



Keeping young talents attached The Fellow Program of Netzwerk Teilchenwelt

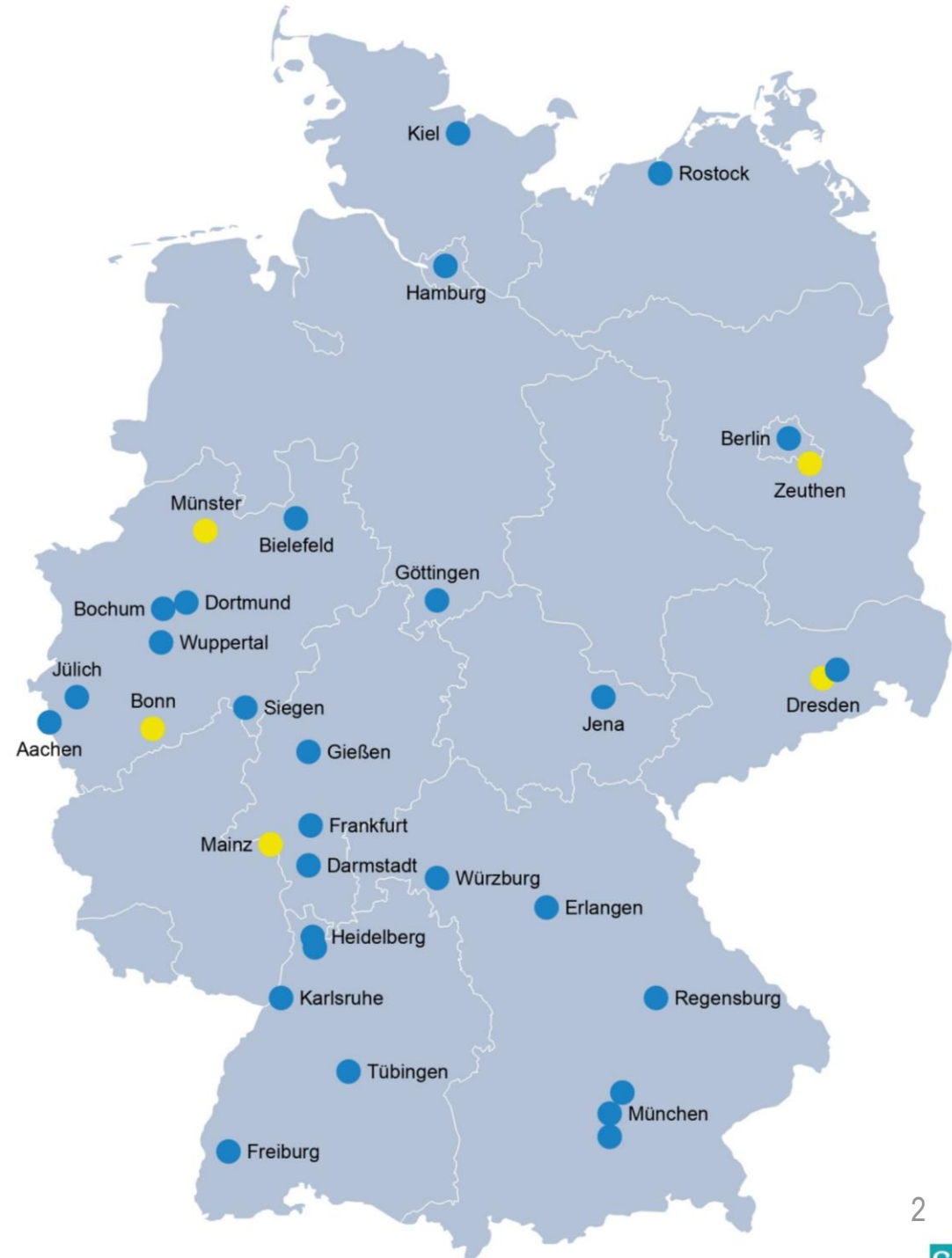
Andrea Mayer-Houdelet, TU Dresden
Christian Klein-Bösing, Uni Münster



NETZWERK
TEILCHENWELT

Netzwerk Teilchenwelt

- ▶ Visible and established brand since 2010
- ▶ Target groups:
 - High school students
 - Teachers
 - Broad public
- ▶ 34 universities/research labs + CERN
 - NEW: Uni Bielefeld, FZ Jülich, Helmholtz Institute Jena, Helmholtz Center Dresden Rossendorf
 - Entire subject area of the smallest particles:
 - Particle and astroparticle physics
 - Hadrons and nuclei



Netzwerk Teilchenwelt

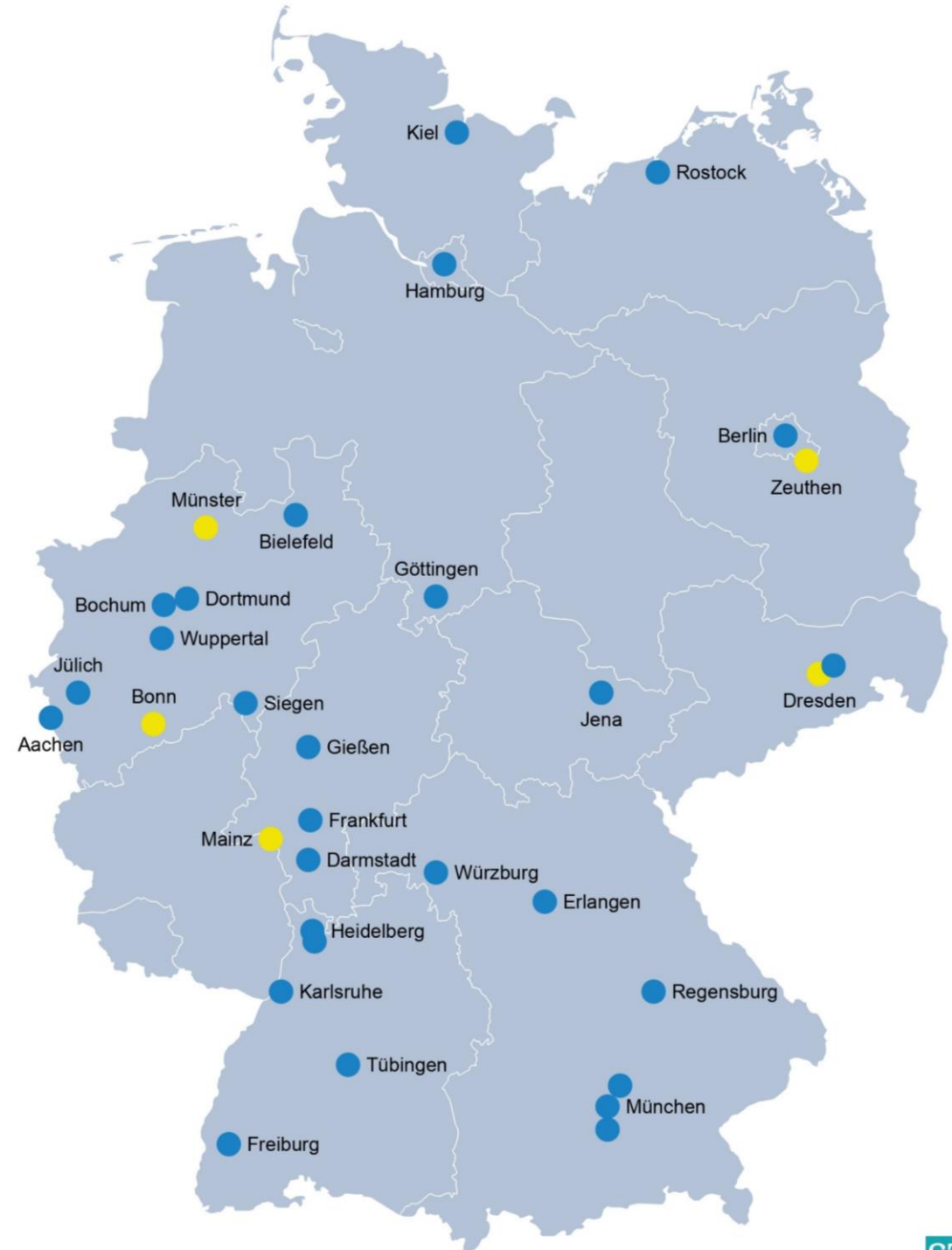
▶ Common objective:

- Joint outreach: Make research tangible!
- Bundle existing activities
- Share structures and programs (Synergy effects)
- Promotion / recruitment of young talents (research, outreach)

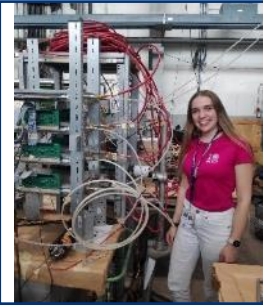
→ High visibility and impact of outreach

▶ Project team:

- TU Dresden, DESY Zeuthen / CERN
- Hubs in Bonn, Mainz and Münster



Multi Step Program



CERN project weeks (2 weeks)
Research projects in the institutes
 (→ STEM Competitions (Jugend Forscht etc.))

List of
 140 papers
 incl. 39 prizes



CERN workshop (4 days)
Particle Physics Academy Mainz (10 Days)



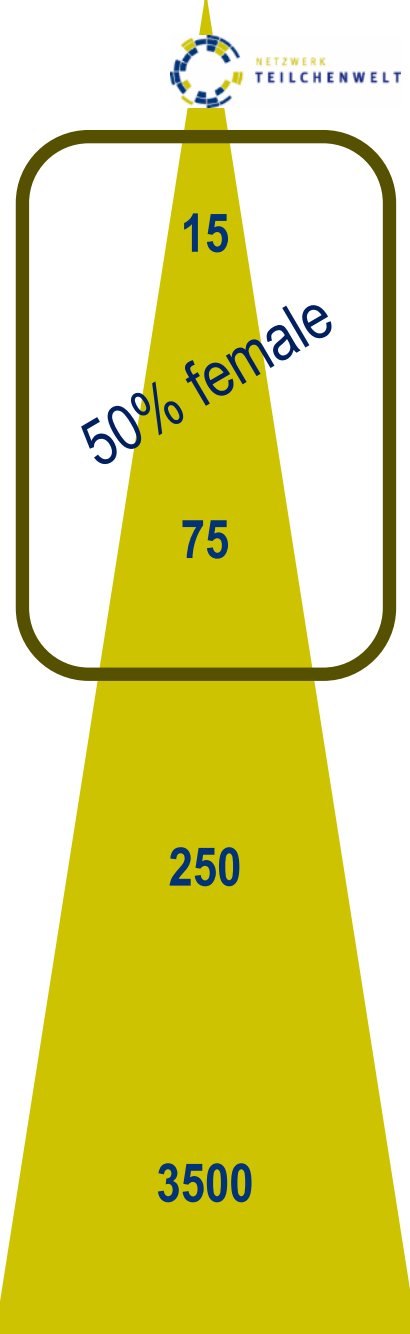
Own Commitment

- Detector projects (own measurements)
- Working with Cosmic@Web (Portal with experimental data)
- Tutor for masterclasses
- Passing on the fascination with physics



(Int'l) Masterclasses in schools, at learning venues or online

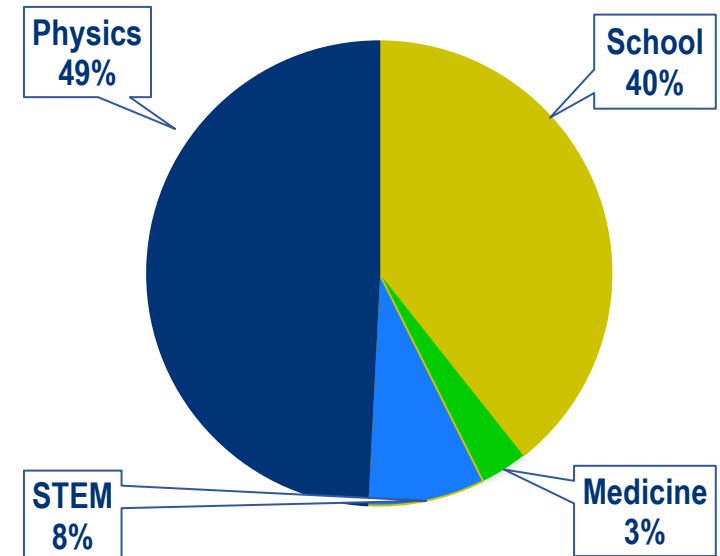
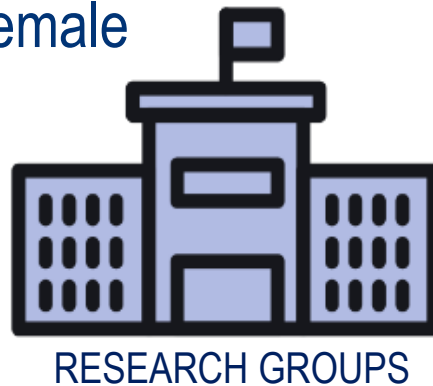
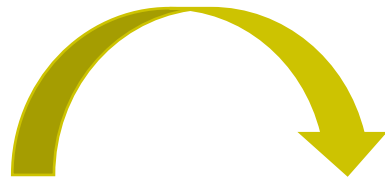
- (Astro-)Particle Physics | Nuclear and Hadron Physics
- 1-day event/project day
- Conducted by young scientists (PhD students)



Number of students
 per year

Fellow program – Targeted promotion of young talents

- ▶ Established 2017
- ▶ Fellows
 - Experienced talents
 - participated in several program levels
 - Now studying physics or shortly before
 - Lateral entry also possible for physics students
- ▶ Today: 160 Fellows, 50% female



Fellow program – Targeted promotion of young talents (2)

► Major goals:

- Foster connection between highly motivated students and research groups
- Group leaders can involve Fellows via local Teilchenwelt contact person

► Win for research groups / group leaders:

- Young talents for research tasks and outreach

► Win for Fellows:

- Early connection to research
- Professional training/supervision
- Personal contacts
- Networking: local and nationwide



Annual Fellow Meeting



Fellows helping @ TeVPA Conference

Offers within the Fellow program

Tailored trainings:

► Central offers

- **Ask the Expert:** Online lecture on current research highlights, wide choice of topics and speakers
- **Annual Fellow meetings:** expert lectures, poster session, group work, cultural program etc.
- **Fellow school:** lectures and tutorials (yearly)
- **Conference participation:** national physics conferences (DPG, German LHC Groups)

► Local offers / activities

- Internships, jobs
- Invitation to group or institute events
- Involvement in outreach activities
- Regulars' tables/Fellow afternoons

IPPOG | Teilchenwelt Fellows



Fellows with Spokesperson
@ ATLAS-D-Meeting

Ask the Expert



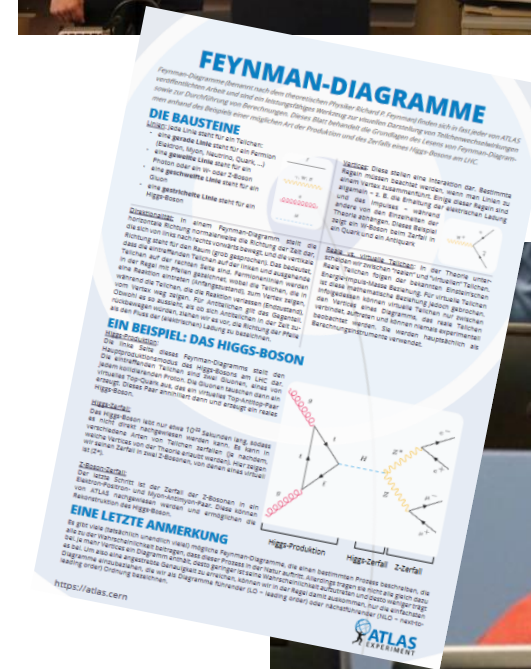
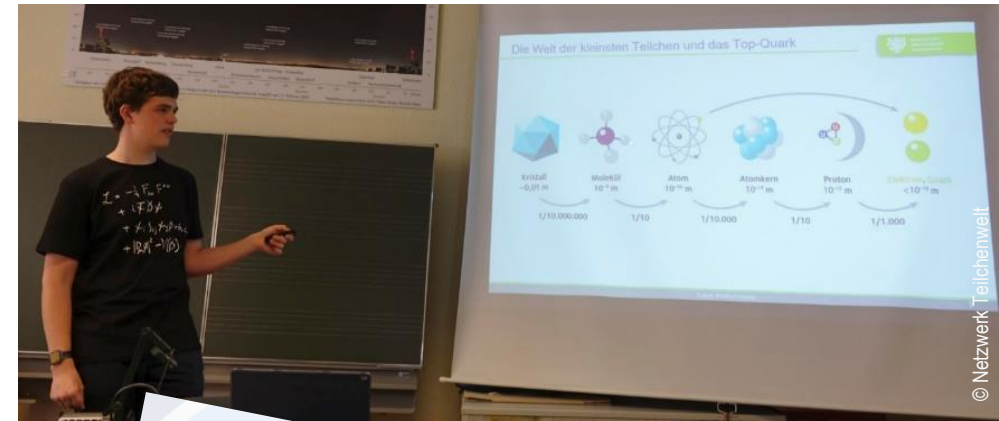
Fellow Meeting Münster 2023



Young role models

Fellow Lukas Kretschmann (19)

- ▶ 2020 CERN workshop, 2021 CERN project weeks, Jugend forscht; several internships at University of Wuppertal
- ▶ High School Research: Cross-section measurement of t-channel single top quark production at $\sqrt{s} = 13$ TeV with the ATLAS detector at the LHC
- ▶ 3rd semester physics, University of Wuppertal
- ▶ Fellow spokesperson, co-organizer of "Ask the expert"
- ▶ active in ATLAS Outreach, German Cheat/Fact Sheets
- ▶ Youngest ATLAS shift leader at CERN



Long Term Impact

(survey among graduates of CERN workshops 2010-2014)

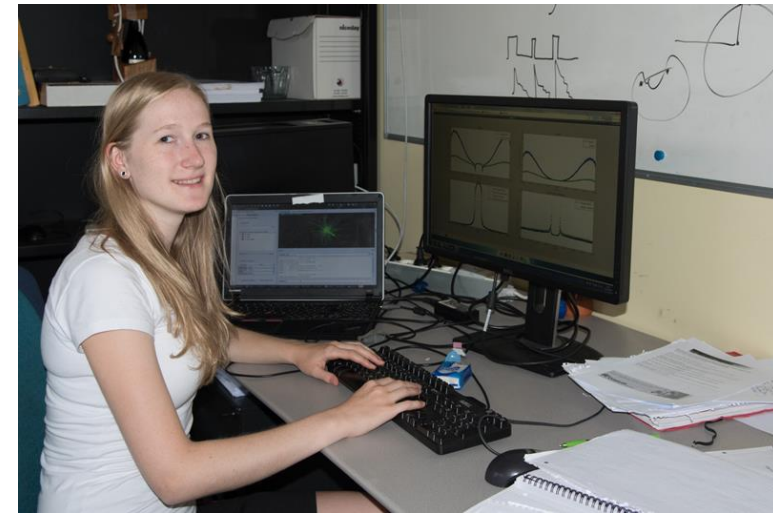
- ▶ Maria M.: "Netzwerk Teilchenwelt has **changed my study plans** in particular and given me the opportunity to get to know modern day-to-day research."

Physics Bachelor University of Göttingen, Master Imperial College London, PhD University of Oxford, now PostDoc at Berkeley Lab

- ▶ Lara B.: "[...] really **encouraged my interest in physics**. As I didn't have any teachers in secondary school who encouraged my interest (rather the opposite), there were **people in Netzwerk Teilchenwelt who motivated me and gave me great experiences**. These experiences are certainly one of the reasons why I will be starting my physics degree in the fall."

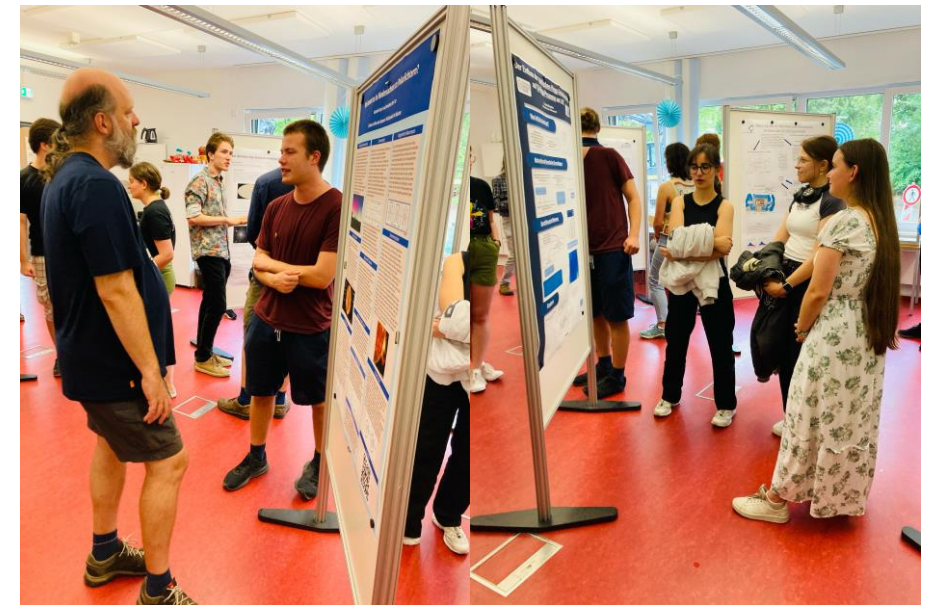
Physics Bachelor University of Göttingen, Master University of British Columbia in Vancouver, now PhD student at University of British Columbia

ATLAS thesis award winner 22



Summary

- ▶ Newly established Fellow program
- ▶ Build on young talents from the Multi step program
- ▶ Masterclasses: Gateway to particle physics
- ▶ Win-win situation for fellows and group leaders
 - Training offers and networks for fellows
 - well trained students, potential PhDs, skilled communicators
- ▶ Partially self-sustaining and self-organized
 - Organize own trainings and even Masterclasses to attract new talents
 - Role models young age
- ▶ 50% females maintained throughout all steps!



Fellow poster session Uni Münster

