Research in Bavaria

Bavarian State Ministry of Science and the Arts

Natural Sciences - Research Consortia and Clusters of Excellence (Selection)

This selection of research consortia and clusters provides a first insight into research in the natural sciences at universities in Bavaria. They are of special interest to early-career researchers as they often create excellent training and career opportunities and provide access to specialized resources and networks. The funding schemes of the German Research Foundation (DFG) listed here focus on strengthening the specific research profiles of the universities or on supporting pioneering research in emerging fields.

Clusters of Excellence (EXC) are large, cutting-edge research projects funded by the German "Excellence Strategy." They aim to strengthen university research profiles in internationally competitive fields and are funded for a period of seven years which can be extended.

Collaborative Research Centers (CRC) are long-term university-based research consortia established for up to 12 years in which researchers work together within a multidisciplinary research program. CRCs consist of a large number of projects, allowing researchers to tackle complex and long-term research topics. They also enable universities to strengthen their research profile and promote structural development.

Transregios (TRR) are Collaborative Research Centers in which up to three universities collaborate with each other.

Research Units (FOR) promote close collaboration between outstanding scientists working on a specific question. Funding aims to provide the required personnel and material resources for a medium-term cooperation, usually designed to last eight years. Research units often contribute to establishing new directions in research and can serve as a springboard for larger projects such as collaborative research centers.

Priority Programs (SPP) receive funding for a period of six years. They have a programmatic focus and the purpose of advancing knowledge in an emerging field of research through collaborative networked support. They are thus characterized by the use of new methods and forms of collaboration. One program can consist of up to 30 individual subprojects located at several institutions across Germany.

Graduate Training Groups and other PhD Opportunities
For information on PhD programs in Bavaria and ways to finance your doctorate visit https://www.research-in-bavaria.de/apply-for-a-phd and https://www.research-in-bavaria.de/phd-programs

You may also find useful information on living and working in Bavaria at www.research-in-bavaria.de.

Natural Sciences

Type	Project	Speaker	Start	Link
EXC 2089	e-conversion	Thomas Bein, Ulrich Heiz, Karsten Reuter	2019	https://www.e-conversion.de/
EXC 2094	ORIGINS: From the Origin of the Universe to the First Building Blocks of Life	Andreas Burkert, Stephan Paul	2019	https://www.origins-cluster.de/
EXC 2111	Munich Center for Quantum Science and Technology (MCQST)	Immanuel Bloch, Juan Ignacio Cirac, Rudolf Gross	2019	https://www.mcqst.de/
EXC 2147	Complexity, Topology and Dynamics in Quantum Matter (CT.QMAT)	Ralph Claessen, Matthias Vojta	2019	https://www.ctqmat.de/
EXC 3092	Biosystems Design Munich (BioSysteM)	Ralf Jungmann, Friedrich Simmel	2026	https://www.tum.de/en/news-and-events/all-news/press-releases/details/thinking-of-biology-as-technology
EXC 3112	Center for Chiral Electronics (CEE)	Katharina Franke, Christoph Strunk, Georg Woltersdorf	2026	https://www.chiralelectronics.de/
EXC 3113	Cluster for Nucleic Acid Sciences & Technologies (NUCLEATE)	Stefan Engelhardt, Veit Hornung, Cynthia Sharma	2026	https://www.lmu.de/en/newsroom/news-overview/news/nucleate-cluster-of-excellence-beacon-of-nucleic-acid-research.html
FOR 2332	Temperature-related stresses as a unifying principle in ancient extinctions (TERSANE)	Wolfgang Kießling	2016	https://cnidaria.nat.uni-erlangen.de/wp/
FOR 2634	Planet Formation Witnesses and Probes: Transition Discs	Barbara Ercolano	2017	https://www.transitiondiscs.com/
FOR 2793	Sensitivity of High Alpine Geosystems to Climate Change Since 1850 (SEHAG)	Michael Becht	2018	https://sehag.ku.de/en/welcome/
FOR 2926	Next Generation Perturbative QCD for Hadron Structure: Preparing for the Electron-Ion Collider	Vladimir Braun	2019	https://for2926.app.uni-regensburg.de/
FOR 2990	The eROSITA View of Stellar Endpoints (eRO-STEP)	Manami Sasaki	2021	https://www.ero-step.de/
FOR 5195	Relativistic Jets in Active Galaxies	Matthias Kadler	2021	https://www.for5195.uni-wuerzburg.de/
FOR 5456	Clock Metrology: A Novel Approach to TIME in Geodesy	Ulrich Schreiber	2023	https://clockmetrology.de/

Natural Sciences

Type	Project	Speaker	Start	Link
CRC / SFB 1032	Nanoagents for spatio-temporal control of molecular and cellular reactions	Joachim Rädler	2023	https://www.sfb1032.physik.uni-muenchen.de/
CRC / SFB 1085	Higher Invariants – Interactions between Arithmetic Geometry and Global Analysis	Guido Kings	2014	https://sfb-higher-invariants.app.uni-regensburg.de/
CRC / SFB 1170	Topological and Correlated Electronics at Surfaces and Interfaces ("ToCoTronics")	Björn Trauzettel	2015	https://www.physik.uni-wuerzburg.de/sfb1170/
CRC / SFB 1258	Neutrinos and Dark Matter in Astro- and Particle Physics (NDM)	Elisa Resconi	2017	https://www.sfb1258.de/
CRC / SFB 1277	Emergent Relativistic Effects in Condensed Matter: From Fundamental Aspects to Electronic Functionality	Jaroslav Fabian	2017	https://www.sfb1277-regensburg.de/
CRC / SFB 1357	MICROPLASTICS - Understanding the mechanisms and processes of biological effects, transport and formation: From model to complex systems as a basis for new solutions	Christian Laforsch	2019	https://www.sfb-mikroplastik.uni-bayreuth.de/en/
CRC / SFB 1585	Structured functional materials for multiple transport in nanoscale confinements	Jürgen Senker	2023	https://www.sfb-multitrans.uni-bayreuth.de/en/
CRC / TRR 1719	ChemPrint – the next generation of printed semiconductors: Engineering on the atomic level using molecular surface chemistry	Julien Bachmann	2026	https://www.fau.eu/2025/06/news/fau-achieves-success-with-two-collaborative-research-centers/
TRR 154	Mathematical modelling, simulation and optimization using the example of gas networks	Frauke Liers	2014	https://www.trr154.fau.de/trr-154-en/
TRR 306	Quantum Cooperativity of Light and Matter – QuCoLiMa	Joachim von Zanthier	2021	https://www.qucolima.de/
TRR 325	Assembly Controlled Chemical Photocatalysis	Thorsten Bach	2021	https://crc325.de/
TRR 352	Mathematics of Many-Body Quantum Systems and Their Collective Phenomena	Christian Hainzl	2023	https://www.trr352.de/
TRR 360	Constrained Quantum Matter	István Kézsmárki	2023	https://gepris.dfg.de/gepris/projekt/470903074
TRR 392	Molecular Evolution in Prebiotic Environments	Dieter Braun	2024	https://www.molecular-evolution.de/index.html
SPP 2026	Geometry at Infinity	Berhard Hanke	2017	https://www.spp2026.de/
SPP 2137	Skyrmionics: Topological Spin Phenomena in Real-Space for Applications	Christian Pfleiderer	2018	https://www.skyrmionics.ph.tum.de/

Natural Sciences

Type	Project	Speaker	Start	Link
SPP 2256	Variational Methods for Predicting Complex Phenomena in Engineering Structures and Materials	Georg Dolzmann	2020	https://spp2256.ur.de/
SPP 2298	Theoretical Foundations of Deep Learning	Gitta Kutyniok	2021	https://www.foundationsofdl.de/
SPP 2332	Physics of Parasitism	Markus Engstler	2021	https://www.uni-wuerzburg.de/forschung/physics-of-parasitism/
SPP 2370	Interlinking catalysts, mechanisms and reactor concepts for the conversion of dinitrogen by electrocatalytic, photocatalytic and photoelectrocatalytic methods	Roland Marschall	2022	https://www.spp2370.uni-bayreuth.de/en/
SPP 2404	Reconstructing the deep dynamics of planet Earth over geologic time (DeepDyn)	Stuart Alan Gilder	2023	https://www.geo.lmu.de/deepdyn/en/

Footnotes

Programs funded by DFG (Deutsche Forschungsgemeinschaft / German Research Foundation).
Research activities are integrated into a larger research network and may involve researchers from different chairs, departments or universities.
FOR - Forschergruppe / Research Unit
KFO - Klinische Forschergruppe / Clinical Research Unit
SFB - Sonderforschungsbereich / Collaborative Research Centre, CRC
SPP - Schwerpunktprogramme / Priority Programme
TRR - Sonderforschungsbereich/Transregio / Collaborative Research Centre/Transregio, TRR