

A woman with short reddish-brown hair, wearing a red turtleneck sweater, stands in the foreground of a futuristic industrial setting. In the background, several large, red and white robotic arms are visible, some with glowing blue lights. The scene is lit with cool blue tones, suggesting a high-tech environment. The overall composition is a promotional image for TU Bergakademie Freiberg.

**THINK GLOBALLY,
ACT GLOBALLY**

TECHNISCHE UNIVERSITÄT BERGAKADEMIE FREIBERG

2024



TUBAF

Die Ressourcenuniversität.
Seit 1765.

OUR RESPONSIBILITY

” *The strength of our university arises from its clear profile and the commitment of its members across disciplinary boundaries. Diversity, tolerance, and a lived openness to the world shape our university community.*

*For over 250 years, we have been teaching and researching topics that lay the foundations for society and its essential services. Never before in history have the challenges been so fundamental and existential for future development. The guiding principle of **actively initiating and participating in transformation processes for the sustainable development** of society is at the core of our university. Engaging with economic, ecological, and technical issues that affect humanity's future shapes our research and teaching.*

”

UNIVERSITY PROFILE

- One of Germany's most research-intensive universities
- Clear and unique research profile as a resource university
- Strong interdisciplinarity in research and teaching
- Globally recognized resource university
- Freiberg.Science.City. – a renowned science location
- A university town with tradition – Alexander von Humboldt studied here, and the discovery of the elements Germanium and Indium marked scientific milestones



FROM OUR HISTORY

Founding
of the Bergakademie
21. Nov 1765

Student Detention Room
The only preserved student
detention room (Karzer) at a
German University of
Technology

**Independent right to
confer doctorates**

**Establishment of the Dr.
Erich Krüger Foundation**

**Foundation of
HIF**



**New Library and
Lecture Hall Center**



1765

1796

1851-1872

1885

1920

1993

2006

2008

2011

2021

2023

First university laboratory
established by Prof. Lampadius

**First female
student, Mary
Hegeler, enrolled**

**Right to the designation
"Technical University"**

**Opening of
terra mineralia**

Opening of ZEHS

HOLISTIC TEACHING & RESEARCH

Interdisciplinary network – our six faculties

- Faculty 1 Mathematics and Computer Science
- Faculty 2 Chemistry, Physics and Bioscience
- Faculty 3 Geosciences, Geoengineering and Mining
- Faculty 4 Mechanical, Process and Energy Engineering
- Faculty 5 Materials Science and Technology
- Faculty 6 Business Administration

6
Faculties

32 Institutes

95 Professors

6 Junior professors



EUROPEAN UNIVERSITY

EURECA-PRO - TU Bergakademie is part of the European University Alliance for Sustainability of the EU

- Studying and researching together for greater sustainability
- Research, teaching, and strategic development
- Transfer and communication as bridges to society

Partner

- TU Bergakademie Freiberg (Germany)
- Montanuniversität Leoben (Austria)
- Technical University of Crete (Greece)
- Universidad de León (Spain)
- Silesian University of Technology (Poland)
- University of Petrosani (Romania)
- Mittweida University of Applied Sciences (Germany)
- Hasselt University (Belgium)
- Université de Lorraine (France)



The European University Alliance
on Responsible Consumption
and Production

EURECA-PRO

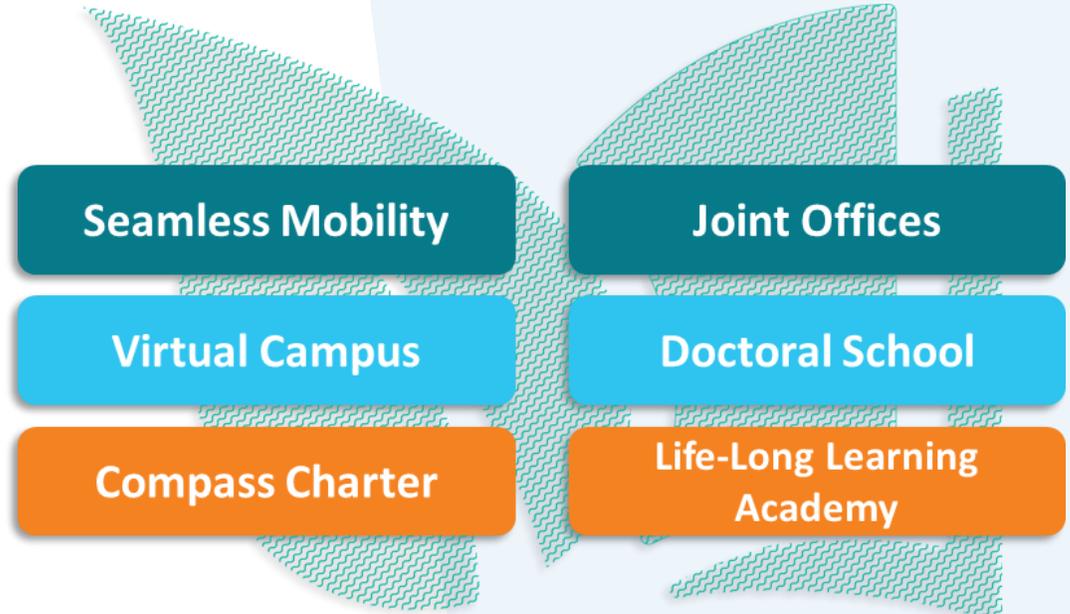
Europäische Universität
für verantwortungsvollen
Konsum und Produktion

EUROPEAN UNIVERSITY

Goals of the Alliance:

- Generate interdisciplinary, holistic and systemic knowledge about responsible consumption and production
- Transfer knowledge into all educational activities
- Educate critical, forward-thinking, and multidimensional leaders and citizens at all levels
- Integrating results with and for society
- Removing barriers and integrating cooperation structures in depth

EURECA Pro:



FAMILY-FRIENDLY UNIVERSITY

Support services for studying with children

- A variety of counseling services
- Arrangement of an individual study plan
- Childcare
- Accommodation options for student parents
- Baby care rooms and play areas on campus
- Junior University and Junior Researchers

Family-friendly working conditions

- Service agreement for mobile work
- Support for balancing work, caregiving, and family



ACTIVE TOGETHER

- Preservation and promotion of the health of employees and students
- Health-related offers and initiatives
- Creation and maintenance of healthy working, teaching, and research conditions



University Health Management

Programs to promote physical, mental, and social health



University Sports Center

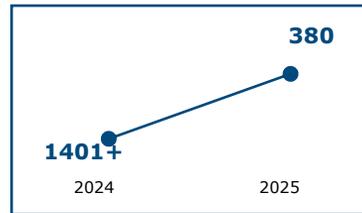
More than 40 sports and 80 courses

QS WORLD UNIVERSITY RANKINGS 2025

Overall International Result



Overall Rank
=380

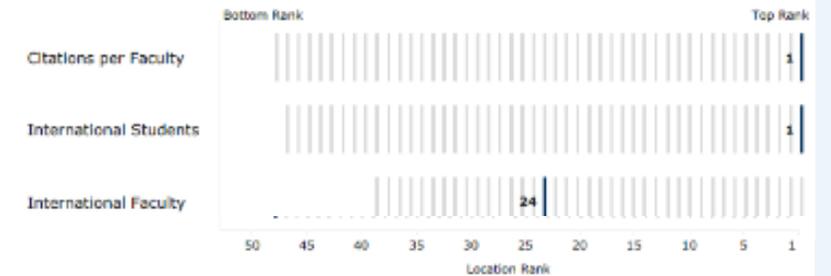


Comparison within Germany

48
Institutions evaluated in
Germany

Technische Universität
Bergakademie Freiberg
Other institutions in
Germany

Indicator Rank among Institutions in Germany



Ranking by Subject - Germany

Ranked 1st among
German universities
in Geoengineering
(Mining and Minerals
Engineering)

Ranked 2nd among
German universities
in Drilling Technology
and Fluid Mining
(Placeholder)



STUDY AND TEACHING

TECHNISCHE UNIVERSITÄT BERGAKADEMIE FREIBERG

2024

TU Bergakademie Freiberg



TUBAF

Die Ressourcenuniversität.
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MISSION STATEMENT FOR TEACHING & STUDYING

Teaching – diverse, interdisciplinary, practice-oriented

- Conveying subject-specific and interdisciplinary competencies
- Integration of current research findings
- Promotion of research-based thinking
- Practical relevance
- Promotion of intercultural exchange and global cooperation
- Diversity-conscious teaching
- Integration of digital technologies to enhance teaching methods
- Preparation for the digital workplace
- Further education and training for lifelong learning



#TUBAFstudium

Friendly atmosphere

- Excellent advisory and support network
- Individual study organization

Campus University

- Short distances to lecture halls
- Modern facilities
- Laboratories, technical equipment, and large research facilities on campus
- Lecture halls and laboratory spaces are guaranteed

Central campus housing

- 10 residential complexes – all-inclusive apartments and rooms (furniture, water, electricity, heating, internet, TV (cable connection))
- Rent between €220 and €415 per month



CHE-RANKING 2024: CHEMISTRY



Studieninhalt

Wie gut gestaltet sich der Studieninhalt?

Fachwissenschaftliche Kompetenzen 5 ★★★★☆

Wie steht es um die Vermittlung dieser Kompetenzen während des Studiums?

Fachübergreifende Kompetenzen 5 ★★★★☆

Wie steht es um die Vermittlung dieser Kompetenzen während des Studiums?

Methodische Kompetenzen 5 ★★★★☆

Wie steht es um die Vermittlung dieser Kompetenzen während des Studiums?



Organisation

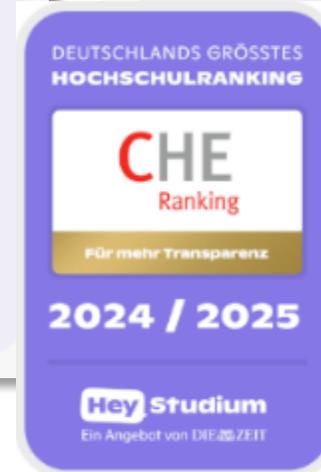
Wie gut ist das Studium in den verschiedenen Bereichen organisiert?

Studienorganisation 5 ★★★★★

Wie gut funktioniert der Zugang zu Lehrveranstaltungen? Können Pflichtveranstaltungen ohne Überschneidungen besucht werden?

Laborpraktika 5 ★★★★☆

Wie gut werden Laborpraktika betreut? Wie sind die Versuche aufgebaut?



INNOVATIVE STUDY CONCEPTS

68 Bachelor's, Master's and Diploma degree programs, including:

- Geosciences and Geoengineering 15
- Engineering Sciences 18
- Materials and Materials Science 7
- Business Sciences 13
- Mathematics, Computer Science, and Natural Sciences 9

4.389
Students

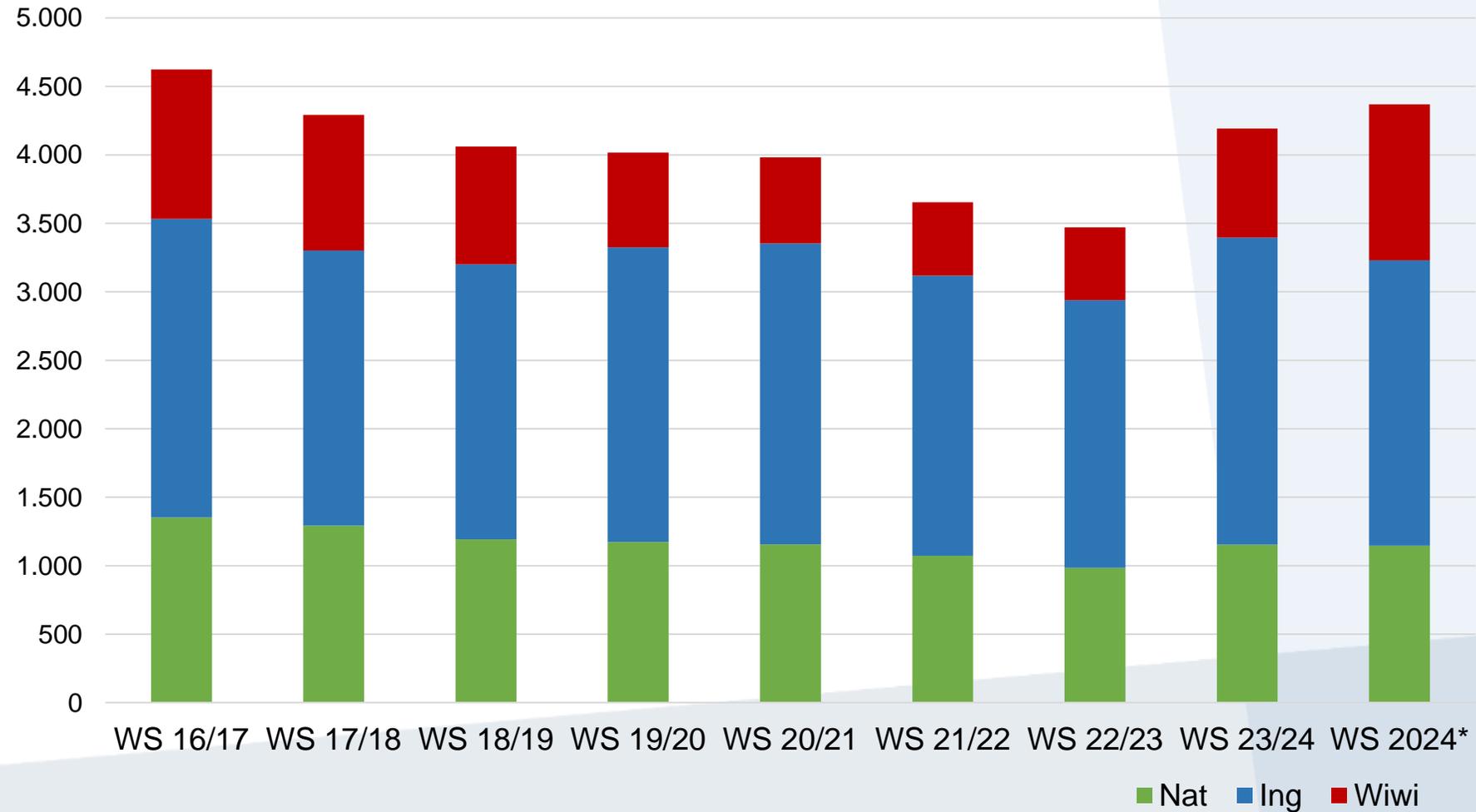
33% female students

83% STEM students

52% international students

A11.2024

STUDENTS



FORMS OF STUDY

On-campus study with virtual offerings

Cooperative Studies

- Study programs with strong industry partners

Teacher training-oriented programs in STEM fields

- Applied Computer Science, Applied Natural Sciences

Orientation study program WIN

- (2 semesters of courses in business, law, engineering, and natural sciences, tailored to individual needs)

Mobility study with multiple joint Master's degrees

- EMERALD, ENTER, SINREM, RAVEN programs – Triple degree programs, typically starting at a partner university abroad



OFFERINGS IN THE VIRTUAL SPACE

Virtual teaching and learning offerings complement on-site instruction, such as:

- Virtual student mobility and teaching support for Ukraine
- E-assessment and digital exams
- Mixed- und Metareality teaching collections
 - *Cornerstone* – Virtual Reality in Geoscience
- Digital internships and virtual laboratories



COOPERATIVE STUDIES

ADVANTAGE

- Networking with industry partners
- Getting to know the professional world early
- Financial support for studies

TYPES

- Internship
- Supervision of a thesis
- Part-time employment

BASIS

Part-time contract with individual agreements on salary, working hours, and objectives



STUDY FINANCING

Study funding through BAföG

29th BAföG amendment in 2024 with increased financial allowances, introduction of a study start-up aid, and higher housing cost allowances for students living away from home

Deutschlandstipendium

118 Deutschlandstipendium recipients in 2023

Job opportunities

For student and research assistants at our institutes

Student internship agreements with industry

Especially in engineering sciences

Cooperative Study

Studying in collaboration with universities and industry partners



CAREER SERVICES

Career entry preparation counseling

- Development of personal and competency profiles
- Individual application portfolio review
- Preparation for job interviews

Training in professional and leadership skills

- Development of soft skills
- Building interdisciplinary knowledge
- Coaching for job applications and career start

Networking

- Career fair ORTE connects students with companies

Job offers

- Own dedicated job portal "Jobteaser"



PROGRAMS FOR EARLY-CAREER ACADEMICS

Doctorates

- Conventional Doctorate or
- Doctorate within the framework of a structured doctoral program

Graduate Program

- Graduate schools and
- Early-Career Research Groups

Continuing Education Program and Workshops

Consulting and Coaching





INTERNATIONAL ORIENTATION AND NETWORKING



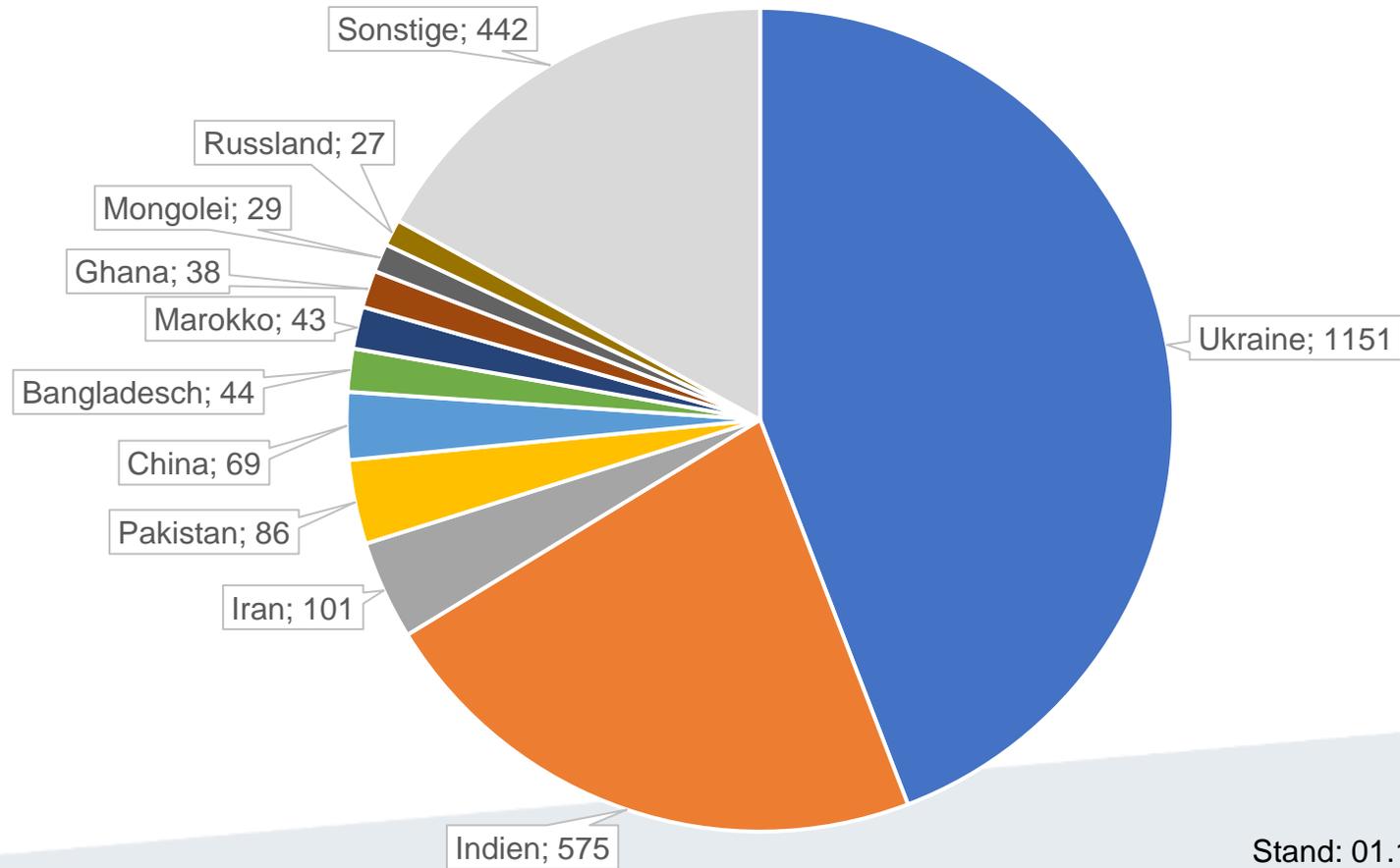
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TECHNISCHE UNIVERSITÄT BERGAKADEMIE FREIBERG

2024

STUDENTS FROM AROUND THE WORLD



Stand: 01.11.2024



INTERNATIONAL MOBILITY

255 partner universities

- across six continents in 70 countries

Erasmus+ Study and Internship worldwide

Erasmus+ Multiple Degree Programs

- ENTER – M. Sc. in Engineering, Entrepreneurship and Resources
- EMerald – M. Sc. in Georesources Engineering
- SINReM – M. Sc. in Sustainable and Innovative Natural Resource Management

International Office

Service center for incoming and outgoing

Welcome Center for international students



SAXON LIAISON OFFICES WORLDWIDE

SAXON SCIENCE LIAISON

Attracting students to study
at a Saxon university

Offices of the Saxon universities:

TU Dresden: :
Taiwan, India, Chennai

TU Chemnitz:
Chile, Santiago

Universität Leipzig:
Vietnam, Hanoi

TUBAF:

Uzbekistan: Taschkent
Mongolia: Ulaanbaatar

TUBAF / Univ. Lpz. / HAW:

Africa, Egypt, ...

SCIENCE AND RESEARCH

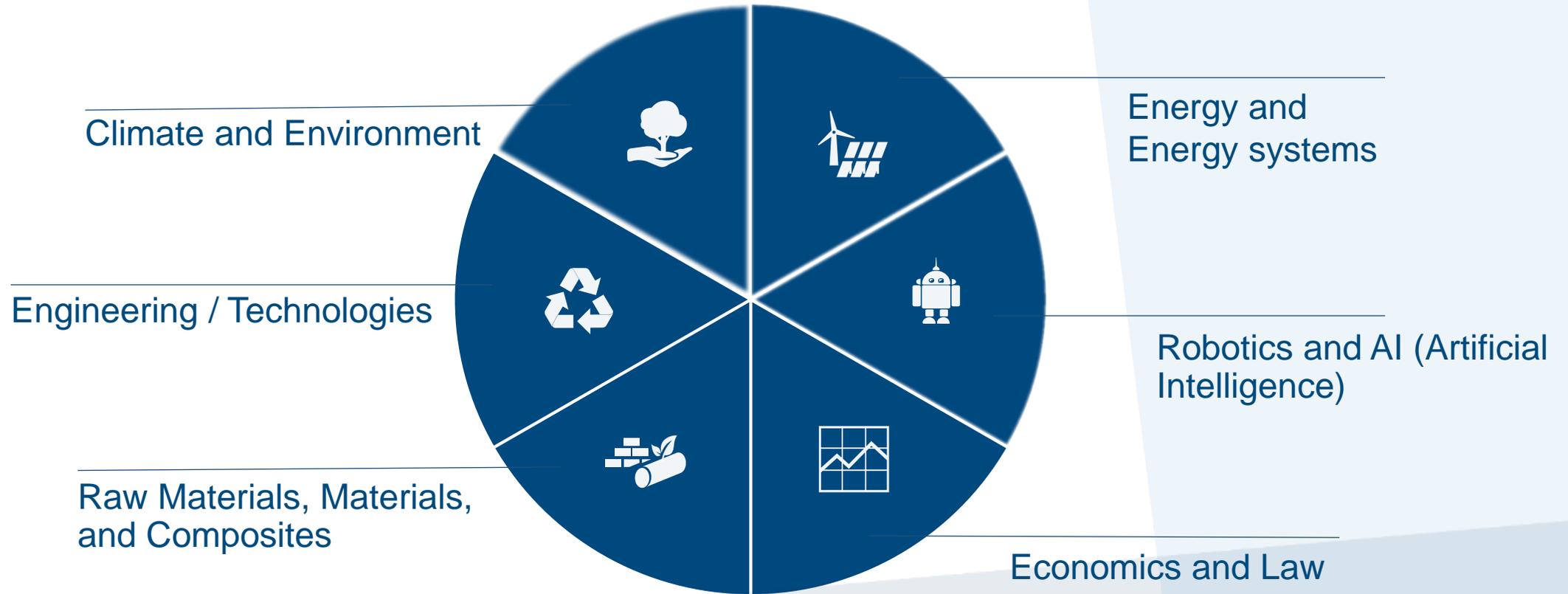
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AREAS OF EXPERTISE



RESEARCH AND SCIENCE CAMPUS

Profile

Geo - Materials / Composites - Energy - Environment

Research Strength

Top 10 in third-party funding per professor nationwide in Germany

Scientific Infrastructure

Behavioral Research Lab, HPC Cluster, Cleanroom Laboratory, Research and Teaching Mine

Interdisciplinary Centers

Center for Water Research Freiberg (ZeWaF), Center for Efficient High-Temperature Material Transformation (ZeHS), FCCE Freiberg Center for Circular Economy, High-Pressure Research Center, Scientific Diving Center, CircEcon – Research Center for Greenhouse Gas-Neutral Circular Economy



Innovative University



Cooperation network with BA Sachsen, University of Meißen, and the State Association of Cultural & Creative Industries

Freiberg.Science.City

Network with Freiberg companies, the city, research institutions: Helmholtz Institute Freiberg for Resource Technology (HIF), Fraunhofer THM, and the district

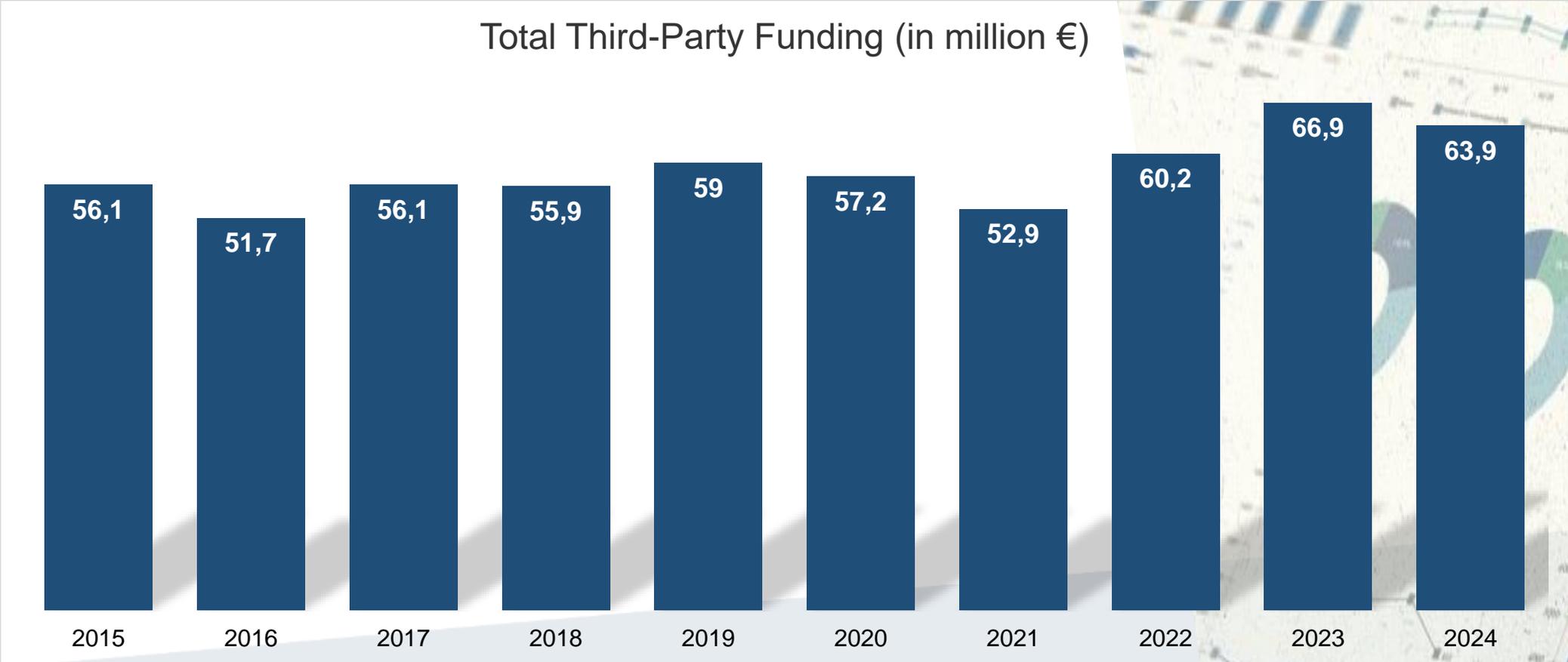


Unique Foundation Engagement

Dr. Erich Krüger Foundation, TUBAF Foundation, and others



DEVELOPMENT OF THIRD-PARTY FUNDING



TOP 10 THIRD-PARTY FUNDING

Drittmittel­einnahmen und Drittmittel je Professorin und Professor der Universitäten mit den höchsten Drittmittel­einnahmen je Professorin und Professor in 1 000 Euro

Hochschule	Drittmittel­einnahmen je Professorin und Professor ¹		Drittmittel­einnahmen insgesamt 2021
	2021	2020	
Technische Hochschule Aachen	932,1	935,7	330 907
Technische Universität München	799,8	752,8	347 031
Universität Stuttgart	763,6	661,2	210 379
Technische Universität Darmstadt	568,1	558,7	157 370
Karlsruher Institut für Technologie (KIT) - Bereich Hochschule	566,7	546,2	163 787
Technische Universität Dresden	563,7	604,0	235 049
Technische Universität Braunschweig	543,1	500,6	122 208
Universität Hannover	502,8	473,6	152 343
TU Bergakademie Freiberg	499,1	566,5	47 417
Technische Universität Berlin	486,7	425,7	167 917

SOCIAL RESPONSIBILITY AND TRANSFER



Responsibility for Solving Future Challenges

Active contributions to addressing current challenges:

- Shaping the energy transition
- Sustainable resource management
- Climate and environmental protection
- Materials and composites
- Recycling
- Digitalization and AI



Knowledge Transfer

Communication between Science and the Public



Technology Transfer and Commercialization Partnerships

Transfer of knowledge, inventions, and patents into industry

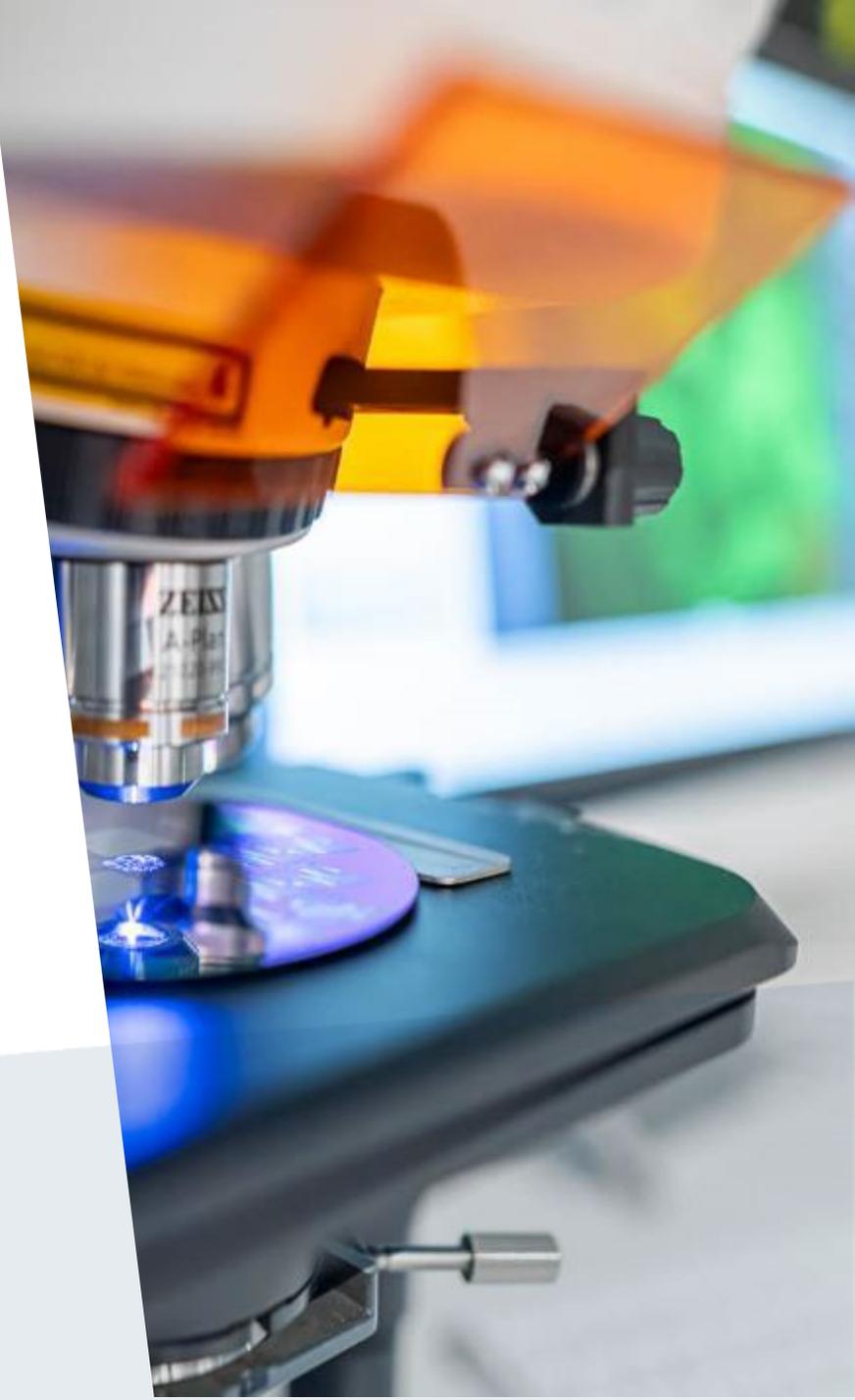


Entrepreneurship

Promotion of spin-offs from academia and support for innovative startups

INTERDISCIPLINARY CENTERS

- Center for Efficient High-Temperature Material Transformation (ZeHS)
- Cooperation Center for Smart Materials Design (together with DESY)
- Center for Water Research (ZeWaF)
- Freiberg Center for Circular Economy (FCCE)
- Freiberg High-Pressure Research Center (FHP)
- Center for Intelligent Subsurface Structures
- Research Center for Greenhouse Gas-Neutral Circular Economy (CircEcon)
- Interdisciplinary Ecological Center (IÖZ)
- Scientific Diving Center



DFG GRADUATE SCHOOL GRK 2802

Refractory Recycling – A Contribution to Resource, Energy, and Climate Efficiency in High-Temperature Processes

Objectives

- Interdisciplinary, structured training of doctoral candidates in the field of recycling and upcycling of refractory materials
- Researching a new generation of coarse-grained high-temperature materials based on refractory recyclates with special functional properties for high-temperature metallurgical processes

Core Ideas

Core Idea I: Recycling	Core Idea II: Upcycling
Refractory Recyclates for Novel Refractory Materials Using Environmentally Friendly Binders (Resin-Free, Tar-Free)	Refractory Recyclates for Novel Composite Materials
Application: Lining material for steel ladles	Application: Electrode material for aluminum melting flux electrolysis



PROMOTION OF SPIN-OFFS

SAXEED start-up network – supports students, graduates and university employees in turning their business idea or research project into their own start-up.



SAXEED 2024:

33

Start-up projects

150

Consultations

15

Workshops

8

Events

6

Spin-offs





EXCELLENT INFRASTRUCTURE



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TECHNISCHE UNIVERSITÄT BERGAKADEMIE FREIBERG

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360° University
TU Bergakademie Freiberg

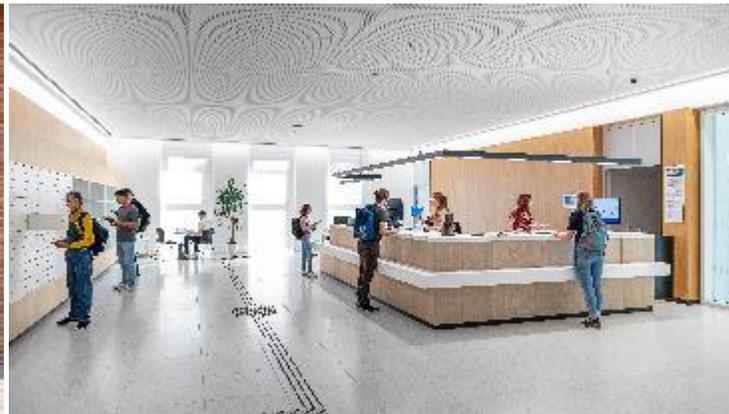
LARGE-SCALE RESEARCH, LABORATORIES, TECHNOLOGY

Research Facilities and Institutes on Campus



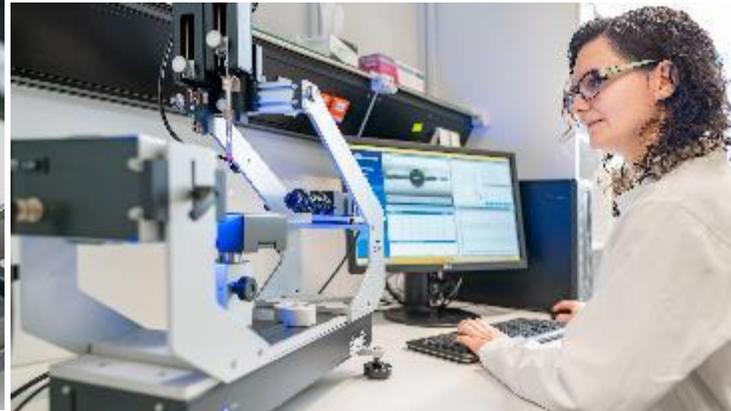
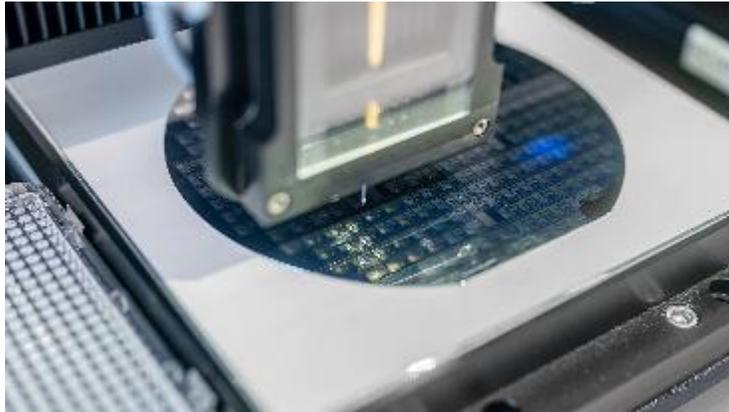
NEW UNIVERSITY LIBRARY AND LECTURE HALL CENTER

Modern Service Center for Studies and Research



MOST MODERN LABORATORY BUILDINGS

Clemens-Winkler laboratory
New Building with three laboratory wings



PILOT PLANT FOR MACHINE AND PROCESS DEVELOPMENT

Expansion with two experimental halls and three pilot plant sections



THANK YOU FOR YOUR ATTENTION

#tubaf

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