

Status of the Gentner Programme

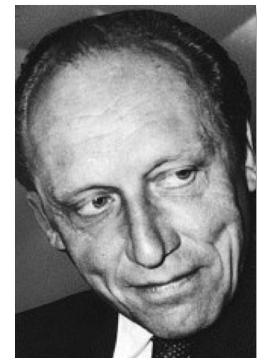
23rd Gentner Day

April 26th, 2023

Dominik Dannheim (CERN)



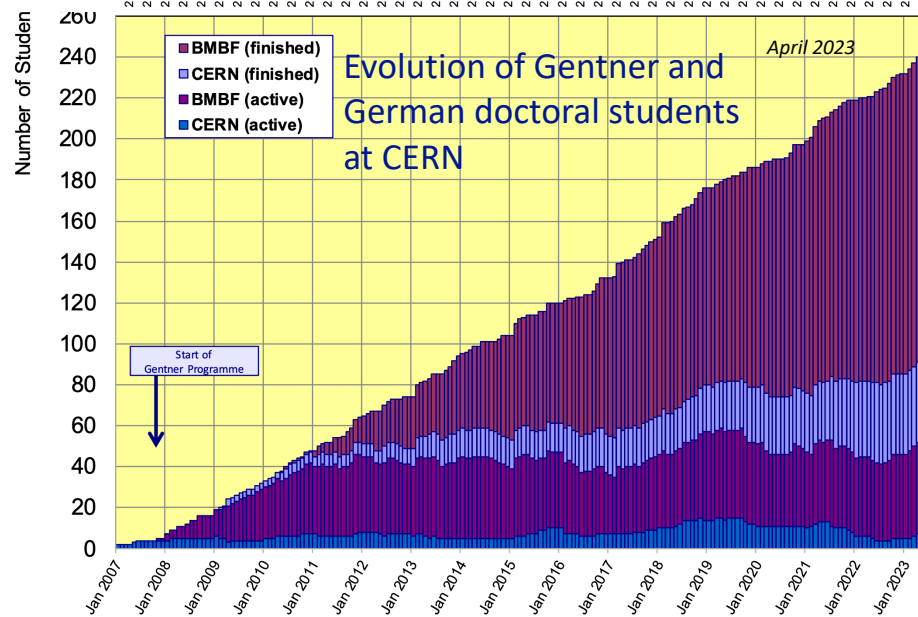
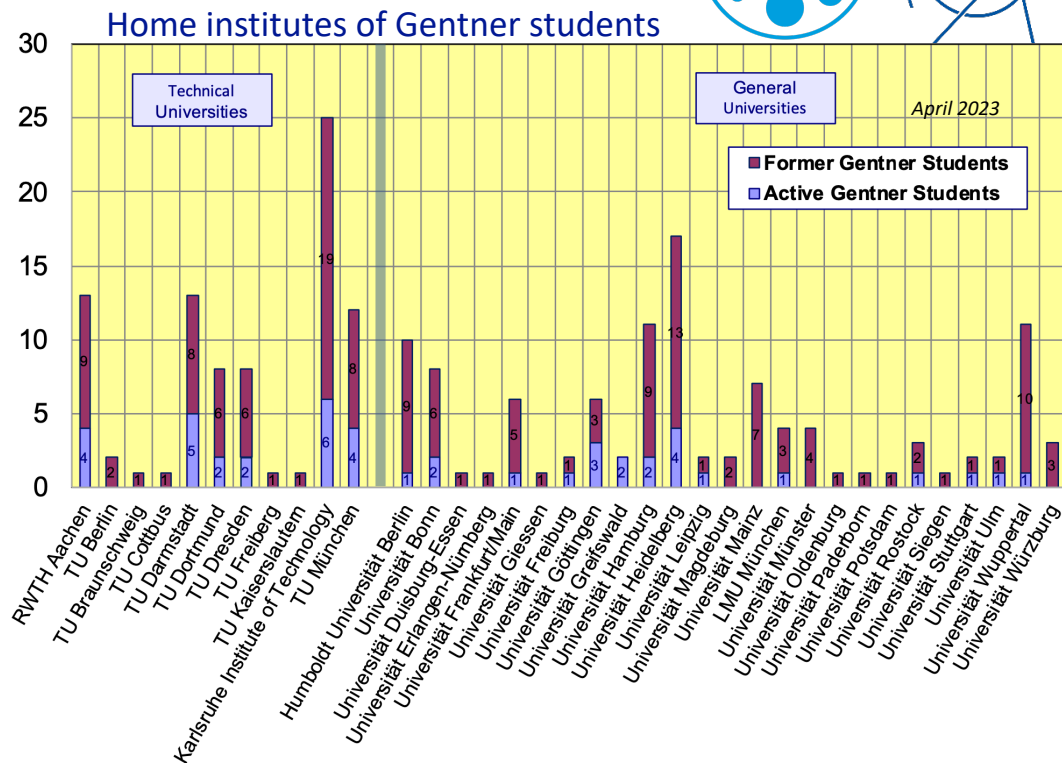
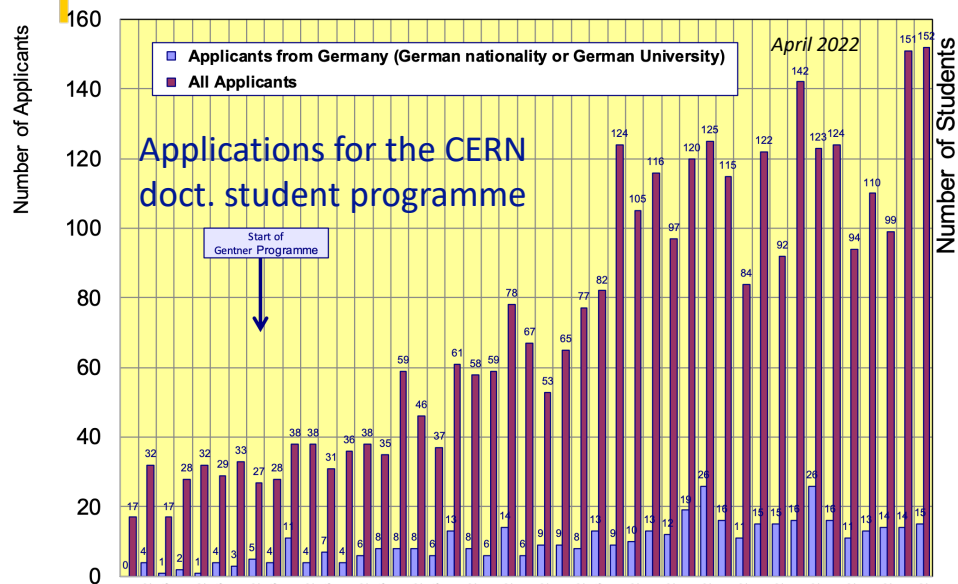
- Wolfgang-Gentner scholarship provides funding for **technical doctoral students at CERN**:
 - 36 months **subsistence** + **travel** to home institute and national meetings + **supervisor travel**
- Goals: **train students** and **strengthen links** between German universities and CERN;
increase technical staff from Germany at CERN
- Fully **embedded in CERN doctoral-student programme**:
nationals from EU member states inscribed at German Univ. are eligible
- **Selection of ~13 Gentner-funded students per year**, prior to to CERN doctoral-student selection, **3 selection rounds per year**
- Based on **trilateral agreement** in effect since 2007:
 - **BMBF** provides strategic funding (1.8M EUR / year → 39 students on average)
 - Eckart Lilienthal, head of division 711 Universe and Matter
 - Friederike Trimborn-Witthaut, head of division 713 Europ. Research Organisations
 - Nikolas Knake (VDI-PT), management of BMBF funds
 - **DESY** oversees project planning, execution, accounting, reporting
 - Manfred Fleischer (programme coordinator), Stephanie Krause (accounting, admin. support)advisory committee: Kerstin Borrás, Bernhard Schmidt, Michael Hauschild
 - **CERN** provides technical framework, administrative and project-management support
 - Dominik Dannheim (programme coordinator), Maria Kimpezi (CERN DOCT recruitment), Jan Von Der Brelie (CERN DOCT coordination)



Wolfgang Gentner 1906-1980
CERN synchro-cyclotron
research director 1955-59



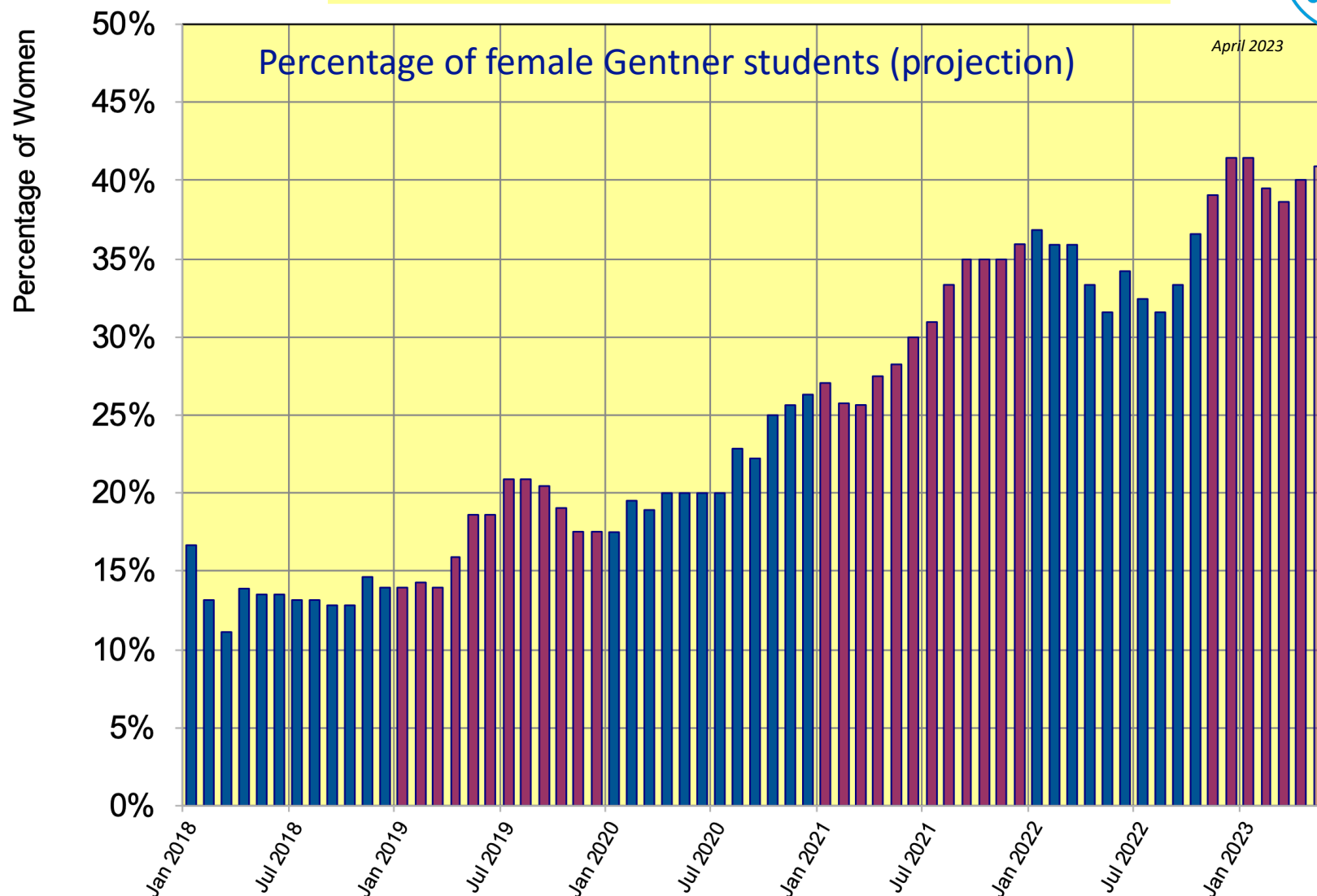
Evolution of the Gentner programme



- Number of Gentner applications is **increasing** (note recent change: 3 rounds per year instead of 2)
- **Current status** (as of April 1st):
 - **45** Gentner students from **16** Universities + further **7** German non-Gentner students
 - **8** new students since last Gentner day
 - In total **194** Gentner students from **36** Universities since 2007



Gender balance

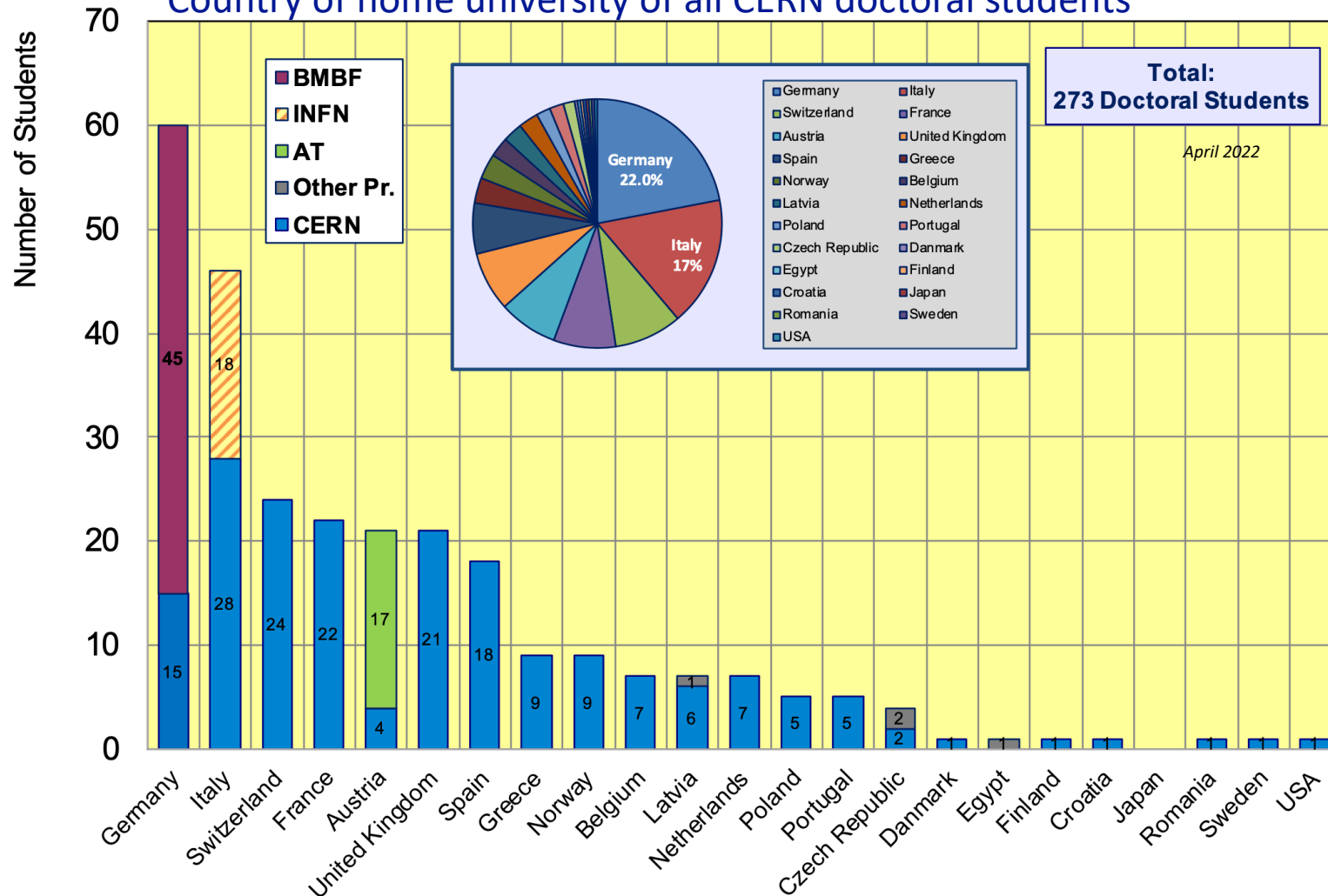


- Steady increase of female Gentner students to currently **40%** (CERN DOCT average is **33%**)
- Thanks to increasing fraction of female applicants over the years

CERN doctoral students (I)



Country of home university of all CERN doctoral students

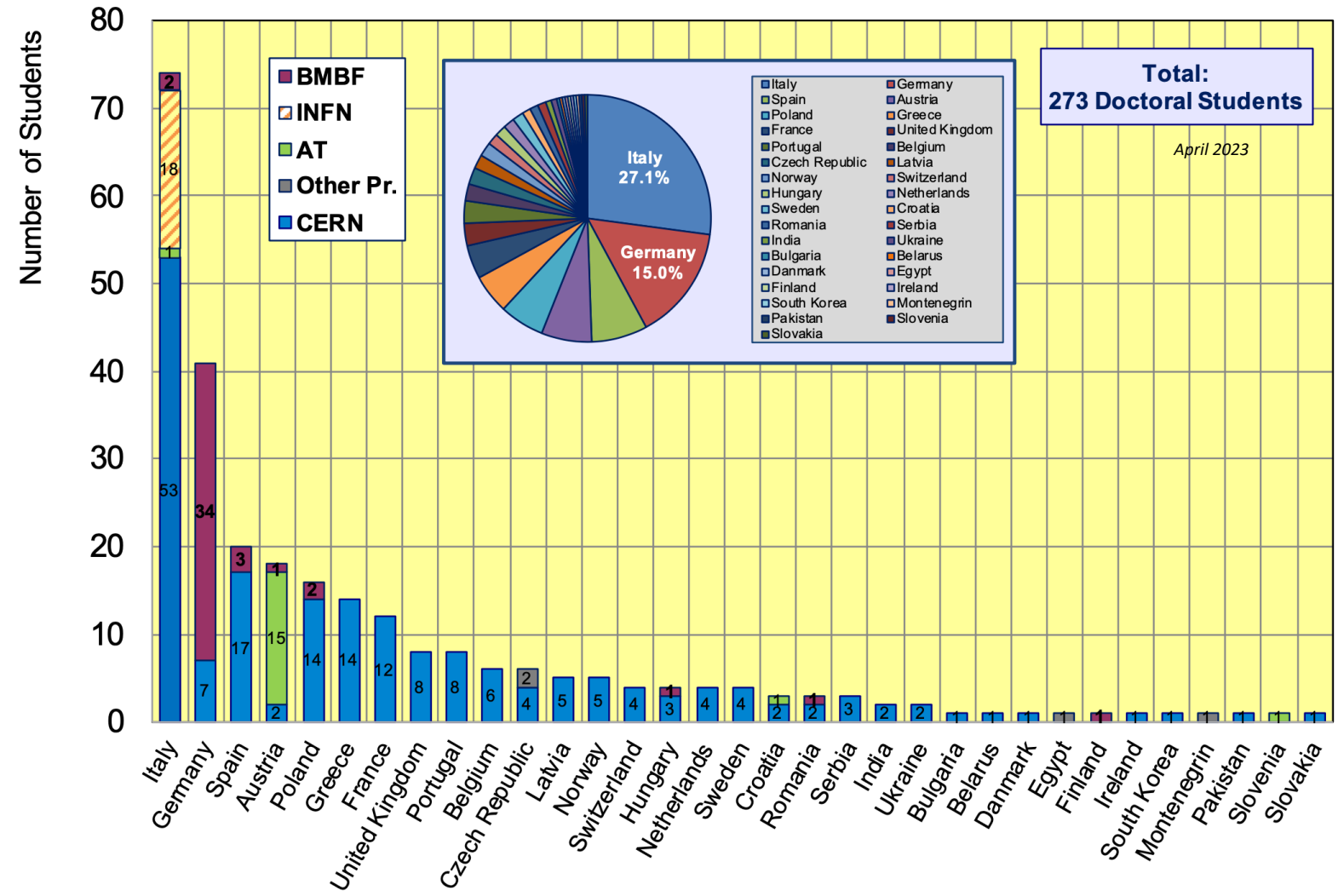


- 60 of 273 CERN doctoral students enrolled at German Universities (**22%**)

CERN doctoral students (II)



Nationalities of all CERN doctoral students



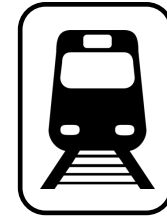
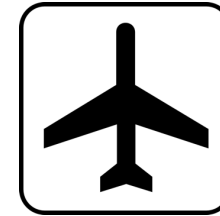
- Italians (**27%**) and Germans (**15%**) leading doctoral student nationalities



Travel



- **Travel supported** by the Gentner Programme (reminder):
 - for Students:
 - travel to home university and to German national symposia
 - for Supervisors (in Germany and at CERN):
 - travel from/to Germany for discussions with student / other supervisor, thesis defence
- No Gentner funding for international conferences, workshops, national project meetings, etc.
→ Please check with your supervisors about funding from your group for such travel
- Travel organization (**new as of January 2023**):
 - Travel is organised by traveller and later reimbursed by DESY (c/o Stephanie Krause)
 - Reimbursement according to the rules of the German Federal Travel Expenses Act (BRKG)
→ different from CERN travel reimbursement rules!
 - Still mandatory *pro-forma* **EDH TRVL** document and **EDH absence request**
- Please see travel FAQ for further details, and carefully follow the instructions:
<https://wolfgang-gentner-stipendien.web.cern.ch/wolfgang-gentner-stipendien/en/faq.php>
- So far in 2023: 13 DPG travels, 15 travels to home University, 3 supervisor travels
- New system seems to work, with some ongoing refinement of the procedure and documentation → thank you for providing feedback – please continue to do so



Recognitions and awards



- **Jonas Karthein** received:
 - the **Young Scientist award 2022 of the GSI facility (GENCO)** for applying the superior phase-imaging ion cyclotron resonance technique to short-lived nuclides, reaching relative uncertainties of 10^{-9} , the application to neutrino-less double beta decay, and for pursuing new applications using radioactive molecules;
 - The **Dissertation award** of the European Physical Society (Nuclear Physics Division) for his thesis *Next-Generation Mass Spectrometry of Exotic Isotopes and Isomers*
- **Florian Rehm** became **CMS shifter of the year 2022**

GENCO Award 2022



NPD – 2021 PhD Prize Award

NPD - 2021 PhD Prize Winners

Awarded by the EPS Nuclear Physics Division Board, recognizing the excellence of a recent PhD thesis in experimental, theoretical or applied nuclear physics.

The PhD prize is awarded every third year from 2012 for a PhD thesis in nuclear physics from a country that is a member of the EPS.

Jonas Karthein

MIT



#65: High-precision measurements in the direct vicinity of the doubly magic 100Sn ($N=Z=50$) at ISOLDE/CERN

Bachelor's and master degree at the Heidelberg University in Germany. Undergraduate Researcher at the Max Planck Institute for Nuclear Physics in Germany and Graduate Researcher at CERN.

In 2020, PhD under the supervision of Prof. Dr. Klaus Blaum on next-generation mass spectrometry of exotic isotopes and isomers. Based at CERN to establish the next generation mass spectrometry (PI-ICR) technique at ISOLTRAP/CERN and develop open source PI-ICR Monte-Carlo simulations and Bayesian analysis software for use by the community, including LEBIT/FRIB scientists.

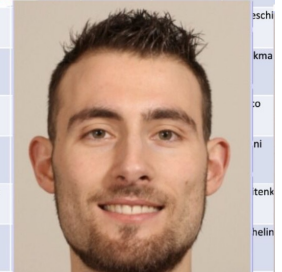
Since 2021, Humboldt Postdoctoral Fellow at Massachusetts Institute of Technology, leading the fundamental symmetries and ion trap group of MIT Garcia Ruiz Lab.

CMS shifter of the year 2022

S.A. Hassan	G. Agarwal	C. Alme'	M. A. G. Pereira	R. Mohamed	C Aruta	E. Asilar
C. Brown	D. Budkouski	A. C. Mora	S. Calzaferri	T. Camahan	G. C. Silva	P. C. Vilalta
L. Finco	D. Fiorina	A. Galle	S. G. Shotkin	L. Giommi	O. G. I...	
J. Kieseler	H. Kim	V. Klyukhin				
J. Marq						
T. Pakulski						
R. Seidita						
R. Arcidiacono	M. Arneodo	P. Azzi				
M. Darwish	N. De Filippo	A. De Wit				
G. H. De Monchenault	S. Harper	M. Jeitler				
A. Massironi	F. Moortgat	L. Moureaux				
B. Radburn-Smith	P. R. Teles	H. R. Sfar				

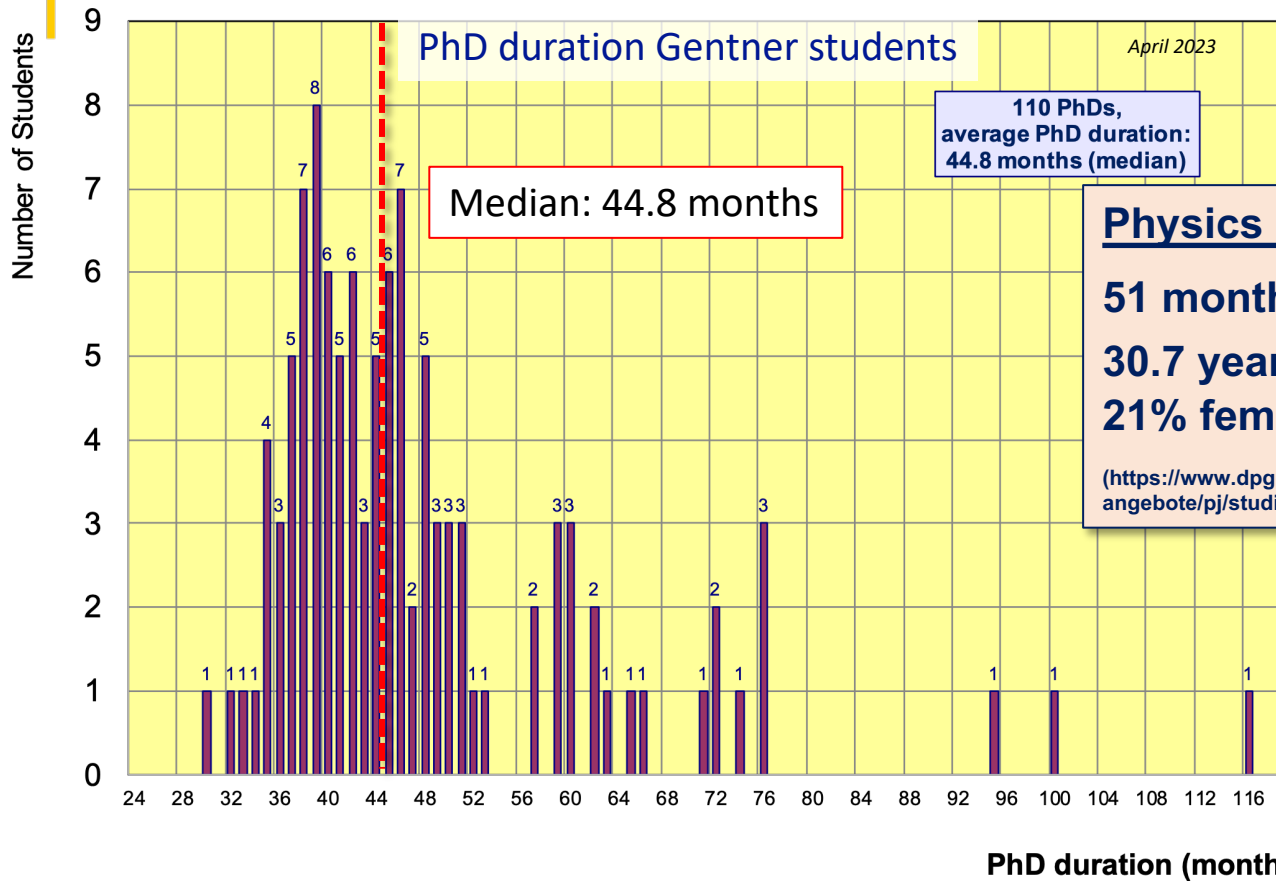
Best Shifter of the year: **Florian Rehm** [Doctoral Student]
36 nights for a total of 56 shifts!

Best owl shifter! **Maxim Titov** [Physicist, Senior]





PhD statistics



Physics PhDs in Germany (2011-2021 avg.)

51 months duration of PhD
30.7 years at PhD defence
21% female students

(<https://www.dpg-physik.de/veroeffentlichungen/magazine-und-online-angebote/pj/studierendenstatistiken/>)

List of all Gentner theses:
<https://wolfgang-gentner-stipendien.web.cern.ch/wolfgang-gentner-stipendien/de/theses.php>

- Since 2007: **110** finished Gentner PhDs, **14** cancelled PhD (13%)
 - Duration for PhD: **44.8** months (median) → **9 months after end of 3-years contract**
 - Age at PhD defence: **30.7** years (median)
 - **22%** female students

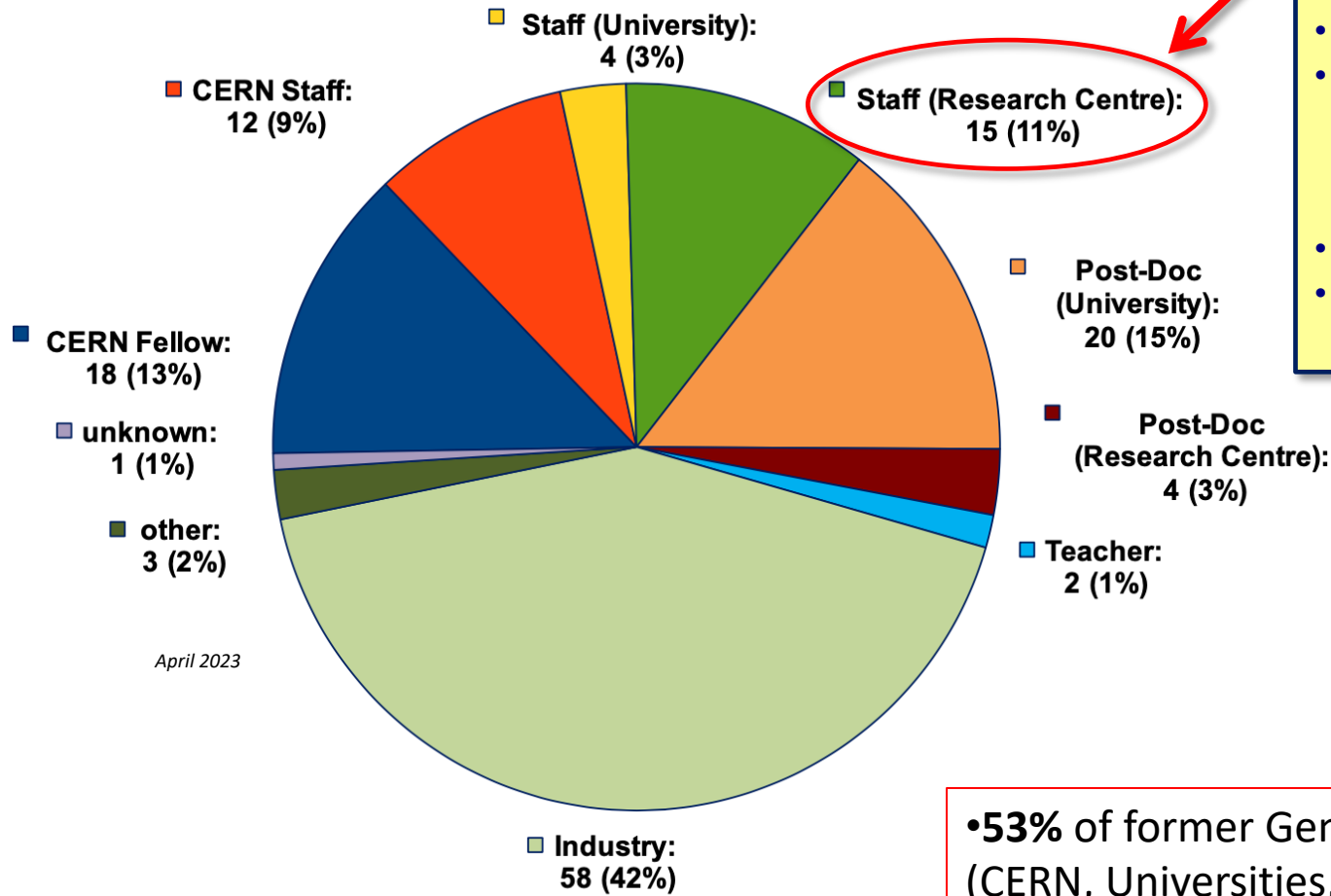


Thesis planning / progress reports



- Gentner fellowship is for a **PhD thesis** project (not just funding for work that needs to be done)
- **Duration** for PhD completion is one of the benchmarks for the success of the programme
- Target: completion of thesis document within **36 months** funding period
- Many students succeed and defend their thesis within a few months after the funding period
- In some cases it takes (much) longer, for various reasons:
 - Covid-related research delays → exceptional "Covid extensions" paid by group can be granted
 - too many unfinished projects → keep focus on thesis
 - thesis bound to external constraints (e.g. "paper thesis", availability of referees) → planning
 - new job → planning
 - personal
 - ...
- Please take advantage of the 18- and 30-months **progress reports**:
 - Discuss **thesis status** with your supervisors: What is still missing? Future work focus?
 - Consider travel to home University to present/discuss your thesis status in a **seminar**
 - Make **realistic plans** for the next reference period
 - In particular, for 30-months report:
 - Detailed **thesis outline**, iterated with both supervisors, should exist (not part of report)
 - Plans for the final 6 months focus on **completion of thesis document** and essential work (no more major new projects!)

Present employment of former Gentner students



→ today's guest speaker:
Bastian Härer

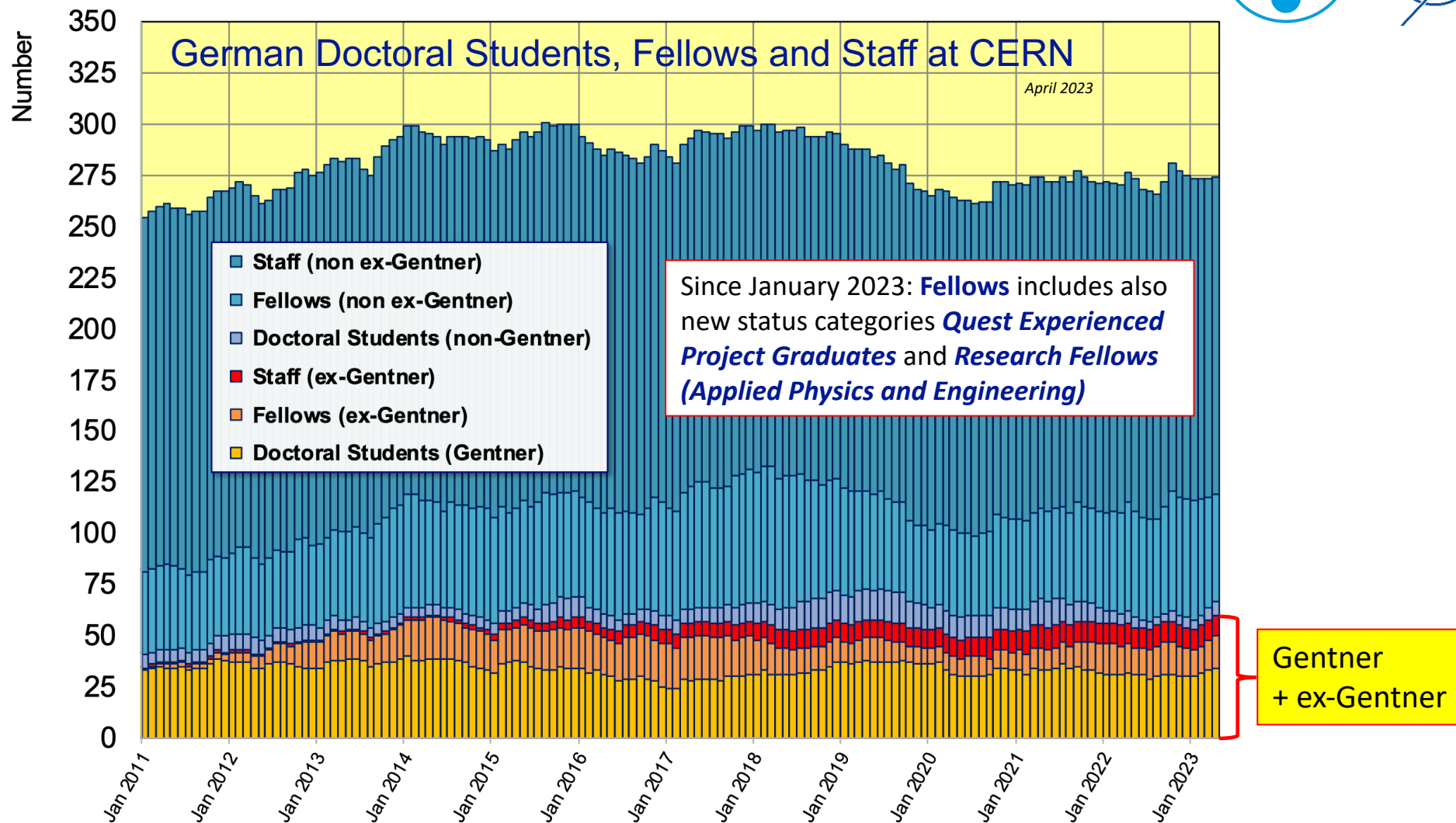
- Gentner student in BE-ABP 2013-2016
- PhD in physics KIT Karlsruhe on *Lattice design and beam optics calculations for the new large-scale electron-positron collider FCC-ee*
- CERN fellow in BE 2017-2018
- KIT postdoc on accelerator technology since 2019

•53% of former Gentner in academic research (CERN, Universities, research centres)
 •42% in industry

137 former Doctoral Students
 (+ 12 further Students in transition phase)



CERN careers of Gentner students



- **271** German Doctoral students, fellows and staff in total
- Of those: **34** current and **23** former Gentner students (**21%**)



CERN graduate programs



Recent change in CERN graduate programs:

- The **QUEST** Programme (Experienced Project Graduates), for nationals of Member or Associate Member States with a MSc degree and between 2 and 6 years' experience or PhD with up to three years of relevant experience.
→ application for specific job openings 2x / year
- The **RESEARCH Fellowship** Programmes:
 - Theoretical and Experimental Physics Research Fellowship, for researchers in the fields of theoretical and experimental physics holding a PhD and up to six years experience in the field after obtaining their PhD;
→ open application 2x / year; usually reserved for candidates with experience in physics analysis
 - Science and Engineering Research Fellowship, for candidates holding a PhD in the field, with a maximum of 3 years of experience after obtaining their PhD.
→ open application 2x / year; groups select candidates for specific projects
- Conditions for QUEST / RESEARCH Fellowships are equivalent for PhD holders

→ Look out for opportunities, also outside your immediate work environment!

→ You can apply for several posts, even simultaneously

<https://careers.smartrecruiters.com/CERN/graduates>



How to stay connected



LinkedIn:

<https://www.linkedin.com/groups/8511060/>

The screenshot shows the LinkedIn group page for 'Wolfgang Gentner Scholarships'. The header includes the group name and a 'Manage group' button. Below the header is a 'Write a post' section with a text input field. A recent post by Michael Hauschild is visible, mentioning a dissertation prize. The 'About' section on the right states that the German Federal Ministry of Education and Research (BMBF) supports technical doctoral students from Germany at CERN. The 'Partners' section lists the Federal Ministry of Education and Research, CERN, and DESY.

The screenshot shows the Facebook group page for 'German Doctoral Student Programme at CERN (Wolfgang Gentner Scholarships)'. The cover photo features a chalkboard with handwritten text: 'Unconfirmed E.O.L. has Nobel Prize' and 'Confirmed'. The page shows 78 members, including Henning Weiler and 76 other connections. There is an 'Invite connections' button and a 'See all' link. The 'About this group' section describes the support provided by the German Federal Ministry of Education and Research (BMBF) for technical doctoral students at CERN.

CERN Alumni:

<https://alumni.cern/topics/597/feed>

Please help us with **updates** after your active Gentner time:

- Join **LinkedIn** and **CERN Alumni** Gentner groups
- Let us know your **PhD defence date**
- Publish your thesis on **CDS** (category CERN-theses)
- Let us know of any **honors** and **awards** for your thesis
- Keep us posted on your **future jobs** and **email-address changes**

Successes of the Gentner programme:

- **Opportunities:** 194 Gentner students from 36 German universities at CERN since 2007;
- **Scientific output:** 110 Gentner PhDs;
- **Diversity:** steady increase of female Gentner students to currently ~40%;
- **Networks:** majority of CERN doctoral students are from German institutes (22%);
- **Careers:** 56% of Gentner students become CERN fellow, 8% become CERN staff after fellowship.

Points of attention:

- **number of applications** from Germany
- **thesis durations**

Outlook:

- 3-years **funding agreement** BMBF/CERN/DESY is up for renewal in 2023



DOCT recruitments in 2023:

Deadline	TSC committee	Start dates
07.11.2022	02.02.2023	04/2023-07/2023
27.03.2023	15.06.2023	08/2023-11/2023
31.07.2023	19.10.2023	12/2023-03/2024

Next Gentner Day: 25.10.2023
 and **cheese fondue** on 24.10.2023!

Additional material





Overview table



Overview: Wolfgang-Gentner-Programme

Status: April 2023

45 active Gentner Students

male: 27
female: 18 (40%)

149 former Gentner Students

male: 116
female: 33 (22%)
PhD uncertain: 7 (15%)
PhD cancelled: 16

194 total active + former Gentner Students

male: 143
female: 51 (26%)

110 finished PhDs (74%)

average PhD duration: 44.8 months (median)
average age at PhD: 30.7 years (median)

Whereabouts of former Gentner Students

	first employment	present employment
CERN Fellow:	77 (56%)	18 (13%)
CERN Staff (indefinite):	1 (0) (1%)	12 (6) (9%)
Staff (University) (indefinite):	1 (0) (1%)	4 (4) (3%)
Staff (Research Centre) (indefinite):	1 (1) (1%)	15 (5) (11%)
Post-Doc (University):	21 (15%)	20 (15%)
Post-Doc (Research Centre):	4 (3%)	4 (3%)
Teacher:	1 (1%)	2 (1%)
Industry:	29 (21%)	58 (42%)
Other fields:	2 (1%)	3 (2%)
Unknown:	0 (0%)	1 (1%)
	137	137

PhD Preparations: 12 12
149 149