

Faculty of Science Day

July 3, 2024



Program

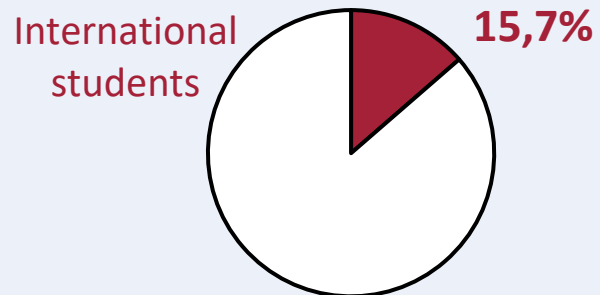
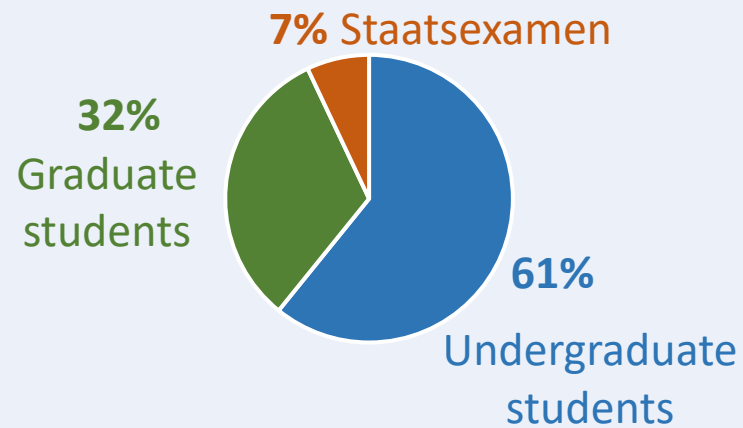
- Report by the Dean
- Introduction of newly appointed professors:
 - Daniele Agostini
 - Florian Beuerle
 - Ana Rita Brochado
 - Kyle Mason-Jones
- Keynote lecture by Prof. Christian Groß:
Precision many-body physics at the single atom level
- PI Innovation Award
- Get together/Poster session



Our Faculty in Numbers

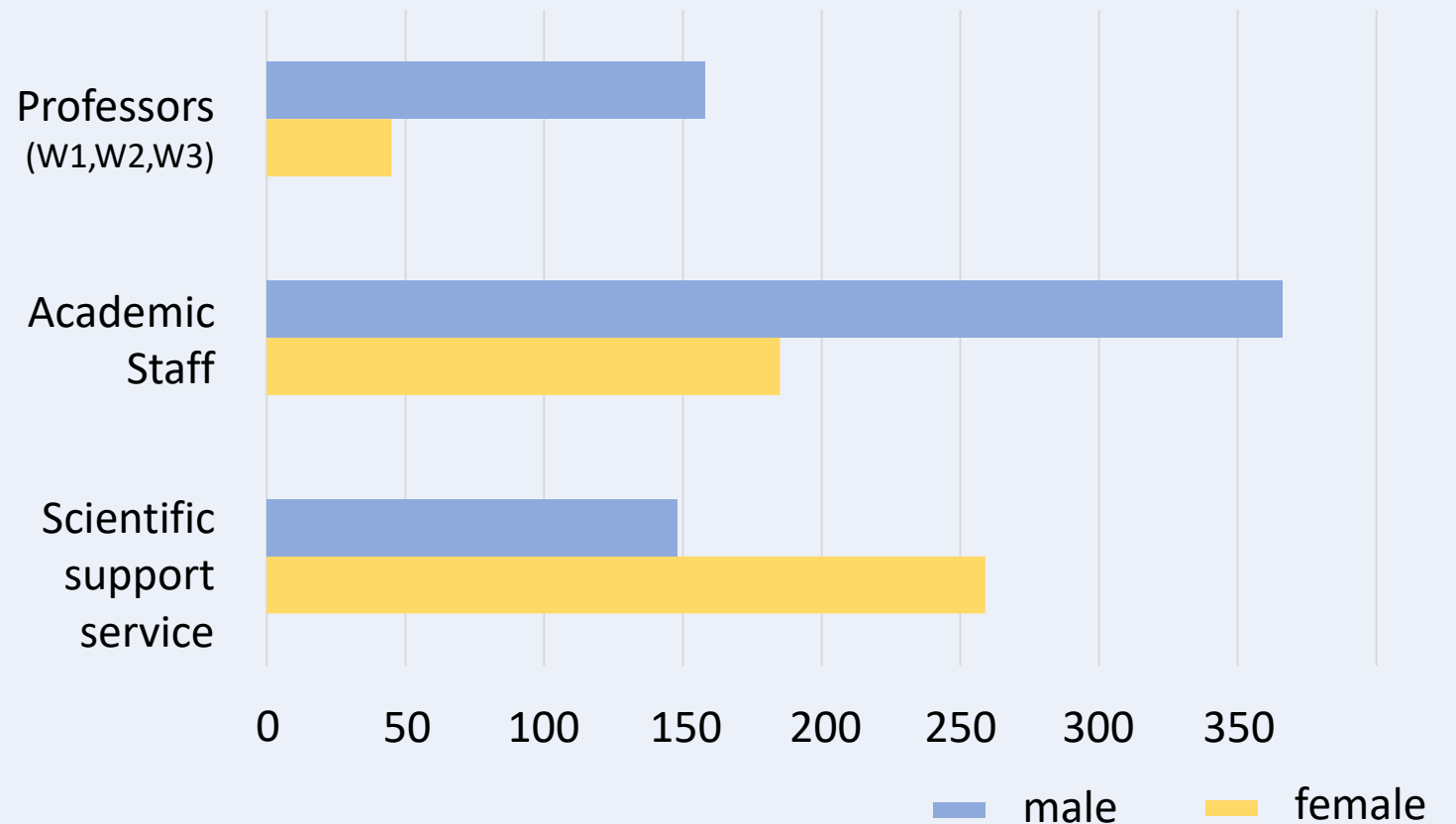
Students (winter term 2023/24)

Total number: **10,321**



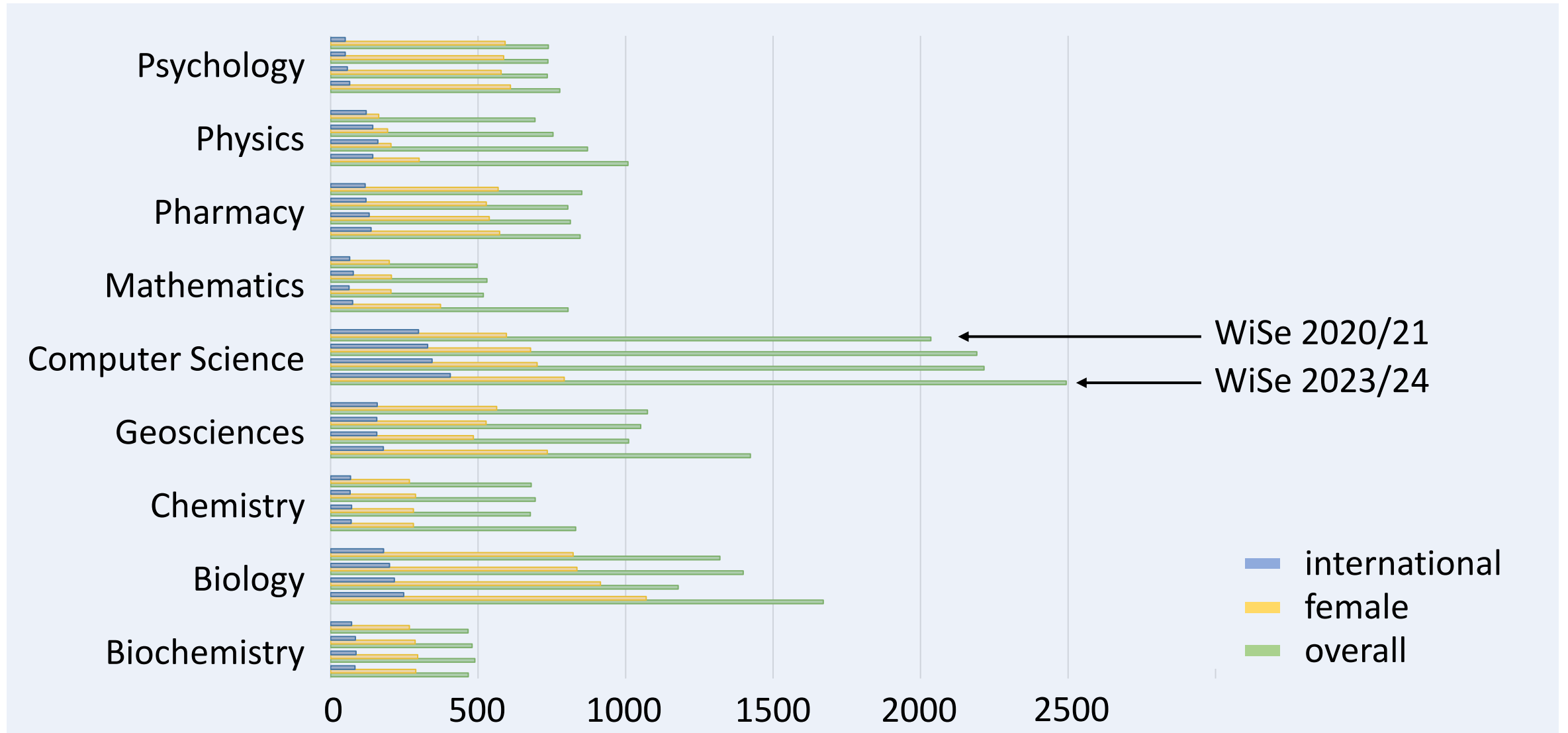
Staff (as of June, 2024)

Total number: **1,161**



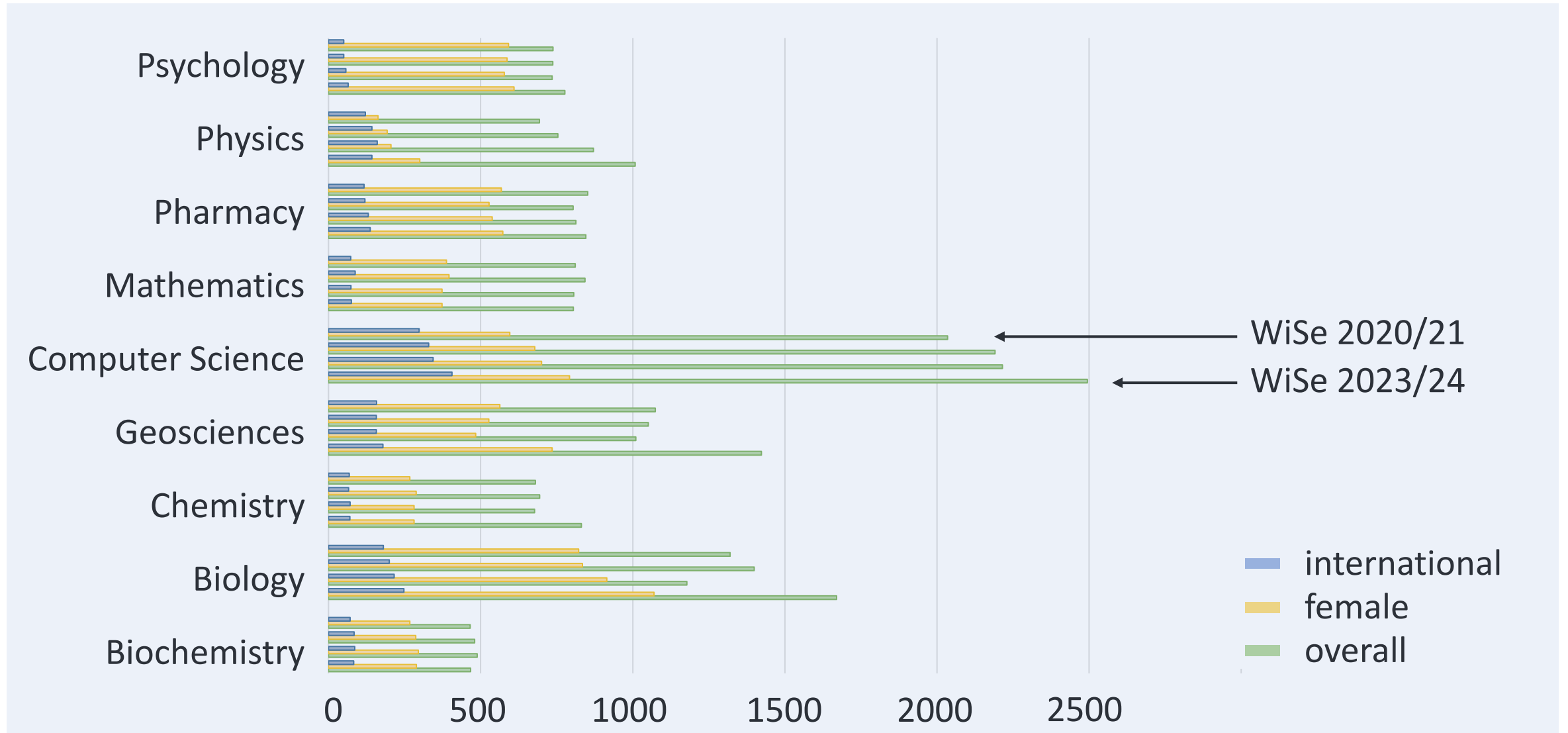
Student Numbers (Case Numbers)

Winter term 2020/21 – 2023/24

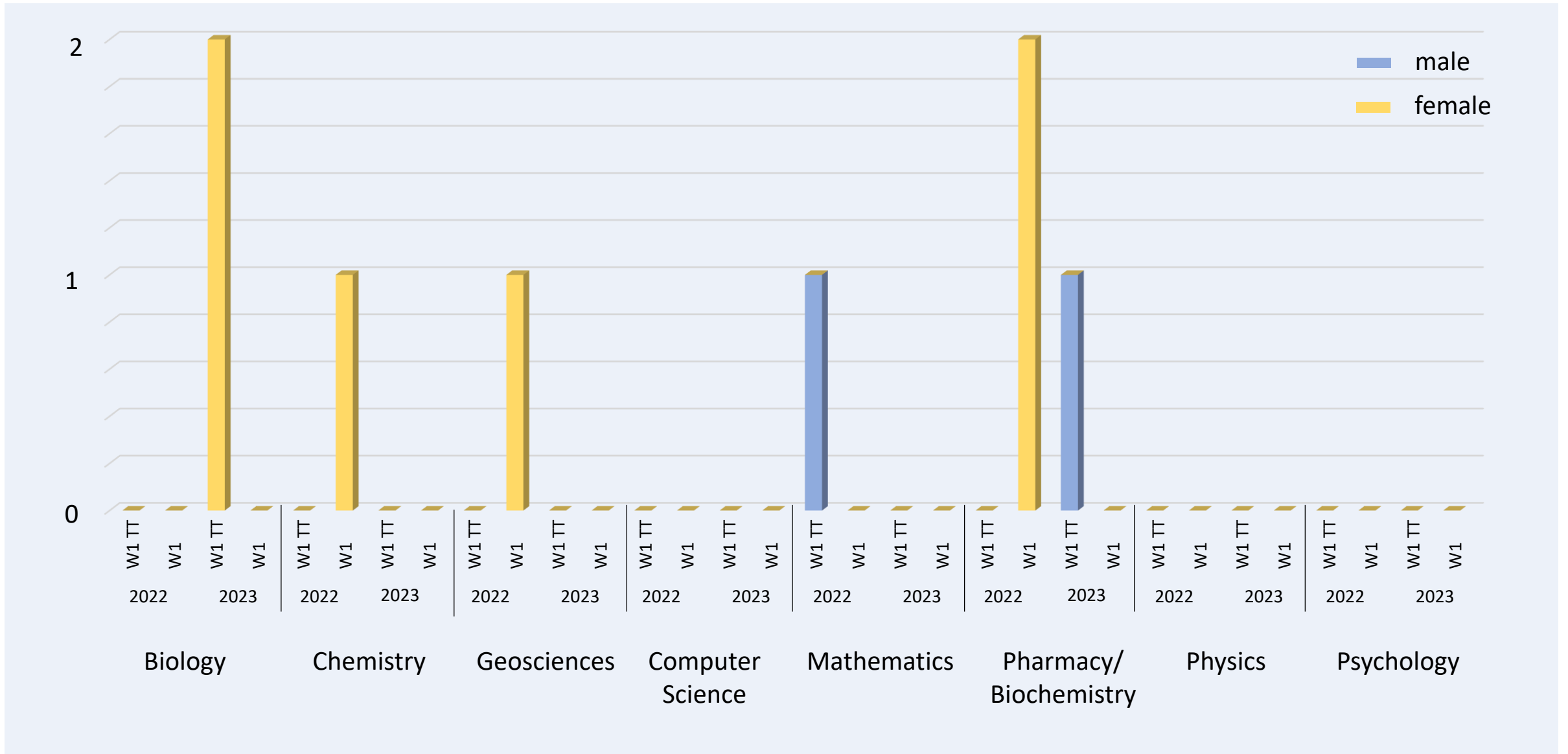


Student Numbers (Case Numbers)

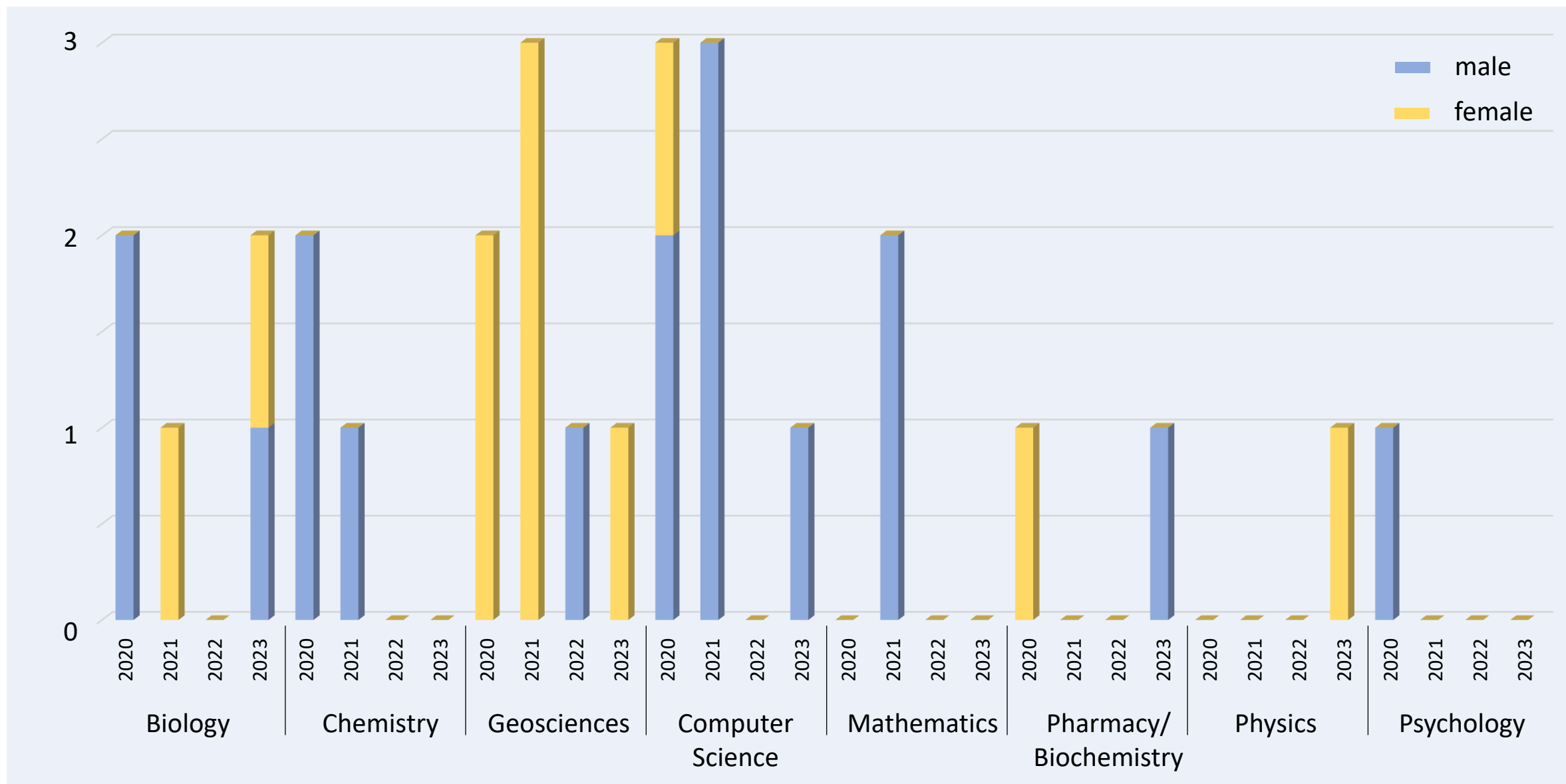
Winter term 2020/21 – 2023/24



Newly appointed professors – W1 / W1 TT



Newly appointed professors – W3



Newly appointed professors

Winter term 2023/24 – Summer term 2024

Kyle Mason-Jones: W1 Soil-Microbial Interactions (Geosciences)

Stephan Eckstein: W1TT Mathematical Methods in Computer Science (Mathematics, Computer Science)

Seong Joon Oh: W2 Scalable Trustworthy AI (AI Center)

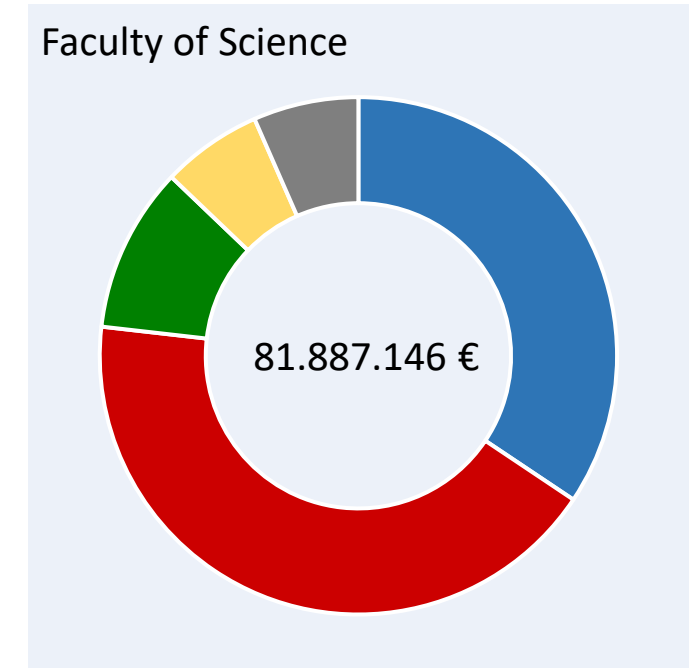
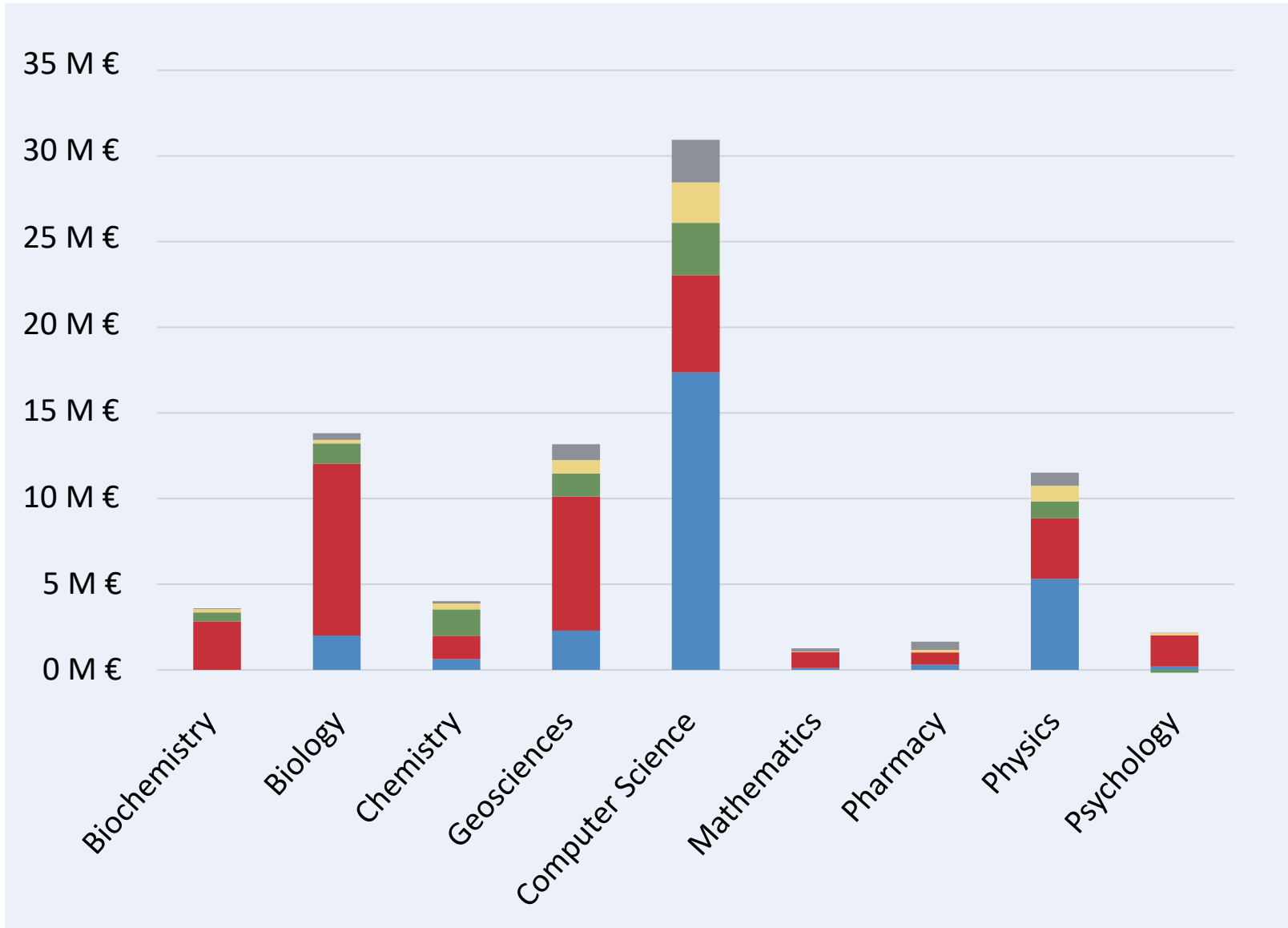
Maria Knobelsdorf: W3 Computer Science and its Didactics (Computer Science)

Detmar Meurers: W3 Language and AI in Education (Computer Science)

Sebastian Wolf: W3 Molecular Physiology of Plants (ZMBP, Biology)

Sumiko Tsukamoto: W3 Quaternary Geochronology (Geosciences)

Distribution of Third Party Funding 2023



Highlights of the Academic Year

Prof. Burde:

- Teaching award of the University of Tübingen 2023
- Ars legendi faculty award for excellent university teaching 2024

Prof. von Luxburg, Dr. Schaffarczyk, Prof. Thiemeyer:

- Communicator Award for the exhibition "Cyber and the City"

Prof. Nieder

- Member of the National Academy of Sciences and Humanities 2024

Prof. Posth

- Manfred Fuchs Prize of the Heidelberg Academy of Sciences and Humanities
- New Leibniz ScienceCampus "Geogenomic Archaeology"

Prof. Cederbaum:

- Media Prize of the German Mathematical Society

Dr. Doneva:

- Gustav-Hertz-Preis (Deutsche Physikalische Gesellschaft)

Prof. Böhme:

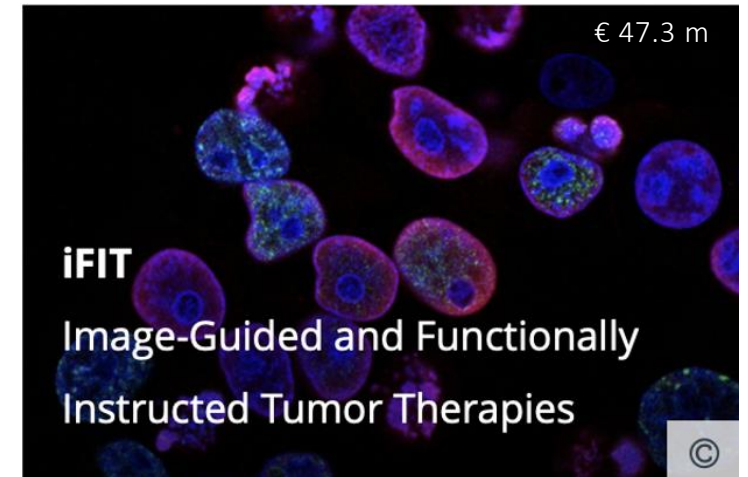
- Fellowship from the Carl Friedrich von Siemens Foundation

CIVIS: First cohort of the MSc Palaeolithic Archaeology graduates
(Triple Degree with Aix-Marseille & Sapienza Rome)

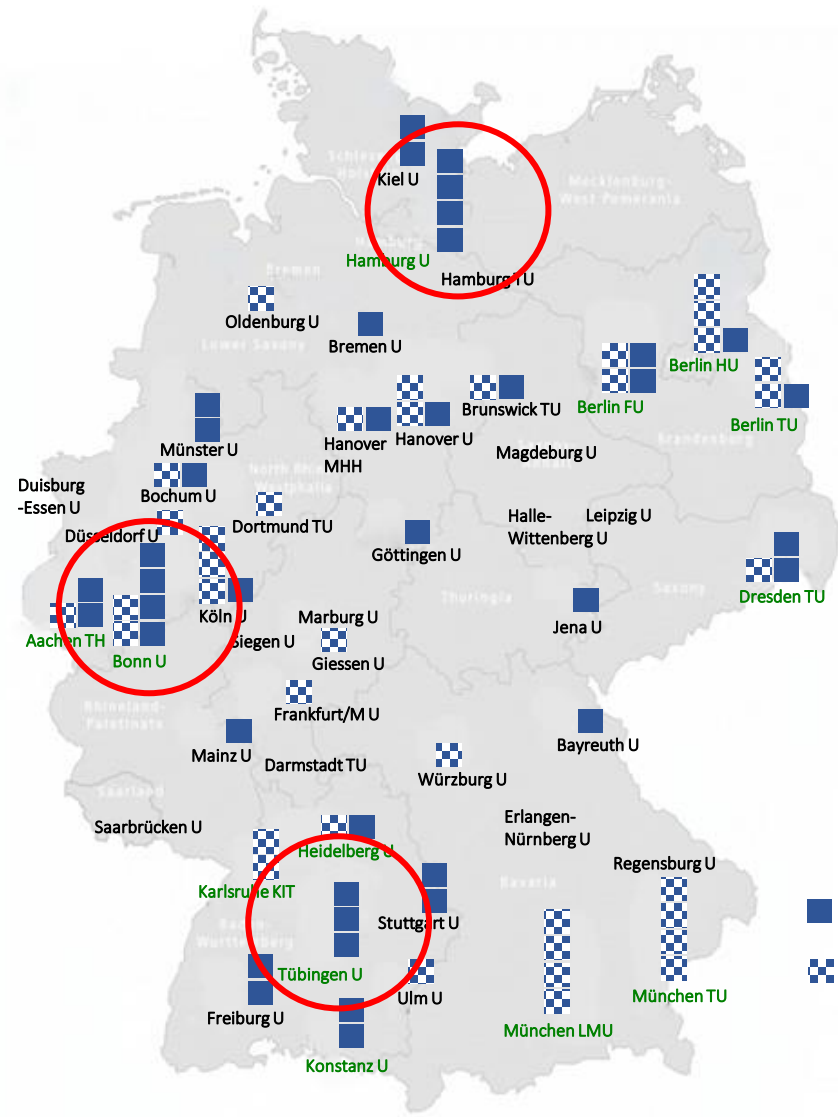
ERC: 7 Starting Grants, 6 Consolidator Grants and 1 Advanced Grant

Excellence Strategy – 2019 - 2025

Current status:



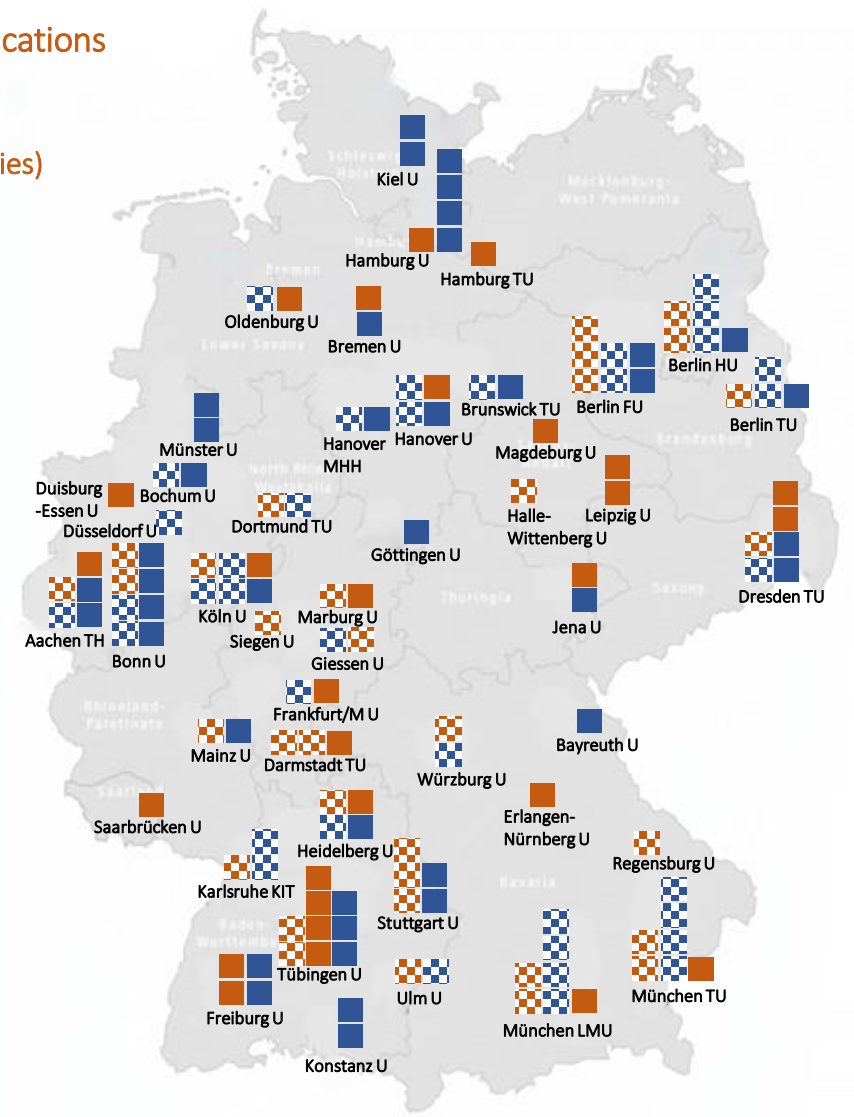
Clusters of Excellence



2019 - 2025

New cluster applications

- EXC (1 university)
- ▣ EXC (2 or 3 universities)



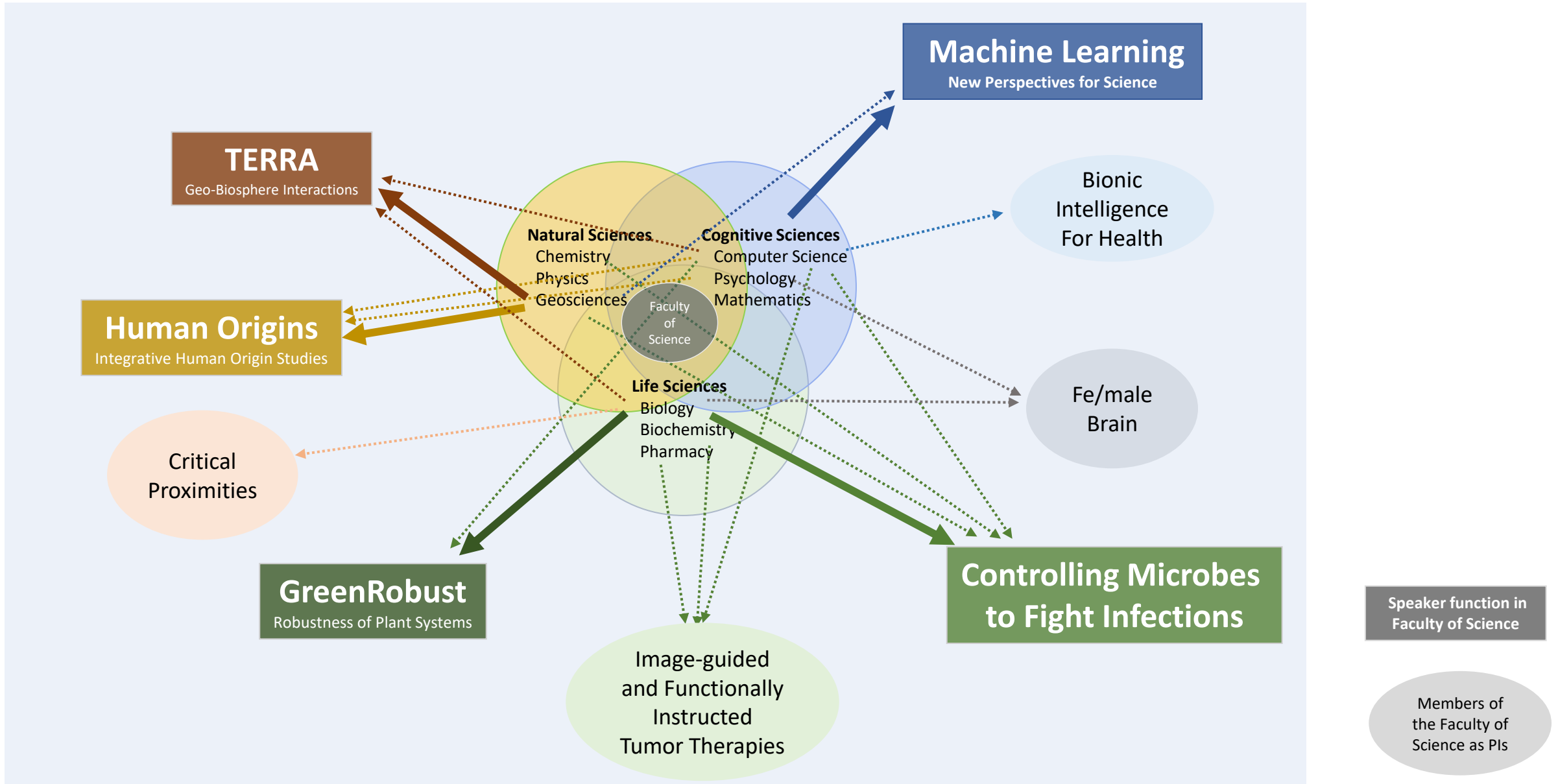
2026 - 2032 ?

Existing clusters

- EXC (1 university)
- ▣ EXC (2 or 3 universities)

University of Excellence

The nine Cluster proposals



Excellence Strategy – 2026 - 2032

Status quo:

- Nine Cluster of Excellence proposals
 - Unprecedented in Germany
 - Evaluation in Fall 2024/Spring 2025
 - Result will change the University...
- University Strategy:
 - Report + concept for the future
 - Site visit October 21/22, 2025
 - Emerging themes:
 - Sustainability
 - Excellence in Research and Teaching
 - Support for Young Researchers
 - Internationality and Diversity

Challenges

- Internationality
 - Balanced Excellence
 - Hiring processes (timeline, procedures)
 - Resources
 - Sustainable growth
 - Outside factors
-
- Maintaining and expanding our
“Culture of Cooperation and Commitment”

Measures

- Strategy meetings with departments
- Promote department-bridging and faculty-bridging structures
- Regular meetings with
 - Non-academic staff
 - Students
 - PhD students
 - Junior Professors
- Thesis advisory committees for PhD students
- Research-oriented teaching, highlighting different career paths

Take home

- Faculty is more than the sum of 8 departments
 - Research and teaching across borders
 - Transparent decisions based on clear criteria
 - Accessibility and responsiveness

 - Organization and support
 - Within MNF
 - Interactions with central administration
 - Rectorate
- New positions: Vice Rector, Deputy, Sustainable Development
Vice Rector for Research, Innovation, Transfer

Introduction of new professors

Daniele Agostini: Combinatorial Algebraic Geometry (W1 TT)

Florian Beuerle: Organic Chemistry (W3)

Ana Rita Brochado: Drug-Microbiome Interaction (W1 TT)

Kyle Mason-Jones: Soil Microbial Interactions (W1)

Daniele Agostini: Algebraic Geometry

- Juniorprofessor in Tübingen since 2022
- Previous positions at the HU Berlin and at the MPI-MiS in Leipzig

Algebraic Geometry studies solutions to systems of polynomial equations:

Linear Algebra

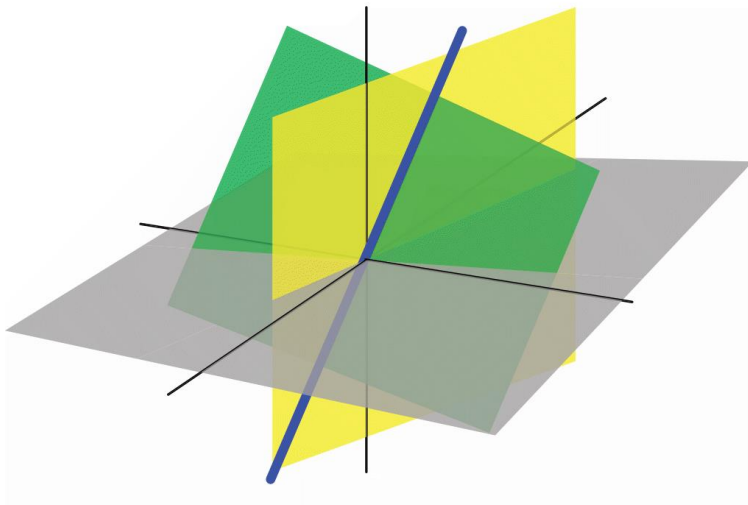


Figure: By Alksentrs at en.wikipedia

Algebraic Geometry

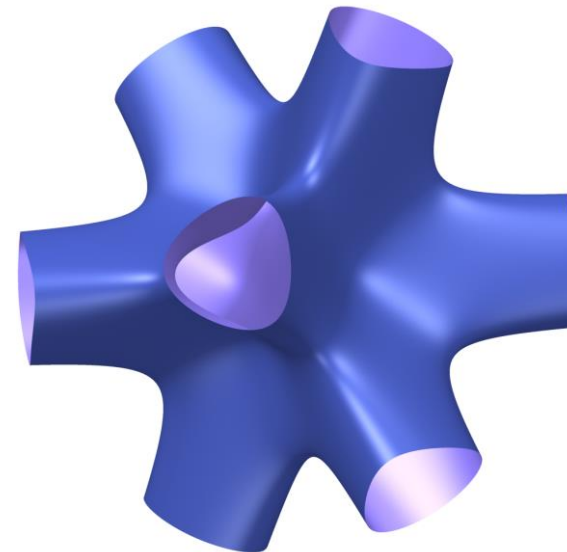
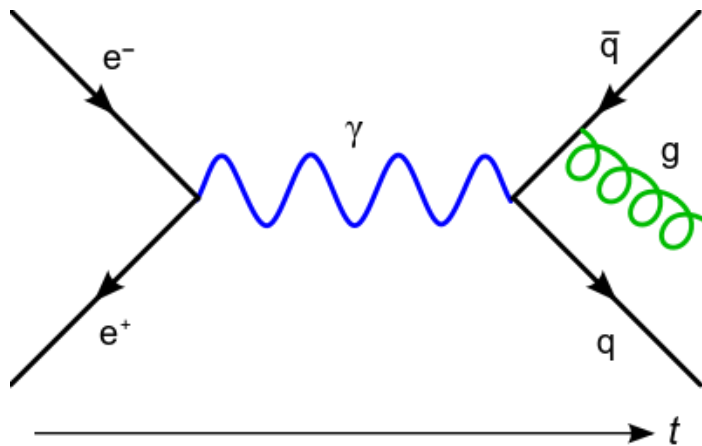


Figure: The logo of the **POK0 Project**

Daniele Agostini: Algebraic Geometry

Some keywords from **pure mathematics**: algebraic curves, abelian varieties, moduli spaces, syzygies, ...
I am also very interested in **applications** and **concrete methods**.

Quantum physics



Water waves



Computer algebra

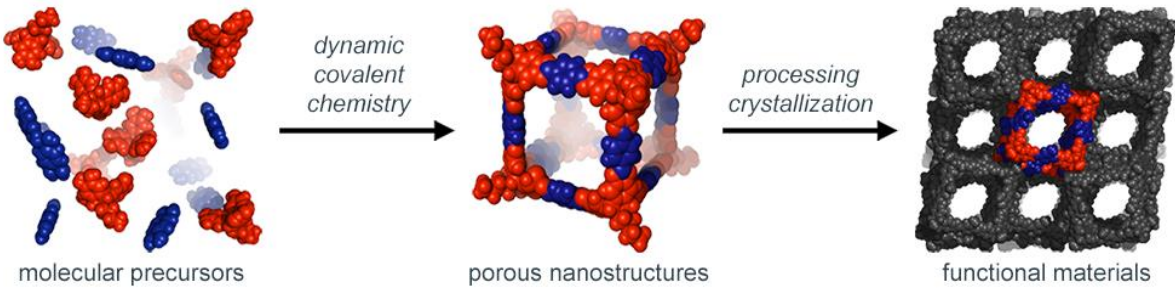


I would like to be your friendly algebraic geometer in the neighborhood: **if you have polynomials coming up in your research, I'd be happy to talk with you!**

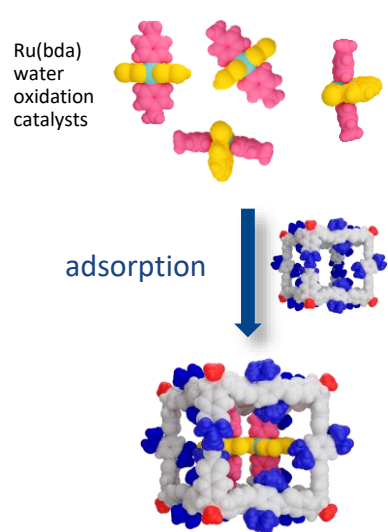
Beuerle Research Group



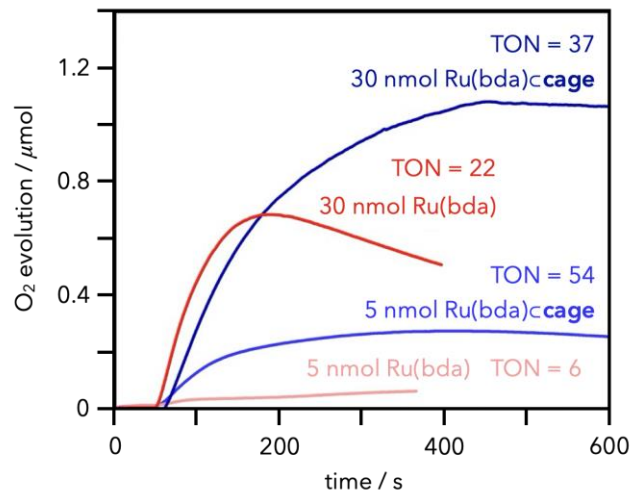
synthesis under thermodynamic control



chemistry in confined nanospace



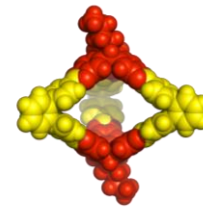
Photochemical Water Oxidation Catalysis



for more information just come around or visit our website: uni-tuebingen.de/cages

precise control of nanostructures

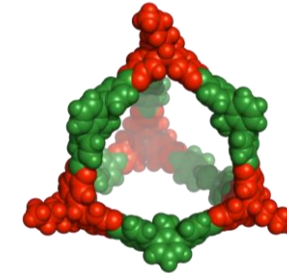
soluble organic cages



A_2B_3

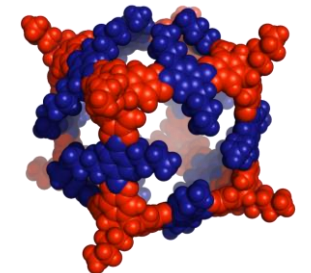
DOSY diameter

1.9 nm



A_4C_6

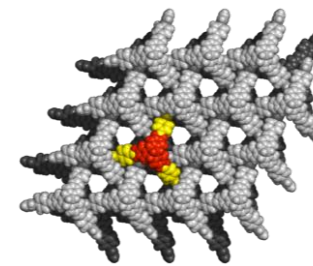
2.9 nm



A_8D_{12}

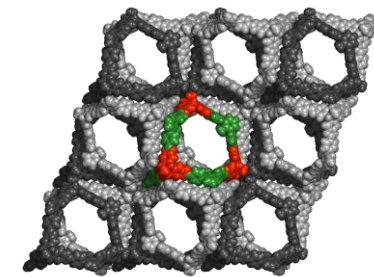
3.5 nm

crystalline porous materials

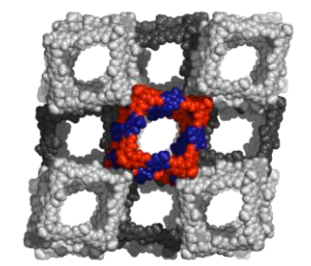


BET surface

$400 \text{ m}^2 \text{ g}^{-1}$



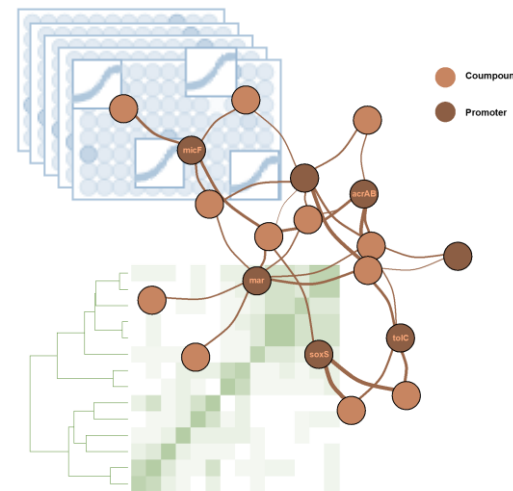
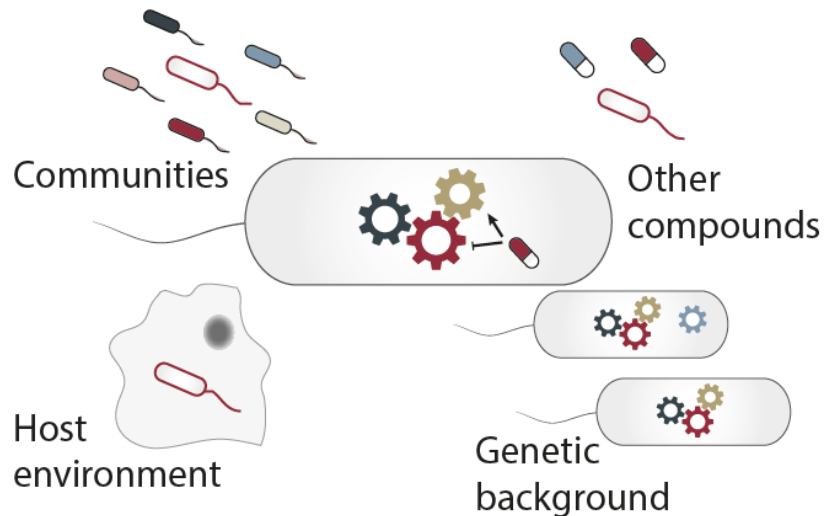
$2170 \text{ m}^2 \text{ g}^{-1}$



$3426 \text{ m}^2 \text{ g}^{-1}$

How **bacteria** work – from molecular networks to molecular mechanism

Antibiotic activity in complexity through **systems biology**



Brochado et al, Nature 2018
Maier et al, Nature 2018
Domenech et al, Cell Host Microbe 2021

Klünemann et al, Nature 2021
Cacace et al, Nature Microbiology 2023
Binsfeld et al, submitted



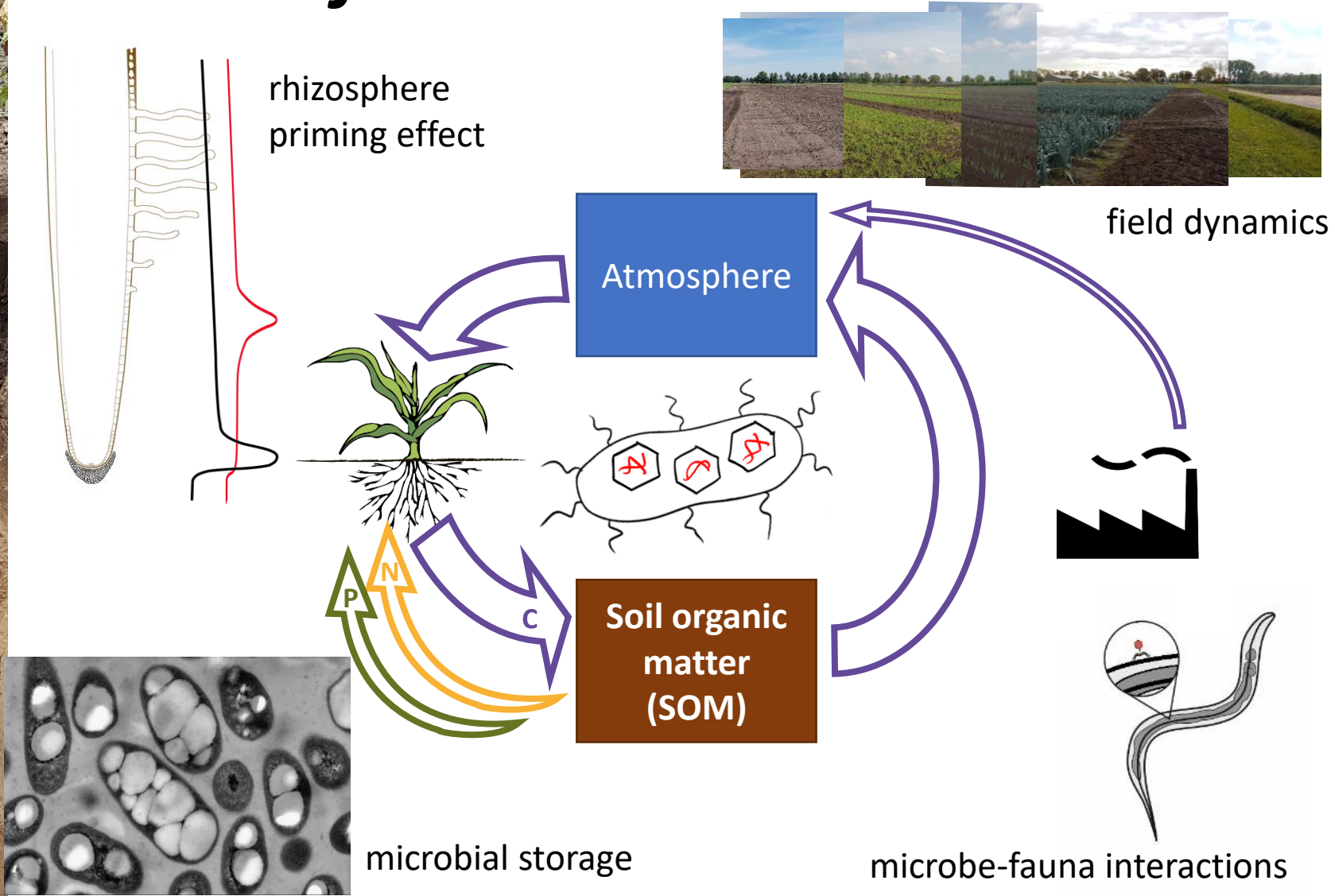
Dr. Ana Rita Brochado

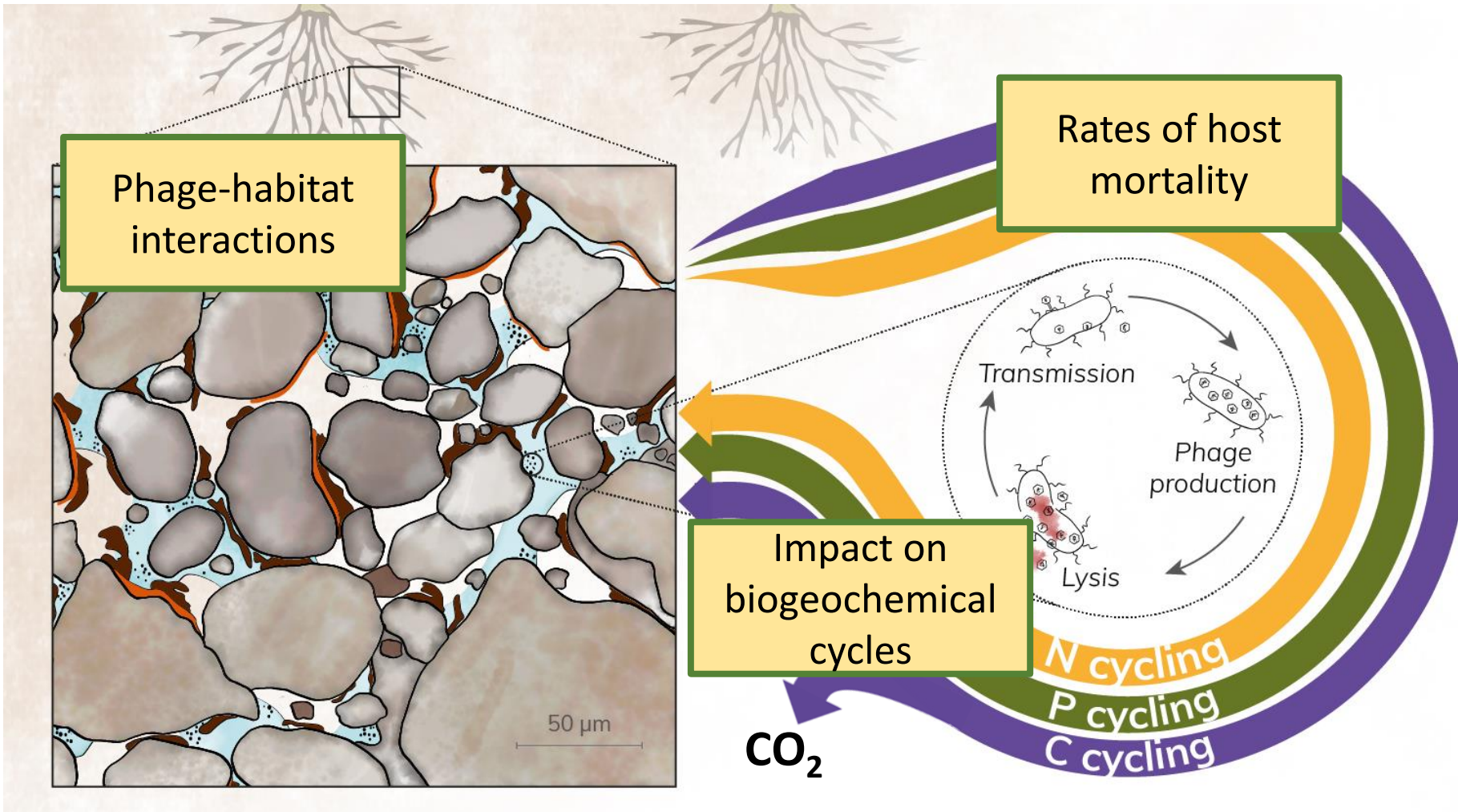




Kyle Mason-Jones

Jun. Prof. Soil Microbial Interactions





- Viruses occur everywhere where life exists
- In oceans, phages kill ~20% of bacteria **every day**
- Abundant in soil but **neglected in SOM cycling**

How does the soil microhabitat determine phage infection and thereby biogeochemistry?



Kyle Mason-Jones
Jun. Prof. Soil Microbial Interactions

GUZ Room 6U07

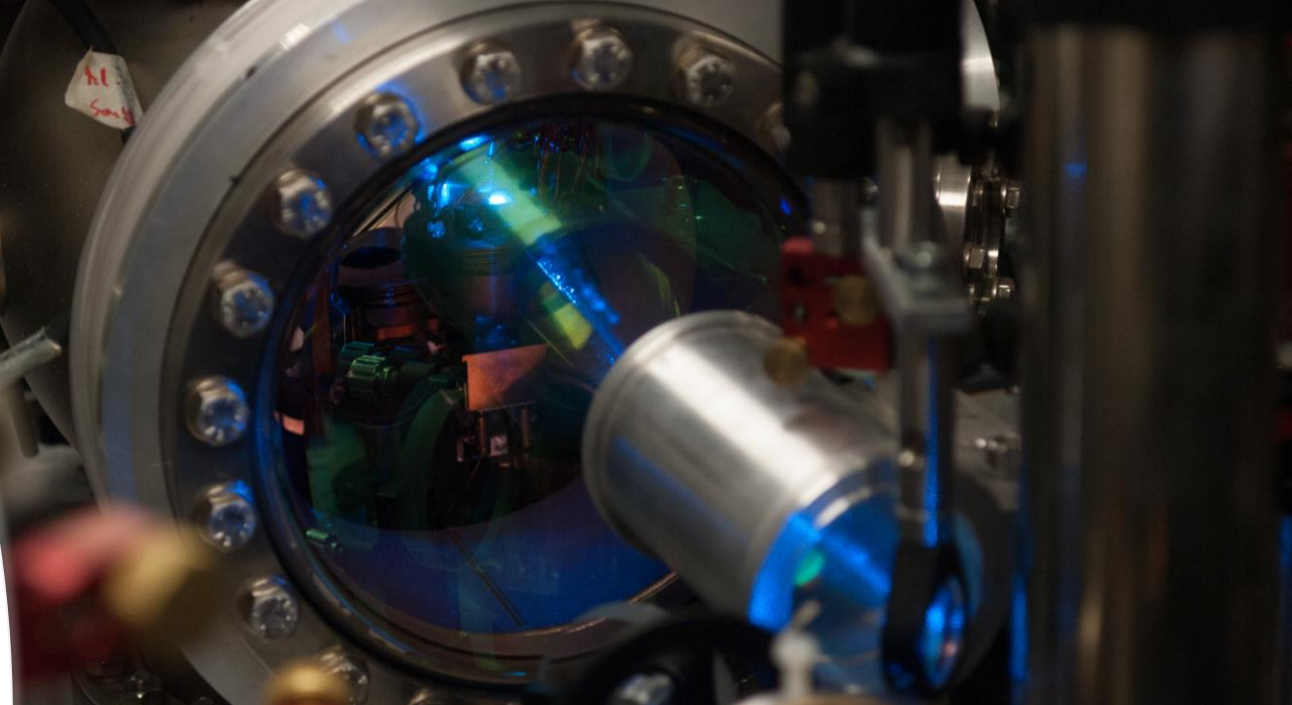
k.mason-jones@uni-tuebingen.de

Keynote lecture

Prof. Christian Groß

Professor for Experimental Many-Body
Quantum Physics

***Precision many-body physics
at the single atom level***



PI // INNOVATION AWARD

- **Prof Dr. Ulrich Rothbauer:**
Introduction of the Award Winner
- **Dr. Teresa Wagner:**
“Two Birds with One Stone: Theranostic Applications of Nanobodies”
- **Award Ceremony**
- **Get together with Poster Presentation**