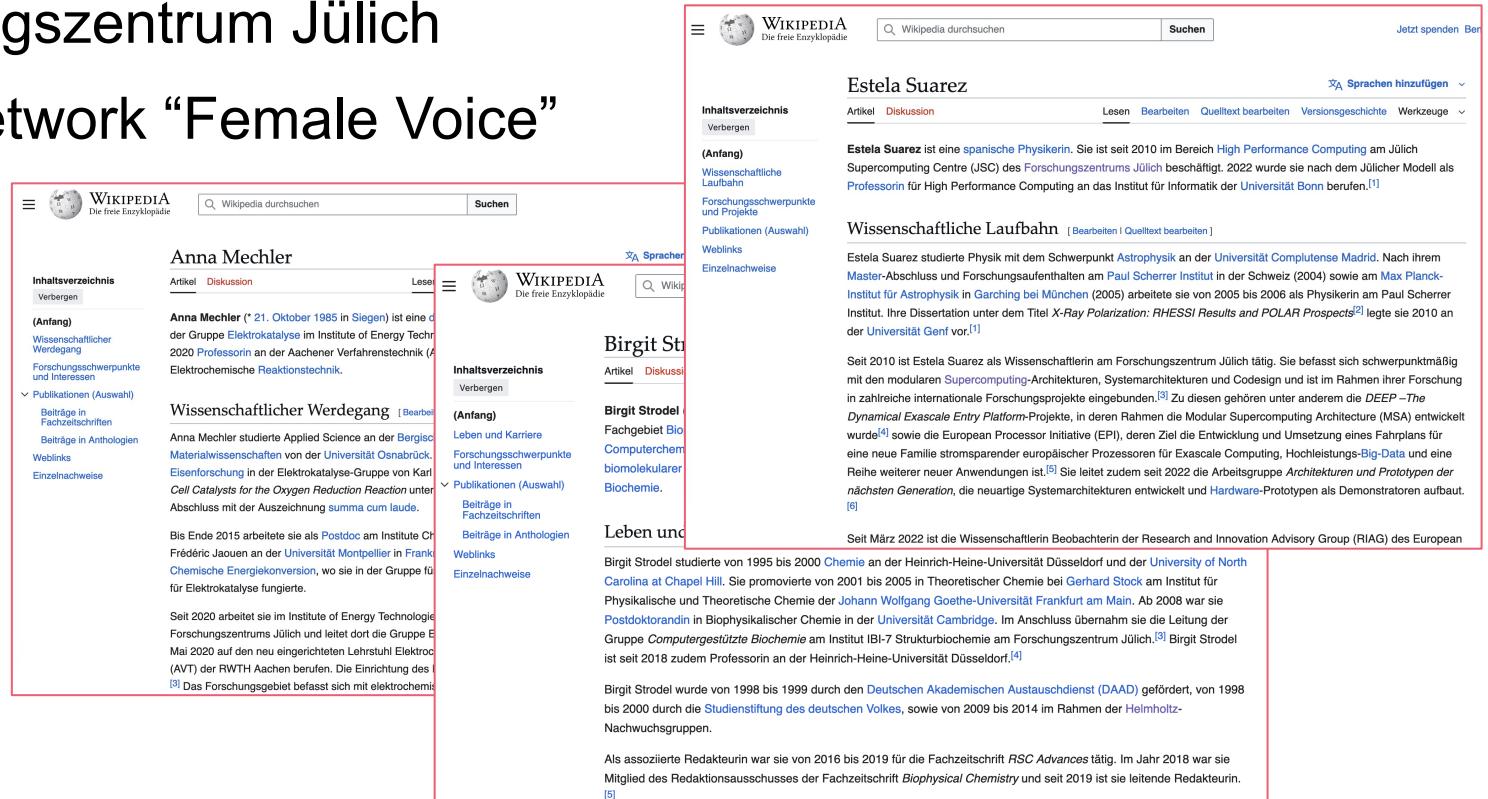
Whether you're a parent, a mentor, or simply curious, your presence is welcome and valued. Let's reflect together and learn from each other.



<https://www.emma.de/artikel/die-rosa-hellblau-falle-317245>

Wikipedia Write'athon

- Effort to **increase female visibility** in the German Wikipedia: writing articles about female professors employed at Forschungszentrum Jülich
- Jointly organised with the local network “Female Voice”



Anna Mechler

Anna Mechler (* 21. Oktober 1985 in Siegen) ist eine der Gruppe **Elektrokatalyse** im Institute of Energy Technology 2020 Professorin an der Aachener Verfahrenstechnik (AVT) der RWTH Aachen. Sie beschäftigt sich mit der **Elektrochemischen Reaktionstechnik**.

Wissenschaftlicher Werdegang

Anna Mechler studierte Applied Science an der Bergische Materialwissenschaften von der Universität Osnabrück. Eisenforschung in der Elektrokatalyse-Gruppe von Karl Cell Catalysts for the Oxygen Reduction Reaction unter Abschluss mit der Auszeichnung *summa cum laude*.

Bis Ende 2015 arbeitete sie als Postdoc am Institute Charles Frédéric Jauicot an der Universität Montpellier in Frankreich. Chemische Energiekonversion, wo sie in der Gruppe für Elektrokatalyse fungierte.

Seit 2020 arbeitet sie im Institute of Energy Technology Forschungszentrum Jülich und leitet dort die Gruppe Elektrokatalyse (AVT) der RWTH Aachen berufen. Die Einrichtung des Das Forschungsgebiet befasst sich mit elektrochemischer

Birgit Strodel

Birgit Strodel studierte von 1995 bis 2000 Chemie an der Heinrich-Heine-Universität Düsseldorf und der University of North Carolina at Chapel Hill. Sie promovierte von 2001 bis 2005 in Theoretischer Chemie bei Gerhard Stock am Institut für Physikalische und Theoretische Chemie des Johann Wolfgang Goethe-Universität Frankfurt am Main. Ab 2008 war sie Postdoktorandin in Biophysikalischer Chemie in der Universität Cambridge. Im Anschluss übernahm sie die Leitung der Gruppe **Computergestützte Biochemie** am Institut IBI-7 Strukturbiologie am Forschungszentrum Jülich. Birgit Strodel ist seit 2018 zudem Professorin an der Heinrich-Heine-Universität Düsseldorf.^[4]

Birgit Strodel wurde von 1998 bis 1999 durch den Deutschen Akademischen Austauschdienst (DAAD) gefördert, von 1999 bis 2000 durch die Studienstiftung des deutschen Volkes, sowie von 2009 bis 2014 im Rahmen der Helmholtz-Nachwuchsgruppen.

Als assoziierte Redakteurin war sie von 2016 bis 2019 für die Fachzeitschrift *RSC Advances* tätig. Im Jahr 2018 war sie Mitglied des Redaktionsausschusses der Fachzeitschrift *Biophysical Chemistry* und seit 2019 ist sie leitende Redakteurin.^[5]

Engaging with the next generation

- Forschungszentrum Jülich runs JuLab, a lab for pupils
- JSC offers a combined bachelor + apprenticeship program in the area of applied mathematics and computer science (MaTSE) together with a nearby university
- **We support JuLab, MaTSE programme and FZJ's recruiting team to show that IT and HPC are great and diverse, e.g.**
 - Taking female interns with us for lunch and have a chat about our careers
 - Giving guided tours for student groups at our supercomputing centre
 - Supporting career events by/at FZJ

Our Blog

Some of our posts

yourself and be successful. The chances are low that you wouldn't even better trying unless you were deeply delusional. But they actually succeeded being delusional for their success. And that got me thinking, that maybe I've been a bit delusional (or stupid, or naive, or all of those together) many times in my life, and it might have helped me, somehow. Not that everything always went super smoothly or perfectly, but yeah, on the grand scale of things, I think it all ended pretty well.

So, I studied Telecommunications Engineering at the UPV/E in Valencia, Spain. Lots of suffering, nearly gave up, but I'm stubborn and thought: yeah, it's hard now, but later I'll get better (delusional?). I mostly hated the electronics part, mostly loved the computer-related parts. I spent a year and a bit abroad at NTNU in Trondheim during my master's. I have to admit, it was a nearly crazy last-minute decision to choose that uni and city, the NIGHT before the deadline, I could have ended up in Prague. I nearly did. That's what I was telling everyone where I was going. But at the end, I didn't. And honestly, I don't even know why I changed my mind anymore.



Beach at Valencia



Somewhere in Norway

So there I was, at a university in cold Norway, improving my (not really great at the time) English, trying (and failing) to learn Norwegian, meeting my now-husband, a German, still finishing his studies in Aachen, and yep, I thought: I've got a master's degree now, let's try to find a job in Germany, why not? My friends thought I was delusional and more or less politely told me so, which I more or less politely ignored.

I applied to several jobs in computing, which ended because I thought I wasn't of course I took! It wasn't and I was really motivated

#MyPathToHPC – Cristina works as data systems architect



Presenting JuWiHPC
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How to brew IDEAS™

Trying to summarize my
• Dr. Ralitsa Petrova-
Woman from RWTH
learn about the idea

Prof. Lena Oden already worked in several interesting places, both in academia and industry, including Texas Instruments, Fraunhofer ITWM, Argonne National Laboratory (USA) and the Jülich Supercomputing Centre (JSC) at Forschungszentrum Jülich. She studied at RWTH Aachen and got her PhD from the University of Heidelberg. While working at the JSC, she received the positive note on her application to become a junior professor at FernUniversität Hagen, where she now has a full professorship since 2021. She still works with a few hours per week for the JSC to continue her contributions to the EU-funded Human Brain Project.

Lena's husband also works in academia. They have a baby and a 3-year-old son. While the first years with her older son were dominated by the pandemic (when everyone having to attend meetings and conferences remotely came in very handy with a little one), she has already travelled twice to important project meetings and conferences bringing her kids and her husband along since her second son was born end of 2022.



Lena with both children at the entrance of the ISC 2023, which took place in Hamburg.

Lena, thank you very much for your time and for your work. I bet that you are a great mother and a great scientist.

At which stage in your career did you start attending conferences with your children?

Interview with Prof. Lena Oden: Attending conferences with baby and toddler

The invitation originally came from LuxProvide (shoutout to Guillaume Tanter!), one of the organizing institutions of the event and a brand-new member of the WHPC Alliance Group. Not only did this title sound like the organisers had a genuine interest in the topic, but Luxembourg is also (more or less) around the corner from Jülich. We quickly checked internally, who of us in the JuWiHPC core team will be available that day – there was less than a month left until the event would take place – and I was the lucky one who could go.



In two brief planning meetings with the organisers, we came to the conclusion that it would be even better to not only have me giving a keynote talk, but to also invite more women on stage for a short panel. The team in Luxembourg managed to invite and convince Diem Bui, senior solution engineer at LuxProvide, and Silvana Belegu, student in the EUMaster4HPC at the University of Luxembourg, to join for that purpose.

That was the point where I started to get a bit nervous. It felt so important to me to properly represent our chapter's goals and activities in a way that actually catches the attention of the audience and convinces them that it is worthwhile to join us in our efforts to diversify the HPC community. I started to prepare my presentation, aiming for a brief but complete summary of WHPC, JuWiHPC, what we do and why. (Many thanks to our awesome colleagues at the JSC, especially to our JuWiHPC crew for honest feedback and fighting the my impostor syndrome, and to Michael for his professional, graphics-expert view!) I must admit that I truly love to make "pretty slides", which don't

Then it was already time to go to the airport to catch a flight to Luxembourg. I had a few hours to kill before my flight, so I decided to go for a walk in the city. I found a nice little cafe and sat down to have a coffee and a sandwich. I was trying to summarize my

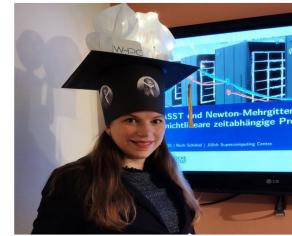
Giving a keynote about "Breaking Barriers and Shaping the Future" – Winning allies in the community

JU WIN HPC VOICES



trip but a few days before departure I was not in the best of health and traveling during the covid pandemic would have been an additional risk. It gave me a stomach ache that despite all the effort, I would not be able to prevent my work. I confided in Caroline and she offered to fill in. At the workshop she presented not only her scientific work, but also introduced our local JuWiHPC network, took care of our guest speaker and led a panel discussion – all with a persuasiveness that no one else could have provided. This experience helped me to continue handling in tasks.

I also took advantage of the offer from the Equal Opportunities Bureau to get professional support. Here I received valuable advice, for example on how I could best divide the upcoming parental leave. I further sat down with my department head to design a plan to redistribute my work during maternity and parental leave and he was very supportive. I was able to pass on some of my tasks, and I put others on hold. While normally I often have meetings outside of my working hours with colleagues from different time zones and moreover I travel a lot, from that time on I was primarily provided with internal tasks and worked more often from home.



Career and family foundation: My experience during pregnancy

is built up over the years.



Visibility is key here – you, who are visible, can be a role model for someone else. You may have done amazing things, but if no one or only a very small, reduced circle knows you, how can you change someone, how can you shape someone, how can you strive to inspire?

And this is where the "women" part of the blog title comes in: there are amazing women with amazing careers and I, as a woman, firmly believe that everyone should know about them. The reason being, as a kid/teenager/young adult, I wish I had more of these role models around me to help me believe I could do cool things with my life, too.

With this in mind, about a month ago we at JuWiHPC helped organise and held the second Julich Writeathon together with Forschungszentrum Jülich's network Females Voices. The aim was to increase the visibility of female scientists in Wikipedia. To do this, we first compiled a list of female professors working at Forschungszentrum Jülich who didn't have a Wikipedia article (or only a very outdated one), but who met Wikipedia's criteria for getting one.

The amazing Wikipedia
interesting talk from one
explaining why visibility is so
important for our work

I would have liked to have
articles in the pipeline an

Increase Female Wiki-ability



Our challenges?

Challenges of running a WHPC chapter

... and how we deal with them

Something new is always exciting –
but how to keep the momentum
going?

- **Balance** between higher and lower effort activities (for the organisers)
- **Collaborations** with other chapters and networks/groups on campus
- Get more colleagues **involved**

It is a "hobby at work"

- Full **support** of our employer: we can dedicate a part of our working time on our network, but "normal" work usually has higher priority
- Many things are done in our **spare time**: updating the website, writing blog posts and wiki articles, preparing talks, ...
- Most of us work **part-time** with kids at home
- Having a colleague (partially) **paid to run** the chapter would make a big difference

No dedicated funding

... for

- Dedicated coordinator
- Travel budget for us and as travel grants
- "The little things"

So instead we

- Use our free time to coordinate
- Piggyback on other travel

And

- We are lucky to have a supportive institute



Does it work out?

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Visibility – slowly but surely we're getting there



May 2024



June 2025

Mitglied der Helmholtz-Gemeinschaft

 **JuWinHPC** | **WHP**C

 **JÜLICH**
Forschungszentrum



 **JuWinHPC** | WHPC

Join us now!



Join Women in HPC

And select Chapter(s) or
Affiliates in the application
process



Contact our JuWinHPC team

We're also happy to support
potential future chapters in their
planning