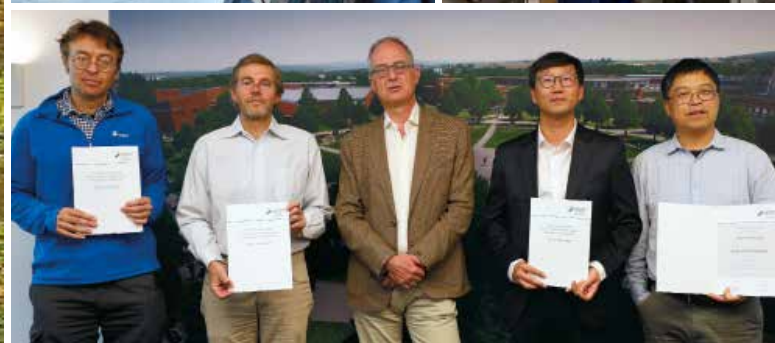


University of Bayreuth Centre of International Excellence “Alexander von Humboldt”

Sponsorship Programmes for Excellent International Researchers: Prospectus 2024





Preface by the President

The University of Bayreuth Centre of International Excellence “Alexander von Humboldt” – Excelling at Internationalization

Cosmopolitan campus, global networks, lived diversity – this is what the University of Bayreuth stands for, and what inspired the establishment of the Bayreuth Humboldt Centre in 2019.

The university pursues internationalization as a strategic goal of future-oriented research and higher education as well as global cooperation in all areas of university life. Being locally and regionally anchored, the University of Bayreuth sharpens its global profile by operating worldwide in both research and teaching. The strong connections we have built serve as a powerful catalyst for sustainable internationalization and scientific creativity. International exchange broadens our perspective and personally enriches us.

The Bayreuth Humboldt Centre was founded to establish and further strengthen our international connections by inviting outstanding scientists to the university for research visits with a Bayreuth-based host. Here, they have the opportunity to concentrate exclusively on their research projects for a certain period of time and to benefit from a stimulating working environment. The success of the Bayreuth Humboldt Centre relies on the unique space and atmosphere for research it offers to international scientists. On the other hand, it enables high-level international cooperation projects, thus permitting Bayreuth-based researchers to extend their global network. Through its sponsorship programmes designed for top researchers from all over the

world, the Bayreuth Humboldt Centre significantly enhances the international visibility of the research conducted at the University of Bayreuth.

Our Fellows and Grantees with their Bayreuth hosts as well as our Strategic Scientific Workshop consortia are prime examples of international research collaboration and networking across borders. Since the foundation of the Humboldt Centre, we have welcomed guest researchers from 30 countries around the world and from a broad spectrum of topical research areas.

This prospectus portrays researchers and collaborative efforts we have granted during 2023 and 2024 as well as some insights into collaborations that took place on our campus. It invites you to take part in this endeavour to internationalize research at the University of Bayreuth.

The fruitful collaborations our sponsorship programmes have made possible will not end after the research stay or the publishing of joint papers. They are designed to keep the promise of ongoing output and sustainable synergies to further promote creative, courageous and innovative solutions. As Alexander von Humboldt put it in a letter from Venezuela in 1799: “Ideas can only be of use if they start living in many minds” – and in many generations to come.



Prof. Dr. Stefan Leible
President of the University of Bayreuth

The heart of our university. From here, all paths radiate to the faculties on campus thus connecting quite literally research areas, administration and, of course, people.



Portrait of the University of Bayreuth

Creative, courageous, innovative, and liveable

The green campus of the University of Bayreuth is a meeting place for people and ideas where academic life is more diverse and personal than at Germany's large universities. Top-notch research, state-of-the-art teaching methods and technologies, international influences, diversity, and a springboard for a successful career – these are all things the University of Bayreuth stands for.

The University of Bayreuth in numbers

Starting out relatively small in 1975 with 632 students, 22 endowed chairs, and three departments, the University of Bayreuth is now firmly anchored in the national and international university landscape. Today, we are one of the most successful young universities in Germany. The University of Bayreuth is ranked 38th out of the world's top 673 universities younger than 50 in the 'Times Higher Education (THE) Young University Ranking'.

Interdisciplinary research and teaching are the main feature of the 185 degree programmes offered at our seven faculties covering natural and food sciences, engineering, law and economics, as well as language, literature and cultural studies. The University of Bayreuth has about 12,100 students, 1,639 academic staff (281 of them professors) and roughly 1,013 non-academic employees on the campus in Bayreuth and the satellite campus in Kulmbach. This makes it one of the largest employers in the region.

Engaging in cutting-edge research

The University of Bayreuth stands out through its research: the Africa Multiple Cluster of Excellence conducts cutting-edge research on an international level, the excellence of the Bavarian Research Institute of Experimental Geochemistry & Geophysics (BGI) is recognised worldwide, and our polymer and colloid research is an innovation driver of future-oriented materials. Thus, it is not surprising that the university has raised more than a quarter of its annual budget in third-party funding in 2023.

More than just a university

The University of Bayreuth aspires to be more than just a university. Therefore, we consider it vital to constantly improve and examine each classic field of action, to see if and how it is able to adequately address the four key areas of modern higher education: internationalization, digitalization, equal opportunities & diversity, and sustainability. We recognize these areas as cross-sectional topics with the potential to advance the profile of our university in a new dimension.

Executive Board for the Selection of Short-Term Grants and Strategic Scientific Workshops

The Executive Board of the Bayreuth Humboldt Centre consists of the two-member Board of Directors together with the acting Vice President for Research and Junior Scholars and the Vice President for Internationalization, Gender Equality and Diversity.



Stephan Kümmel is Professor of Theoretical Physics at the University of Bayreuth and the Executive Director of the Bayreuth Humboldt Centre.



Reinhard Meckl is Professor of International Management at the University of Bayreuth and the Deputy Director of the Bayreuth Humboldt Centre.

The Executive Board selects the guest researchers applying for Short Term Grants and Strategic Scientific Workshops at the Humboldt Centre. They also advise and report to the University Governing Board.



Nina Nestler is Professor of Law (Criminal Law III) as well as the acting Vice President for Internationalization, Gender Equality and Diversity of the University of Bayreuth.



Thomas Scheibel is Professor of Biomaterials as well as the acting Vice President for Research and Junior Scholars of the University of Bayreuth.

External Advisory Board for the Selection of Senior and Junior Fellows

The Bayreuth Humboldt Centre has established a rigorous evaluation process to ensure a competitive selection of excellent international researchers and collaborative projects. Within the sponsorship programme “Senior and Junior Fellowships”, the Centre seeks expert reviews from qualified international peers who attest to the scientific achievements and broad recognition of each applicant within the research community. The final selection lies with an External Advisory Board of seven internationally distinguished external researchers and science managers, all highly renowned in their respective fields.



Arndt Bode is Professor Emeritus of informatics, former CIO at the Technical University of Munich and one of the leading researchers of computer architecture and computer engineering. He is the acting President of the Bavarian Research Foundation as well as the Vice President of the Bavarian Academy of Sciences and Humanities and member of the Advisory Board at the Leibniz Supercomputing Centre (LRZ) of the Bavarian Academy.



Christian Bode is the former Secretary General of the German Academic Exchange Service (DAAD). He currently serves as the chairman of the DAAD Alumni & Friends. For his long-standing commitment to internationalization he has received several honorary doctorates, awards and medals, including the Order of Merit of the Federal Republic of Germany.



Richard Cogdell FRS holds the Hooker Chair of Botany at the University of Glasgow and was the Deputy Head of College of Medical Veterinary and Life Sciences at the University of Glasgow for nearly a decade. He is a Fellow of the Royal Society, has received the prestigious Alexander von Humboldt Research Award and is a frequent internationally sought-after advisory board member and reviewer, e.g. for the German Excellence Strategy.



Julika Griem is the Director of the Kulturwissenschaftliches Institut Essen (KWI) and, since 2016, Vice President of the German Research Foundation. Her previous positions include professorships for English Literature at Goethe University Frankfurt and Darmstadt University of Technology. She is a member of the steering committee of the Freiburg Institute for Advanced Studies.



Laura Rischbieter is Professor of the History of Capitalism at the University of Basel. She teaches and writes about modern economic history in a global context, and won several awards for her work on the history of financial crisis after 1945. Laura Rischbieter held fellowships at Birkbeck College London, University of California (Berkeley and Irvine), the GHI Washington DC, and at the Boston University. Among other positions she is a member of the Historical Commission of the Federal Ministry of Finance.



Michael Sander is Professor of Environmental Chemistry at the Swiss Federal Institute of Technology (ETH) in Zurich. With comprehensive bachelor and master-level training in Environmental Sciences from the University of Bayreuth, he received a PhD in Chemical Engineering from Yale University in 2005. Michael Sander's research group has expertise in three major areas: redox biogeochemistry, environmental macromolecular chemistry and environmental chemistry of micropollutants.



Natalie Stingelin FRSC is a full Professor of Materials Science at the Georgia Institute of Technology, Atlanta. She held prior positions at Imperial College London, the University of Cambridge, Queen Mary University of London, the Philips Research Laboratories in Eindhoven, and ETH Zurich. She holds a Chaire Internationale Associée by the Excellence Initiative of the Université de Bordeaux since 2016 and is a former Senior FRIAS Fellow at the Freiburg Institute for Advanced Studies.

Sponsorship Programmes for Excellent Research Across Borders

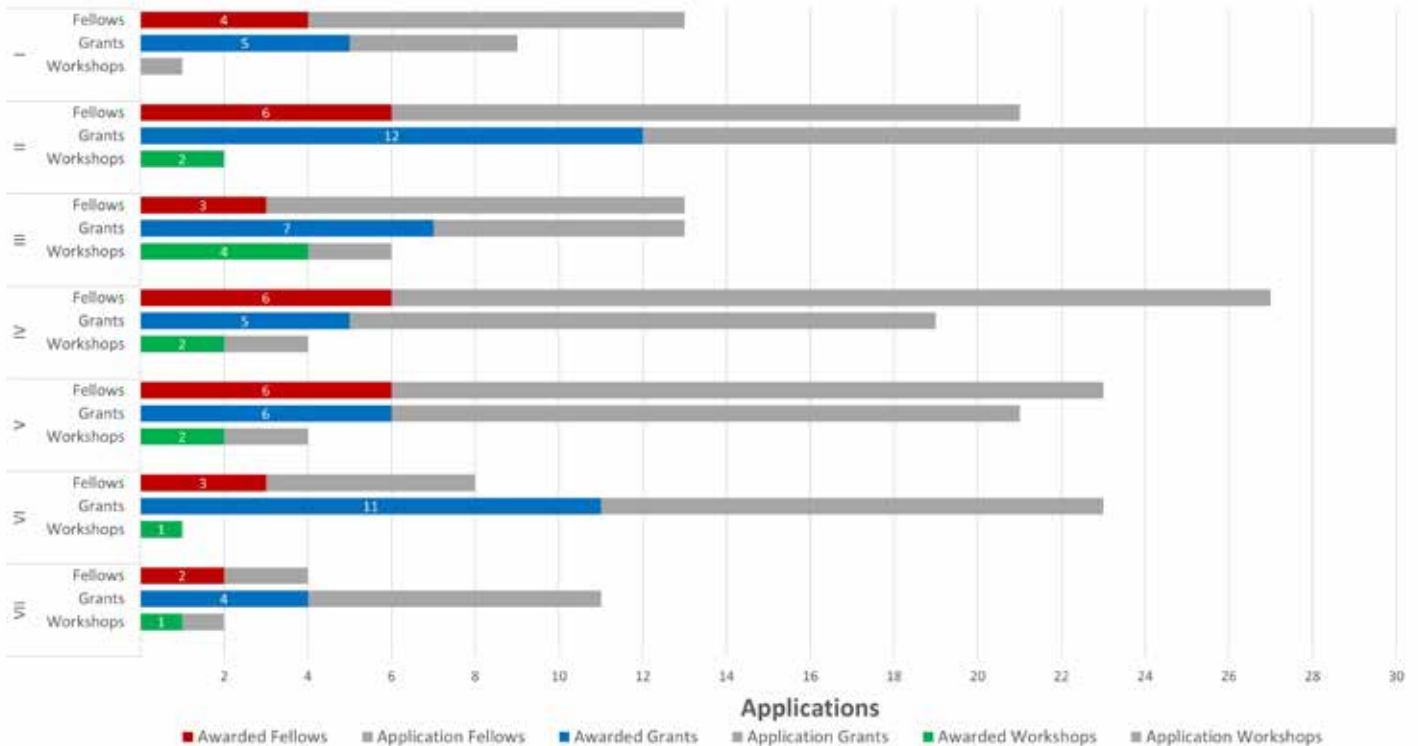
The University of Bayreuth Centre of International Excellence “Alexander von Humboldt” supports academic exchange across existing boundaries: across disciplines, different (research) cultures and countries, and between established and younger colleagues. To this end, the Centre invites outstanding international researchers for short and longer visits to the university, and it sponsors Strategic Scientific Workshops that are conducted by Bayreuth researchers in cooperation with international partners at UBT. Our funding formats at a glance:

Senior and Junior Fellowships	Short Term Grants	Strategic Scientific Workshops
<p>Duration:</p> <ul style="list-style-type: none"> Case-by-case (typically 3-6 months) <p>Financial support:</p> <ul style="list-style-type: none"> 40,000 € (Seniors) 20,000 € (Juniors) <p>Host:</p> <ul style="list-style-type: none"> 1-2 Hosts <p>Host subsidy for main host:</p> <ul style="list-style-type: none"> 500 € Humanities / Social Sciences 800 € Natural Sciences / Engineering Sciences <p>Call for applications and selection:</p> <ul style="list-style-type: none"> Call for proposals once a year Selection by External Advisory Board 	<p>Duration:</p> <ul style="list-style-type: none"> 1-3 weeks <p>Financial support:</p> <ul style="list-style-type: none"> Reimbursement of travel expenses to Bayreuth and back Accommodation costs in Bayreuth Visa fees (if applicable) Daily allowance Max. 3,500 € <p>Host:</p> <ul style="list-style-type: none"> 1-2 Hosts (without host subsidy) <p>Call for applications and selection:</p> <ul style="list-style-type: none"> Call for proposals twice a year Selection by Executive Board 	<p>Purpose:</p> <ul style="list-style-type: none"> Workshops of UBT researchers in cooperation with international colleagues Preferably with partner institutions from UBT focus regions <p>Financial support:</p> <ul style="list-style-type: none"> Max. 20,000 € per event <p>Call for applications and selection:</p> <ul style="list-style-type: none"> Call for proposals once a year Selection by Executive Board

Statistics

Since the foundation of the Bayreuth Humboldt Centre in 2019, all of the seven high-achieving faculties of the University of Bayreuth have welcomed our Fellows, Grantees and the participants of Scientific Strategic Workshops: the Faculty of Mathematics, Physics & Computer Science (I), the Faculty of Biology, Chemistry & Earth Sciences (II), the Faculty of Law, Business & Economics (III), the Faculty of Languages & Literature (IV), the Faculty of Humanities & Social Sciences (V), the Faculty of Engineering Science (VI) and the Faculty of Life Sciences: Food, Nutrition & Health in Kulmbach (VII).

Distribution by Faculties 2019-2024



Map

A total of 255 applicants from all over the world aspired to come to the University of Bayreuth in the framework of one of our sponsorship programmes: the Fellowships (red), the Short Term Grants (blue) and the Strategic Scientific Workshops (green).



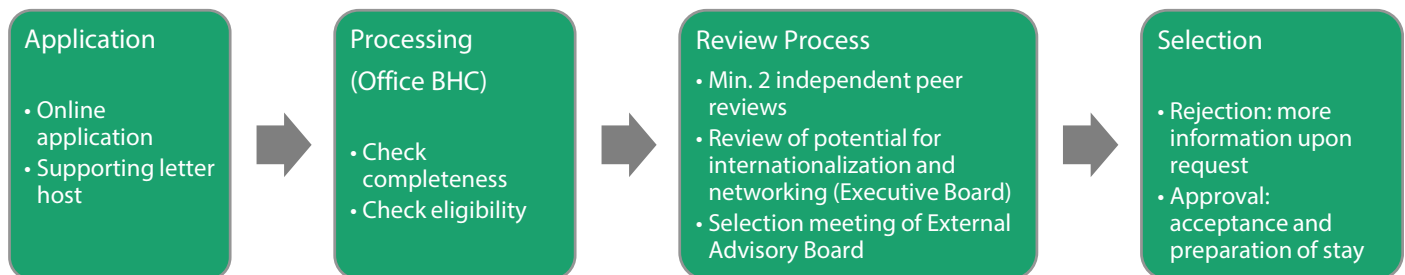
Image: Google Maps

Senior and Junior Fellowships 2024

Senior and Junior Fellowships are awards to renowned scientists who work at research institutions abroad. They will carry out a research project in close cooperation with researchers in Bayreuth. The Fellowships are meant to establish and strengthen structural and individual ties to researchers at the University of Bayreuth.

The awards are presented once a year as the result of a competitive selection process. The selection is strictly merit-based and the selection criteria are the academic excellence of both the applicant and the cooperative project.

- All Fellows spend typically **three to six months of cooperative research** at the University of Bayreuth together with their host(s). The research stay can be divided into several stages.
- We advise researchers who have completed their PhD and have up to **four years** of post-doctoral experience to apply for Junior Fellowships. We expect applicants with a minimum of **eight years** of post-doctoral experience or a tenured professorship or an equivalent permanent position to apply for Senior Fellowships. Researchers between four and eight years of post-doctoral experience can apply for a Junior or a Senior Fellowship.
- The **Senior Fellowship** value totals €40,000. Fellows may use the awarded amount to cover costs in the context of the collaborative research project. Candidates need to submit a budget plan with their application.
- Senior Fellows may use part of the award to include junior researchers from their research group in the cooperative research project.
- The **Junior Fellowship** totals €20,000. Fellows may use the awarded amount to cover costs in the context of the collaborative research project. Candidates need to submit a budget plan with their application.
- For the duration of their stay, the host of a Fellow receives a monthly subsidy of €500 in the humanities and social sciences, and €800 in the natural sciences and engineering to compensate local costs.



Testimonials

"I felt immediately at home at the University of Bayreuth since everyone there gave me such a warm welcome. I had an amazing experience with lots of freedom of speech and thought-provoking conversations with Professor Steven Higgins and department colleagues. As a young researcher from a modest background in the Brazilian semiarid region, I am incredibly grateful for this opportunity."

Junior Fellow Dr Everton Maciel

"It was a delight to collaborate with Professor Kordula Knaus, the musicology staff and students at the University of Bayreuth and explore new methods to study the impact of nineteenth-century opera translation on practices of performance and cultural transfer. The historical performance workshop provided fresh insights into the role of embodiment in such practices. It also highlighted the benefits of actively involving students and using performance as part of the educational and research method. It offered a broad range of perspectives and research data for new opera and music research projects. And what better place than Bayreuth, such a historically significant place for opera, to experiment with this."

Junior Fellow Dr Annelies Andries

"It was a great honour for me to receive the Fellowship. Several times, I've visited the University of Bayreuth before, and I liked its campus very much. I was so excited about the opportunity to conduct the challenging research project in collaboration with Professor Christian Knauer and his colleagues in Bayreuth."

Senior Fellow Professor Sang Won Bae

"I enjoyed my time at Bayreuth immensely. I had the opportunity to engage with several research groups with complementary expertise and found the way of working at Bayreuth to be very collegial. I leave with many new research ideas and new collaborations. Bayreuth is also a lovely town to visit and I certainly enjoyed the beautiful surrounding countryside and the German culture."

Senior Fellow Professor Christopher McNeill

"I am honoured and delighted to collaborate with Junior Professor Anke Silvia Ulrich and Professor Stefan Schafföner at the University of Bayreuth through this Junior Fellowship. Working with experts from diverse fields has greatly enriched my research on developing novel metallic materials and advanced coating for next-generation energy systems. The complementary expertise, international perspective and cross-disciplinary insights gained here are invaluable, providing me with unique skills and knowledge that will significantly advance my work and contribute to the international scientific community."

Junior Fellow Dr Kan Ma

Senior Fellow

Professor Sang Won Bae
Kyonggi University, South Korea

Discipline:
Computer Science

Project:
Higher-Order Colour Voronoi Diagrams: Structures and Algorithms

Host:
Professor Christian Knauer
Institute of Applied Computer Science



In this research project, we study higher-order colour Voronoi diagrams. Voronoi diagrams are one of the central topics in discrete and computational geometry. They have been extensively studied since the 1980s along with numerous applications in diverse disciplines of science and engineering. The colour Voronoi diagram and its higher-order variant are relatively new concepts generalizing the ordinary Voronoi diagrams. Despite its natural generality and importance, however, neither structural complexity bounds nor algorithms are yet known in the

literature. The purpose of this research project is thus to discover unrevealed structural and algorithmic properties of the higher-order colour Voronoi diagram, aiming to establish tight bounds on its structural complexity and to present first efficient algorithms. By its own interest in theory and application prospect in practice, this research project is expected to lead various follow-up researches, finding new applications in different fields.

Sang Won Bae is a Professor of Kyonggi University in Suwon, South Korea. He received his PhD in computer science from Korea Advanced Institute of Science and Technology (KAIST). His research interests include algorithms design, analysis of geometric computational problems and structural studies of geometric discrete structures. In particular, he has endeavoured to discover new structural properties of generalized Voronoi diagrams and to devise efficient algorithms and data structures. For this effort, he has received several awards, including the “CGTA Young Researcher Award” by Elsevier.

Senior Fellow

Professor Christopher McNeill
Monash University, Australia

Discipline:
Materials Science

Project:
Control of heterojunction alignment and orientation in organic solar cells

Host:
Professor Anna Köhler
Chair of Experimental Physics II



Organic semiconductors are of interest for a range of applications including low cost solar cells, but their complexity of microstructure hampers fundamental understanding. This Fellowship combines complementary expertise in materials science, materials processing, spectroscopy and theory to unravel the complex relationships between molecular packing, semiconductor properties and device performance.

Chris McNeill is a Professor of Materials Science and Engineering at Monash University, Australia. He obtained a PhD in experimental physics in 2005 from the University of Newcastle (Australia) and then spent nearly six years at the University of Cambridge where he was an EPSRC Advanced Research Fellow. He returned to Australia to Monash in 2011 supported by an ARC Future Fellowship and veski innovation fellowship, and has since been promoted to full professor. His research interests include organic semiconductors, perovskite solar cells and synchrotron science. He is particularly interested in the intersection between the device physics and microstructure of solution-processed semiconductor devices.

Senior Fellow

Professor Diego Bustos
CONICET, Argentina

Discipline:
Biochemistry

Project:
Optogenetic Modulation of the cAMP/PKA/14-3-3 Trinity

Host:
Professor Andreas Möglich
Chair of Photobiochemistry



In optogenetics, photoreceptors enable spatiotemporally precise, reversible, and noninvasive control of cellular processes by light. Recent optogenetic approaches to regulate cell signaling, including recombination of bacteriophytochrome photosensor modules with cyclase effectors, are leading to the development of photoactivated adenylyl cyclases (PACs) that catalyze the synthesis of the second messenger 3,5-cyclic adenosine monophosphate (cAMP). This second messenger, together with protein kinase A (PKA) and phospho-motif binding protein 14-3-3, form a common triad found in many

cellular signaling pathways. We use a PAC developed by the Moeglich lab to specifically modulate cAMP levels in two well-characterized PKA/14-3-3 regulatory systems: stabilization of the aryl acyl amine N-acetyltransferase protein, the key enzyme in melatonin production, and nucleus/cytoplasmic shuttling of the cAMP-responsive element-binding protein during adipogenesis of 3T3-L1 preadipocyte cells.

Diego Bustos is a biological informatic working at the interface between biochemistry and structural biology. He received his Ph.D. in Biochemistry from the University of Buenos Aires (Argentina). He was a postdoctoral scholar at the University of Bordeaux II (France) and a postdoctoral fellow at the National Institute of Health in Bethesda, USA. Diego Bustos is interested in understanding the complex phenomena of cell signaling from individual molecules. Most of his current research focuses on the dynamics of proteins, with a particular focus on phosphorylation reader, the 14-3-3 protein family. He combines tools from biochemistry and theoretical physics with ideas from quantitative biology and protein dynamics to address fundamental questions in cell signaling.

Senior Fellow

Dr Cassandra Gorman

Anglia Ruskin University, United Kingdom

Discipline:

English Literature

Project:

Cosmological poetics and early modern English women writers, 1550 – 1700

Host:

Professor Florian Klaeger

Department of English Literature



This project focuses on lesser-known natural philosophical and poetic writings by early modern English women (1550-1700), primarily in manuscript or in under-explored printed works. Notably, and in sympathy with Professor Florian Klaeger's research interests, it identifies and aims to trace a remarkable cosmopoetics – a poetics associated with cosmological theories and tropes – across different forms of poetry by female writers. By exploring natural philosophical content in texts not primarily 'scientific' in purpose, the project rethinks the knowledge base of early modern women's writing, as

well as the history of the relations between natural philosophy – and indeed more recent scientific practice – and poetics more broadly. The intended outputs include open-access, digital editions of little-known poetic texts; an international conference at the University of Bayreuth; a critical article; and a monograph, *Chemical and Astronomical Forms in Early Modern Women's Manuscript Writings*.

Cassandra Gorman is Associate Professor of Early Modern Literature and Philosophy at Anglia Ruskin University. Her monograph *The Atom in Seventeenth-Century Poetry* (D.S. Brewer, 2021) investigates a remarkable 'poetics of the atom' in the early modern period. She has also published on Cupids in sixteenth-century love lyric, the Cambridge Platonist Henry More, Anne Southwell, Lucy Hutchinson's interpretation of matter and spirit and Thomas Traherne's physics and metaphysics. Her current project, 'Cosmological poetics and early modern English women writers, 1550–1700', seeks to uncover, analyze and publicize lesser-known scientific and poetic writings by women from the period, primarily in manuscript.

Senior Fellow

Professor Christopher Meissner
University of California, USA

Discipline:
Economics

Project:
Strategic Global Trade in the long-run. Empirical research using historical trade data

Host:
Professor Jan-Otmar Hesse
Chair of Economic and Social History



Political conflicts have a long history of threatening global trade. Especially countries that are highly integrated in an international division of labor and global production networks are highly exposed to the risk of interrupted or affected trade relations. The collaboration will put the question into a historical setting and explore how historical conflicts have shaped the international economy, in particular global value chains. On the base of newly gathered fine granular trade data, we study the effects of

World War I on Germany's global economic exposure and compare it with other countries like the USA. The collaboration will bring historical knowledge and research experiences with great data packages together and promote international connections for the Bayreuth History&Economics programme as well as the International Economics group (TRISTAN).

Christopher M. Meissner is Professor of Economics at the University of California, Davis. His research focuses on the economic history of the international economy particularly between 1870 and 1913. He is also a Research Associate at the National Bureau of Economic Research (NBER). He has held visiting scholar positions at the International Monetary Fund, Harvard, INSEAD, the Paris School of Economics, University of Southern Denmark, Odense, and New York University, Shanghai. Meissner holds a PhD in Economics from UC Berkeley and an AB in Economics from Washington University in St. Louis.

Senior Fellow

Professor Markus Stock
University of Toronto, Canada

Discipline:
Medieval German Literature

Project:
Medieval Undergrounds: Subterranean Entanglements in Medieval and Early Modern German Literature

Host:
Professor Cordula Kropik
Chair of German Medieval Studies



Utilizing ecocritical and narratological methodologies, the project explores the ways in which literary and other texts shape and are shaped by the engagement with the underground in medieval and early modern Germany. The project reconceptualizes pre-industrial extractive and other vertical entanglements between humans and

the planet's subsoil spheres, touching on creative, mythological, religious, technological, and behavioral aspects of human communities.

Markus Stock's research area is medieval German literature, with a focus on German medieval lyric and narrative, historical narratology, and digital philology. He has authored, edited, or co-edited over a dozen books and special journal issues, including, most recently, as editor of *Konrad von Würzburg: Ein Handbuch* (2023) and of a digital edition of the poetry of Burkhard von Hohenfels (2020). He held visiting professorships at the University of Freiburg and Harvard University, was co-editor of *Seminar: A Journal of Germanic Studies*, and served as President of German Studies Canada.

Senior Fellow

Professor Eyal Winter

Hebrew University of Jerusalem, Israel

Discipline:

Economics

Project:

Game Theoretic and Behavioral Study of Social Media

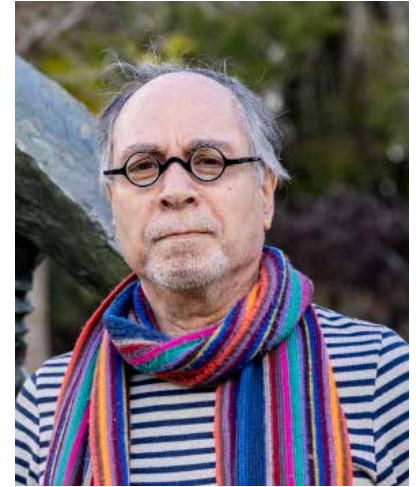
Hosts:

Professor Fabian Herweg

Chair of International Competition Policy

Professor Stefan Napel

Chair of Microeconomics



With Professor Fabian Herweg and Professor Stefan Napel at the University of Bayreuth I intend to study incentive mechanisms for online social networks. In addition to the standard game theoretic analysis, we will address relevant behavioral biases (such as conformation bias or salience bias) to reflect on some of the anomalies that take place in social media and suggest remedies. We hope that the by-products of our studies will help to improve the quality of content that appears on social media, increase efficien-

cy and fairness of social media practices, and eventually improve users' benefits and experience from their interactions on social media. We plan to engage junior researchers in the project and build the infrastructure for a long-term collaboration between the Center for the Study of Rationality at the Hebrew University, and academic staff members at the University of Bayreuth who work in similar topics.

Eyal Winter is the Silverzweig Professor of Economics at the Hebrew University and the Andrews and Elizabeth Brunner Professor of Economics at Lancaster University, specializing in Behavioral Economics, Decision-Making and Game Theory. He was awarded the Humboldt Prize for excellence in research by the German government in 2011. He is an elected council member of the International Game Theory Society, and an elected fellow of the Economic Theory Society. He held senior positions at Washington University, University of Manchester and the European University Institute, and was invited to present his research works at more than 160 universities in 32 countries. His book "Feeling Smart: Why our Emotions are More Rational than We Think" appeared in nine languages, and was endorsed by seven Nobel laureates.

Junior Fellow

Dr Annelies Andries
Utrecht University, Netherlands

Discipline:
Musicology

Project:
Gender in Translation: Bavarian Translations of French Opera, 1800-1825

Host:
Professor Kordula Knaus
Chair of Musicology



This project seeks to understand opera translation as a performative and embodied cultural negotiation practice. It takes as its case study early nineteenth-century operatic culture in Munich, Coburg, Bamberg and Bayreuth. It analyses how through the blossoming culture of imported and translated French operatic works and practices, the

region dealt with the volatile relationship to (post) Napoleonic France and associated legal and political frameworks concerning gender and other aspects of identity.

Annelies Andries joined the musicology group at Utrecht University as Lecturer in 2020, following PhD studies at Yale and a postdoctoral fellowship at Oxford. Her research investigates how European musical culture developed in the wake of long-nineteenth-century military conflicts drawing on theories from cultural history, trauma and performance studies. She is writing a book on identity formation through opera in Napoleonic France. Her work has been published in *Cambridge Opera Journal*, *Journal of Culture and War Studies*, *French Historical Studies* and others. She is also active as a performance-researcher of nineteenth-century music and writes programme notes for European opera houses.

Junior Fellow

Dr Everton Maciel

Research Foundation of the National Council for Scientific and Technological Development, Brazil

Discipline:

Conservation Biology

Project:

Defining priority species and areas for the conservation of tree diversity in tropical savannas of South America

Host:

Professor Steven Higgins
Chair of Plant Ecology



The tropical savannas of the Americas are among the most biologically diverse areas on the planet. These savannas are exposed to different pressures such as climate change, biological invasions, habitat loss and overexploitation.

global change; (iii) identify conservation gaps and (iv) identify priority areas for conservation action in South American savannas.

This project has the following objectives:

- (i) identify the species most vulnerable to global change;
- (ii) assess the persistence of these species in response to

Everton Maciel graduated with a doctorate in plant biology from UNICAMP, where he is currently a collaborating researcher. He is interested in understanding (1) how human actions impact biodiversity loss and (2) which are the priority actions to reduce these impacts. Much of his research focuses on rare species as a surrogate to identify patterns and gaps in biodiversity, aiding in the conservation of flora and its associated components. Everton is also increasingly interested in exploring the link between biodiversity patterns and ecosystem processes, targeting conservation interventions to improve their effectiveness in protecting biodiversity. Much of his work is anchored in collecting and analyzing evidence-based data. He draws on disciplines such as conservation biology and conservation biogeography, and a framework that combines data science, ecological models, geographic information systems, and the R programming language. He has published 15 articles in specialized journals.

Junior Fellow

Dr Frank Poulsen

King Juan Carlos University, Madrid

Discipline:

Intellectual History

Project:

Hermann Conring and the Legal History of the Holy Roman Empire

Hosts:

Professor Martin Ott

Institute for Franconian Regional History

Professor Astrid Swenson

Institute for Franconian Regional History



This project is part of a larger future project investigating the contexts in which scholars have developed legal history in Europe from 1600 to 1900: INTELLEX. The first part of this large project focuses on Hermann Conring (1606-1681) at the University of Helmstedt. In the 1640s, he held a controversial view that the Holy Roman Empire was not a continuation of the Roman Empire. Since Roman law did not apply, he proposed a codification of German law.

What were the intellectual and wider socio-political and legal contexts for Conring's claims? What sources and what historical methods did Conring use? What legal or political concepts did he teach and to whom? What impact did it have on constituting a discipline?

Frank Ejby Poulsen holds degrees in law (Paris 1), political science (Copenhagen) and a PhD in history (EUI, 2018). A revised version of the thesis won the De Gruyter 10-year anniversary of Open Access competition and will be published soon. Frank's work appeared in *History of European Ideas*, *Global Intellectual History*, and *Early Modern French Studies*. From 2019 to 2023, Frank was a postdoc at the Danish National Research Foundation's Centre for Privacy Studies, University of Copenhagen. He won the EU-funded María Zambrano grant for the attraction of foreign talents and is currently a research fellow at King Juan Carlos University, Madrid, Research Group CINTER.

Junior Fellow

Dr Philipp Braun

Australian National University, Australia

Discipline:

Control Systems Engineering

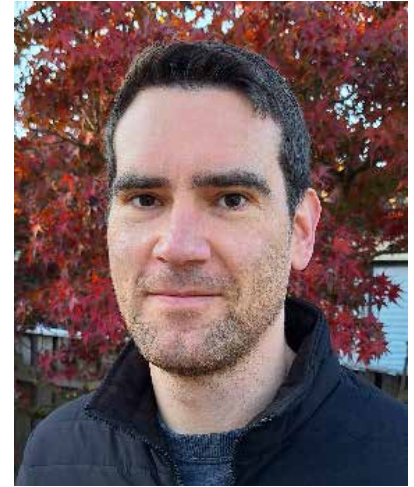
Project:

Simultaneous target set stabilization and obstacle avoidance and corresponding Lyapunov-like characterizations

Host:

Professor Lars Grüne

Chair of Applied Mathematics



Even after more than 130 years since first introduced by Aleksandre Mikhailovich Lyapunov in his doctoral thesis, nowadays so-called Lyapunov functions and related Lyapunov methods are still the main tool to characterize stability properties of solutions of dynamical systems.

While stability and stabilization (i.e., controller designs to reach a target set) and invariance and avoidance (i.e., con-

troller designs to avoid obstacles and to guarantee safety) as individual concepts are well established and characterized, the combined problem achieving both goals at the same time is not sufficiently addressed yet.

Philipp Braun received the PhD degree in mathematics from the University of Bayreuth, Germany, in 2016. He is currently a Senior Lecturer at the Australian National University in the School of Engineering. He is an IEEE Senior Member and a member of the IEEE-CSS Conference Editorial Board. In addition, he is an associate editor for Automatica, the IEEE Control Systems Letters and the European Journal of Control. He has co-authored two books and his main research interests include stability analysis of and controller design for constrained nonlinear dynamical systems.

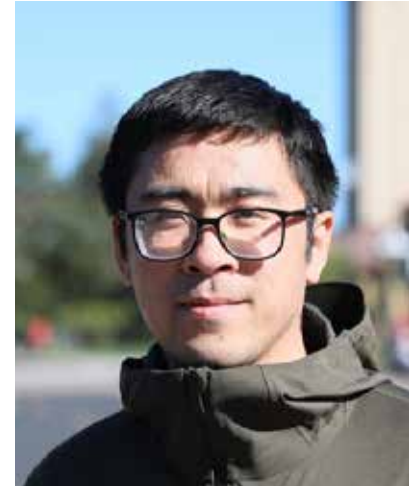
Junior Fellow

Dr Kan Ma
University of Birmingham, UK

Discipline:
Materials Science

Project:
Novel chromium-based bcc-superalloys for advanced concentrated solar plant application

Host:
Professor Anke Silvia Ulrich
Chair for Metals and Alloys



This project aims to develop new refractory metal-based superalloys beyond the state-of-the-art nickel superalloys for advance power generation systems operating at temperatures above 900 °C. Breakthroughs in these high-per-

formance, cost-effective materials will enable more efficient and sustainable energy production through supercritical CO₂ Brayton cycles.

Dr. Kan Ma completed his PhD from Université Paris Sciences & Lettres, investigating radiation damage in model alloys. He now works as research fellow at the University of Birmingham, UK, specializing in metallurgy and materials characterization. His expertise spans phase diagrams, electron microscopy, atom probe tomography, and simulation techniques. Ma has published extensively in prestigious journals like Acta Materialia and Scripta Materialia. He actively engages in international collaborations, presenting at major conferences like TMS and Euromat. Ma's research focuses on novel metallic materials for extreme environments such as advanced concentrated solar power plants and nuclear energy.

Junior Fellow

Dr Matthias Zußner
University of Graz, Graz, Austria

Discipline:
Digital Single Market Law

Project:
The Concept of EU Digital Single Market Law

Host:
Professor Christoph Krönke
Chair of Public Law I



As the European Union has enacted countless legal acts which, taken as a whole, not only form the basic and framework order for the digital economy, but also provide fully-fledged sets of rules in many areas, the EU Digital Single Market Law has not just become thematically unclear. It also seems to be losing its reference to the logics of the primary law's foundations which it is enacted on. This raises fundamental questions, in particular with regard to the legal basis of competence (Does virtually all legislation fall under the EU's internal market competence, Art. 114

TFEU?) and the substantive guiding principles of the Digital Single Market Law (Is a new "fundamental digital freedom" emerging?). The aim of this research project on "The Concept of EU Digital Single Market Law" is to establish a coherent doctrine for the EU Digital Single Market Law.

Dr. Matthias Zußner studied law at the Karl-Franzens-University in Graz, where he returned at the end of 2022 to a post-doctoral position in public law to complete his habilitation thesis. Previously, he worked at the Vienna University of Economics and Business (2019-2022) and the Alpen-Adria University Klagenfurt (2017-2019) and was a visiting researcher at the MPI for Comparative Public Law and International Law in Heidelberg (2008-09/2018). His current research focuses on (comparative) administrative law and the law of digitalization.

Meet the Fellow: Dr Everton Maciel

Linking biodiversity patterns and ecosystem services to public policies in South American savannas in current and future scenarios

With his host, Prof. Dr. Steven Higgins (Plant Ecology), our Junior Fellow Dr. Everton Maciel from the Research Foundation of the National Council for Scientific and Technological Development in Brazil aims to find out how species in South American savannas are threatened by human activities and how they can be protected. He loves the botanic garden and the meeting culture at UBT and regrets to leave Bayreuth earlier than originally planned as he gained a postdoc in Harvard.

If you had to explain the research project of your Fellowship to the person you met in the elevator, how would you describe it?

Everton Maciel: Imagine you are walking into a forest. If you look around, you may note that the plants species are not equally distributed. Some are restricted to a few locations in the forest and are called rare. Others are distributed in all locations of the forest and are called common. My study attempts to better understand the role of these rare and common species in the context of plant biodiversity in continental scales and how they are threatened by human activities, such as climate change and land use. Ultimately, my work tries to produce knowledge to support the decision making.



Dr Everton Maciel and the President of the University of Bayreuth, Professor Stefan Leible (Photographer: Peter Kolb)

Was there a special moment in your life that made you decide for your research focus?

EM: In 2006, I did an internship as agricultural technician to learn sugarcane technic. However, it began to rain very much in my second week of practical activities and I was transferred to the environmental management system. I studied a master's thesis about the structure of community I found in the books collection. I found that topic so interesting. After that, I began studying Robert Ricklefs' book "The Economics of Nature" by myself in a public university library. It all made perfect sense to me after reading about the ecological succession on this book and back

home, I saw the big trees above the canopy in a forest patch. I worked as an agricultural technician for a while. However, my passion for plant ecology increased as I read more about it. So, I left my job in December 2009 to focus on academic career. I enrolled in a Bachelor in biology in 2010, when I became fascinated with conservation biology. I enrolled in a Master in Ecology and Conservation in 2014. My supervisor let me figure out my own topic of study. After studying for while, I chose to study rare species because they are vulnerable to extinction as a result of human activity. I have continued studying this issue.

What was your personal experience during your stay? What is your favourite spot in Bayreuth or the region?

EM: Bayreuth is cozy, with a beautiful city center. What I liked most about UBT and the region were the people. All the people have been very friendly and helpful to me, everywhere I've been, from the university to the city. The city is also quite internationalized. Another thing I just loved here were the landscapes of the region. The stretches I rode by train around Bayreuth, the beauty of the landscapes of the region surprised me on every trip even in winter. I was imagining these landscapes in summer and autumn, how stunning they must be. I also loved the mobility in Bayreuth. It is very easy to get around by foot or by public transport. Speaking of which, an important aspect that I have to mention is that students can use public transport to all places in the city.

If you could choose a famous researcher or scientist to have dinner with, who would it be?

EM: I think Eduardo Wilson is a well-known researcher, I do not know if he is famous. In one of his books, "Letters to a Young Scientist," he encourages young researchers to pursue the topic of research out of love. He also believes that the people who succeed are not geniuses, but persis-

tent average people. Since I am far to be a genius I am sure some researchers wouldn't be interested in having a dinner with me. Considering what Wilson wrote in such book, maybe he would.

What were your expectations when you applied for the Fellowship?

EM: I had three expectations. One was to understand how rare and common plant species from South American savannas contribute to biomass. I was able to meet my expectation with the help of Professor Higgins and his colleagues. Especially, I was able to learn more about theoretical issues surrounding the biodiversity-ecosystems relationship. My second expectation was to teach a course focusing on rare species, which I did in April 2024. My main expectation was to be able to continue directly with my studies with Professor Higgins, as a postdoc in the same line of research at the University of Bayreuth. In the meantime, I won a scholarship to study postdoc for a year at Harvard University. So, I'll have to leave Bayreuth earlier than I would like to.

Short Term Grants 2023 / 2024



Dr Nishant K Narayanan, the Managing Director Susanne Lopez and Dr Bismark Singh

With its Short Term Grants, the Bayreuth Humboldt Centre invites scientists and scholars working abroad to spend a short research stay of one to three weeks at the University of Bayreuth in order to engage in dialogue with a host scientist from the University of Bayreuth.

The reasons for coming to Bayreuth by means of a Short Term Grant are manifold: International researchers may initiate joint projects with Bayreuth researchers to explore potentials for collaboration just as much as they may continue and deepen promising, yet existing innovative endeavours.

Overview Short Term Grants

The Short Term Grants include the reimbursement of travel costs between the place of work outside of Germany and Bayreuth, accommodation costs in Bayreuth as well as additional costs such as visa fees and a daily allowance. Costs will be reimbursed upon request up to a maximum of €3,500.

The selection of all Short Term Grants is made by the Executive Board of the Bayreuth Humboldt Centre.

On the next pages, we present the Short Term Grantees selected in 2023 / 2024.



Dr Muhammad Zahid Iqbal and the Managing Director Susanne Lopez

Testimonials

"As a Grantee of the University of Bayreuth Centre of International Excellence 'Alexander von Humboldt', hosted by Dr. Christoph Helbig, I have had a remarkable experience that has significantly enriched my research. The collaborative environment and access to cutting-edge resources have allowed me to advance my work on the circular economy of metal and mineral resources for green hydrogen technology. The support and intellectual exchange with Dr. Helbig and the broader academic community at the University of Bayreuth have been invaluable, fostering innovative approaches and inspiring future projects in sustainable systems engineering. This grant has been pivotal in driving forward our shared vision of a decarbonized, circular economy."

Dr Anthony Halog, Grantee 2023

"My fellowship at the University of Bayreuth has greatly benefited my research! Collaborating with Prof. Dr. Matteo Bianchini and his team advanced our reciprocal understanding of materials for energy storage, particularly in the field of post-lithium batteries. Organizing a workshop on X-ray spectroscopy for Prof. Bianchini's students was an important milestone which allowed them to enhance their knowledge and research capabilities. I plan to continue this collaboration through joint publications, grant proposals, and future projects, further strengthening the connections between our research teams. This experience has enriched my research portfolio and reinforced our mutual long-term collaborative relationships."

Professor Lorenzo Stievano, Grantee 2023

"This grant gave me the opportunity to visit the Department of Polymer Engineering at the University of Bayreuth and to initiate a collaboration with the Professor Dr.-Ing. Holger Ruckdäschel group. I interacted with many researchers and HDR students in the Department and saw lots of wonderful industrial-oriented projects and polymer processing facilities there. It was a very enjoyable experience and this is the first step for further collaboration with Bayreuth."

Professor Youhong Tang, Grantee 2023

"International research mobility transcends borders, fostering intellectual and cultural exchange. My one-week stay at the University of Bayreuth was enriching, blending academic collaboration with the city's captivating charm. The university's modern facilities and welcoming atmosphere enhanced my experience, leaving me with deep appreciation and valuable insights for future endeavours. I envisioned a world of possibilities opening up - a chance to explore meaningful research, collaborate with brilliant minds, and contribute to something larger than myself."

Dr Muhammad Zahid Iqbal, Grantee 2023

Dr María Valeria Berros

Professor at the Universidad Nacional del Litoral (UNL), Argentina

Disciplines: Environmental Law, Sociology of Law, Environmental conflicts

Project: Innovations in Environmental Law: Rights of Nature, Climate Litigation and Protection of Environmental Defenders

Host: Professor Eva Lohse, Chair for Public Law III



This project examines the contemporary diversity of legal proposals for dealing with ecological problems from a comparative and co-productive perspective. It especially considers three innovative topics in environmental contemporary law: i) the relevance of a movement recognizing the rights of nature, ii) the characteristics of emerging climate litigation, iii) the incorporation of the environmental defenders as a figure that requires legal protection. All those interrelated topics have gained momentum in several Latin American countries as well as other latitudes, for example New Zealand, Australia or India in the last years. They have inspired Western-style legal orders in the Global North to rethink their anthropocentric regulation on the protection of the environment.



Dr Lianne Habinek

Research affiliate, University of Strasbourg, France

Disciplines: British & European Literature, History of the Book, History of Science

Project: Unfolding the Early Modern Page: Transformations in Print and Paper

Host: Professor Susan Arndt, Professor of English Studies and Anglophone Literatures

Unfolding the Early Modern Page examines innovations in print culture that altered the reader's relationship to the book: the paper fold; the circular dial or volvelle; the use and abuse of ink; and the blank space. Privileging formal aspects of the page over intellectual disciplinary boundaries reveals how medium influenced message. I pursue book history as an entry-point into understanding how readers made knowledge by physically interacting with books, in ways that would be lost once printing practices and reading conventions changed with the advent of mass production. How did early modern literature and its readers deal with these "paper bodies"? How does modern cognitive science approach see changes in the mental act of reading? Among the first to unite modern and pre-modern ideas about how early interactive texts helped shape the production of knowledge, my book contributes to the impetus in literary study to rethink culture from materiality upwards.

Dr Anthony Halog

Professor at the University of Queensland, Australia

Disciplines: Ecological Resource Technology, Renewable Energy Technology, Industrial Ecology and Circular Economy

Project: Analyzing the Circular Economy of the Metal and Mineral Resources for Large-Scale Implementation of Green Hydrogen Technology

Host: Professor Christoph Helbig
Chair of Ecological Resource Technology



Large-scale deployment of clean energy technologies will require a considerable amount of materials. The surge in demand for critical metals related to emerging energy technologies may hinder the energy transition. In this project, we analyze the material flows when upscaling green hydrogen technology. We conduct a quantitative review of the material requirements of green hydrogen technologies and provide an analysis of detailed data including material intensity. Besides providing a large amount of structured quantitative data, we (1) research the demand for green hydrogen technology-related metals; (2) foresee material constraints of large-scale implementation of green hydrogen and the secure and responsible supply of these materials; (3) identify changes in metal intensity caused by technological development and material requirements for non-critical components, which are important but often overlooked.



Professor Guido Sonnemann

Professor at University of Bordeaux, France

Discipline: Chemical Sciences

Project: Sustainability Assessment of Future Battery Material Life Cycles

Host: Professor Christoph Helbig, Chair of Ecological Resource Technology

Batteries are one of the fastest growing markets globally with highest importance in the transport sector, portable electronics, and grid storage. The building up of the in-use stock for batteries raises concern of severe supply risks for critical raw materials and an accumulation of a new electronic waste stream. By combining Life Cycle Assessment and Material Flow Analysis research, the research project develops assessment methods on the criticality and circularity of future battery material life cycles. We model the development of geopolitical risks in battery material life cycles and the impact of continued growth of the battery market on lifetimes of metals in the global economy.



Professor Lorenzo Stievano

Professor at the University of Montpellier, France

Disciplines: Chemistry, Materials Science, Physics

Project: EXAFS Investigation of LiNiO₂ during charge

Host: Professor Matteo Bianchini

Professor at the Bavarian Center of Battery Technology (BayBatt)

LiNiO₂ is a promising positive electrode material for Li-ion batteries. Despite many years of development, it still is not commercialized due to the difficult synthesis and chemical, electrochemical and thermal instabilities. In particular, the degradation mechanisms that occur at the end of charge, when all Li is deintercalated, are severe and still need to be better understood. We have performed in situ (during charge) X-ray absorption spectroscopy measurement to determine the local coordination of Ni in LiNiO₂ during charge. In the course of this project, advanced and detailed data analysis will be employed in collaboration to treat the data and highlight the behaviour of the material.

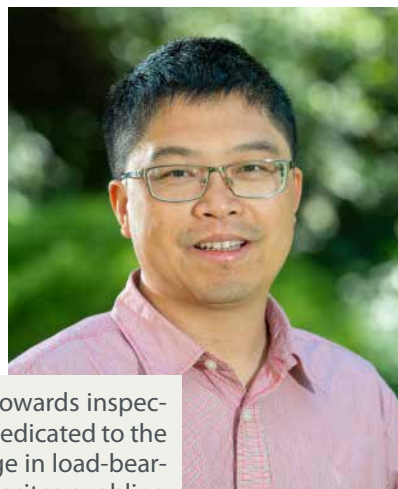
Professor Youhong Tang

Professor at Flinders University, Australia

Disciplines: Composites, Non-destructive Testing, Polymer Engineering

Project: Self-reporting Mechanochromic Fibre Reinforced Composites Enabled by AIEgens

Host: Professor Holger Ruckdäschel, Chair of Polymer Engineering



To reduce the time, material, and labour cost associated with the maintenance efforts towards inspection and replacement of damaged structural components, extensive research has been dedicated to the development of methods for structural health monitoring and early detection of damage in load-bearing composite structures. The main aim of this project is to develop self-reporting composites enabling autonomous damage detection for improved safety and reliability of critical structural components. With the aggregation-induced emission (AIE) luminogens (AIEgens) introduced, the mechanical damage of the thermoset epoxies and their fibre reinforced composites that triggers rapid generation of a local fluorescence signal can be conveniently visualized under a certain excitation light with excellent sensitivity and high contrast.

Dr Muhammad Zahid Iqbal

Lecturer at the Teesside University, UK

Disciplines: Computer Science, Immersive Technologies

Project: Investigating Potential of Extended Reality (XR) for Enhancing Pedagogical Practices in Higher Education

Host: Dr Frank Meyer, Center for Teaching and Learning in Higher Education at the University of Bayreuth (ZHL)
Department of English and American Studies



The Center for Teaching and Learning in Higher Education at the University of Bayreuth (ZHL) is working on the XR-Campus project, which aims to integrate immersive technologies in education by inserting practically considered formats and scenarios with XR. Our main objective is to explore XR-Campus research and investigate the benefits and challenges of using XR in learning at the University level. Our short term project helps with different pedagogical approaches, integrating new technologies in XR and principles that can guide the development and evaluation of XR-based learning experiences.



Dr Afroz Khan

Assistant Professor at the Aligarh Muslim University, India

Disciplines: Nanotechnology, Energy materials, Li-ion Battery

Project: Pico-Cavity QED

Host: Dr. Jun Young Cheong, Independent Group Leader, Bavarian Center for Battery Technology (BayBatt) and Department of Chemistry

In this project, we successfully manufacture $\text{Sn}_{1-x}\text{In}_x\text{O}_2$ ($x = 0.0-0.4$) nanoparticles (NPs) using sol-gel co-precipitation method, a following calcination process. With a doping of In_2O_3 in SnO_2 matrix, a stable SEI layer can be formed, which improves cycle retention and structural integrity. Furthermore, In doped SnO_2 NPs decorated on r-GO nanosheets produce and significantly enhance electrical conductivity. In contrast to prior efforts on $\text{SnO}_2\text{-In}_2\text{O}_3$, it creates a stable SEI layer with easy synthetic sol-gel processes, resulting in greater cycle retention. Consequently, $\text{SnO}_2\text{-In}_2\text{O}_3$ nanoparticles garnered with r-GO improve rate capability. The research project provides insights into the synthesis, characterization, and optimization of these materials, paving the way for their potential integration into practical battery systems.



Dr Nishant K Narayanan

Assistant Professor at the English and Foreign Languages University, India

Discipline: German Studies

Project: In the middle of languages: Exophonic overlaps between scripts, texts, languages and cultures in contemporary literature

Host: Professor Gesine Lenore Schiewer, Chair of Intercultural German Studies

This research proposal tries to explore the various dimensions of exophony in the context of contemporary German literature by focusing on authors like Yoko Tawada, Uljana Wolf, Semier Insayif etc. By adopting German and scriptually diverse languages like Japanese and Arabic in the case of Tawada and Insayif respectively and English by Wolf, the authors try to not only illustrate the thriving multilingualism, but also focus equally on their exilic experience, migration, identity and language. Moreover, exophony is understood here as a discursive idea which articulates itself through Sprachigkeit and Anderssprachigkeit in the form of alien languages and cultures. It thus contributes hugely in determining the cultural, social and linguistic identities of migrants and their experience of German as a Foreign Language, which in course of time become German as the Other Language, simultaneously with their own native languages. The interplay of script and semantic not only gives rise to a diverse visual experience for the reader, but also leads to unconventional interpretations of the text. This multilingual intermediality is a central aspect of the exophonic experiments carried out by the authors. This also demonstrates the tendency to subvert the existing norms of German language in order to extract the embedded hybridity of German, which according to the authors is characterized by the influence of varied scripts, cultures and texts.

Dr Dr habil. Bismark Singh

Assistant Professor at the University of Southampton, UK

Disciplines: Stochastic Optimization, Energy Planning, Mathematics

Project: Algorithms for solving two-staged chance-constrained optimization models

Host: Professor Jörg Rambau, Chair of Econometrics



Chance-constrained programming (CCP) is a subclass of stochastic optimization where a cost-reliability tradeoff acknowledges that we cannot shield ourselves against all the future scenarios. However, a CCP model is both theoretically and computationally difficult to solve. Building on our past experience, we seek to develop new algorithms that achieve provably high-quality (or, optimal) solutions under special cases of such models.

Dr Andy Kah Ping Tay

Assistant Professor at the National University of Singapore

Disciplines: Bioengineering, Synthetic Biology, Immunotherapy

Project: Bioengineering immuno-stimulatory magnetotactic microrobots (MTB-bots) for treating solid tumours

Host: Professor Dirk Schüler, Chair of Microbiology



Cancer is a devastating disease. Over the last two decades, synthetic nano-materials and hybrid 'living' cellular materials have been developed for anti-cancer therapy. However, these strategies suffer from limitations such as poor penetration and accumulation of synthetic nanoparticles and CAR-T cells in solid tumours. Here, we propose to evaluate the immuno-stimulatory properties of magnetotactic bacteria microrobot to reverse the immunosuppressive tumour microenvironment for anti-cancer therapy.



Dr Marilize Everts

Lecturer in Advanced Thermal Engineering, University College London, UK

Disciplines: Thermal Management, Boiling Heat

Project: From bubble dynamics fundamentals behind direct cooling to thermal management systems in advanced propulsion systems

Host: Professor Dieter Brüggemann, Chair of Engineering Thermodynamics and Transport Processes

The global attempt to decarbonize the transport sector, combined with our dependency on vehicles, created research opportunities for new technologies and developments. Electric vehicles rely heavily on multi-disciplinary research associated with alternative fuels and materials, batteries, power trains, etc., while thermal management remains key for its operation and sustainability. Nucleate pool boiling is known for high heat transfer coefficients and, when using dielectric fluids, becomes an attractive direct cooling method for thermal management in electric vehicles. As heat is transferred through the vapor bubbles, a thorough fundamental understanding of the mechanisms behind the formation, growth and detachment of the bubbles is vital for the improvement of thermal management systems. Therefore, the aim of the project is to extend the research based on a preliminary fundamental investigation to develop collaboration in the field of propulsion and hydrogen technologies.



Dr Joshua Matanzima

Research Officer, University of Queensland, Brisbane, Australia

Disciplines: Mine Closure, Renewable Energy, Social Impact

Project: Renewable Energy Development on Post-Mined Lands in Germany: Risks and Opportunities for a Fair Just Transition

Host: Professor Katharina Schramm, Chair of Social and Cultural Anthropology

This research investigates the social and environmental problems emerging from the conversion of closed mines into renewable energy hubs (such as solar parks and wind turbines). Socially, this research seeks to understand the potential impacts such transitions have on communities living nearer to targeted mines. It seeks to answer the following questions: Are local communities involved in decision-making? What are the likely social impacts of such a transition especially for surrounding communities? What can be done to minimize social impacts? Environmentally, it seeks to answer the following questions: What are the environmental impacts associated with the conversion of closed mines into RET hubs? To what extent can environmental impacts worsen the social outcomes of such processes? To answer these questions, this research investigates the social and environmental impacts of the conversion of coal mines into RET hubs in Lusatia (Eastern Germany) and Old Manheim (Western Germany).

Dr Kayode Oshinubi

Postdoctoral researcher, Northern Arizona University, USA

Disciplines: Applied Mathematics, Statistics, Epidemiology

Project: Functional Data Analysis: a wholistic approach to spatial variations in vaccination data

Host: Prof. Dr. Melanie Birke, Faculty of Mathematics, Physics & Computer Science



The main purpose of this work is to revisit public databases using methods that are still little used, such as functional data analysis (FDA), in which there is a great deal of theoretical work but practical applications are still rare. In particular, the generalization at the FDA of classical finite-dimensional methods, such as estimation, regression, clustering, and principal component analysis (PCA) show that it is possible to process epidemic (vaccination) datasets obtained from a large sample (approximately one million data points) since the FDA is useful for high-dimensional data analysis. Epidemic data (vaccination) has shown spatial variations in different geographical spaces. Our hypothesis in this work is that spatial variations in vaccination data and spatial variations in epidemic trajectory can be predicted using functional data analysis techniques. We intend to develop new algorithms and apply them to these datasets.

Dr Jakob Schoeffer

Postdoctoral Research Fellow, University of Texas at Austin, USA

Disciplines: Artificial Intelligence, Human-Computer Interaction, Responsible AI

Project: On the Interplay of Explainable AI and Fairness in AI-Informed Decision-Making

Hosts: Professor Niklas Kühl, Chair for Information Systems and Human-Centric Artificial Intelligence
Professor Lena Kästner, Professorship for Philosophy, Computer Science and Artificial intelligence



In AI-informed decision-making, concerns about algorithmic bias and its potential to perpetuate unfair outcomes have sparked interest in the role of explainable AI (XAI) in mitigating these biases. Our project comprehensively studies the effects of XAI on human ability to counter algorithmic biases and enhance fairness of decisions. More specifically, we investigate the influence of XAI on human reliance on AI recommendations, the translation of reliance behavior into fairness properties of decisions, and the mediating role of human fairness perceptions. Employing a mixed methods approach, including online experiments and qualitative analyses, the project builds upon prior research to deepen insights into the nuanced experiences and perspectives of people when interacting with XAI. Our work offers valuable insights for policymakers and system designers to develop more transparent, equitable, and ethically sound AI technologies.

Meet the Grantee: Dr María Valeria Berros

Inspired by her great-uncle during her childhood, María Valeria Berros today works on improving regulations to combat the environmental crisis and advances the co-production of knowledge during her stay in Bayreuth.

If you had to explain the research project of your Short Term Grant to the person you met in the elevator, how would you describe it?

María Valeria Berros: My research topic relates to innovations in environmental law that are developing at the comparative level. Although my focus of analysis is Latin America, I have started to dialogue and work with colleagues from other countries, including my host Eva Lohse, to enrich the analysis on the application and functioning of climate litigation, the recognition of the rights of nature, the protection of biodiversity, and the co-production of knowledge. This last topic was central to my work at the University of Bayreuth thanks to the scholarship. The knowledge co-production is proposed as a research practice in climate and environmental case law studies to enhance participation in decision-making processes, to encourage contributions by groups often excluded in the process of gaining information, and to improve the sustainability of proposed solutions related to environmental conflicts.

Was there a special moment in your life that made you decide for your research focus?

MB: Since I was very young, I have been challenged by environmental issues thanks to my great-uncle Edmundo. I also live in a region of the world where the wealth of natural resources coexists with many conflicts due to extractivism as well as with high levels of inequality. This is a particu-



Dr María Valeria Berros

larly central and urgent issue for Argentina and the Latin American region in general. My research focuses on being able to contribute to improving regulations as well as the functioning of legal innovations that are in force and are mobilized around this issue.

What is in your opinion the future of your field? In what way can research in your field contribute to meeting the urgent challenges of our time?

MB: It seems to me that the environmental crisis is one of the great issues of our time and, moreover, it puts our

future on the planet at stake. With this urgent agenda, I believe it is essential that all disciplines focus on the issue and engage in dialogue with each other. At the same time, I consider it very important to strengthen spaces for the co-production of knowledge on environmental issues, recovering experiences, knowledge and perspectives. All these processes have translations into the field of law that are also central to me in order to strengthen environmental protection.

What does international research mobility in today's world mean to you?

MB: International mobility has been and will continue to be central to my research. As environmental and climate issues are global problems, comparative work and dialogue with colleagues from different latitudes who have a common focus of analysis is essential. This not only enriches the studies, but also contributes to generating modifications, enabling new ideas and valuing developments in the legal protection of the environment in different legal systems.

What was your personal experience during your stay?

MB: My experience at the University of Bayreuth was very enriching academically and personally. I was able to work together with my co-host in a very fruitful way, to attend a conference directly related to the topic of our research, and to get to know the staff. I was also able to exchange with their doctoral and post-doctoral students during my stay. I really liked the way the university works, the permanent and friendly support and care of the Humboldt Centre as well as the university life and the campus.

Dr. María Valeria Berros is a Lawyer and Doctor in Law from the Universidad Nacional del Litoral (UNL). Adjunct Researcher at the Consejo de Investigaciones Científicas y Técnicas (CONICET). Former Fellow of the Rachel Carson Center for Environment and Society at the University of Munich (Germany). Visiting Professor/Researcher of the University of Buenos Aires, the Université de Limoges, the Université de Paris and the Université de Nantes (France), the University of Piemonte Oriental (Italy), the Federal University of Santa Catarina (Brazil) and the University of the Republic (Uruguay). Director of the Research Project "Meulen II. Deepening of juridical contributions on the ecological problem in Latin American key" of the UNL. Principal Investigator of the research group in the Universidad Nacional del Litoral in the context of the project Speak4Nature: Interdisciplinary approaches on ecological justice (Horizon Europe - Research and innovation programme MSCA Staff Exchanges, grant agreement No. 101086202).

Strategic Scientific Workshops 2023 / 2024

The Bayreuth Humboldt Centre supports Strategic Scientific Workshops by Bayreuth researchers in cooperation with colleagues working at universities or research institutions abroad.

All Workshops are expected to deepen existing or establish new ties with the clear objective to create sustainable pioneering research networks for the University of Bayreuth.

The Executive Board of the Bayreuth Humboldt Centre selects the Strategic Scientific Workshops once a year as the result of a competitive selection process which is strictly merit-based.

The overall selection criteria are the academic excellence of the participants and of the proposed workshop as well as its strategic significance. The Workshop needs to take place at the University of Bayreuth or in the surrounding region for a minimum of two days. Eligible applicants are senior faculty members of the University of Bayreuth who cooperate with at least one international partner institution.

The Centre may grant support up to €20,000 for each workshop.



Strategic Scientific Workshop “Digital Innovation, Empowerment and the MNE” with Professor Ricarda Bouncken

Collaborating Partners:

Professor Erdmute Alber
Chair of Social Anthropology
University of Bayreuth

Professor Yvan Droz
Senior Lecturer, Department of Anthropology
and Sociology
Geneva Graduate Institute, Switzerland

Dr Diego Malara
Assistant Professor in Social Anthropology
University of Glasgow, Scotland

Professor Tatjana Thelen
Professor of Social and Cultural Anthropology
University of Vienna, Austria



Project:

Making (a) Difference: Intergenerational Conversations on Transformation and Intimate Relations

The workshop brings together an international and intergenerational array of leading anthropologists to reflect on how intimate relations are made in, with, and through difference – and on how intimate relations make difference in turn. It falls squarely into the UBT focus area Cultural Encounters and Transcultural Processes, enriching it with innovative perspectives on hotly debated issues like identity politics, health politics, and the de-colonization of im/material heritage. The workshop opens ground-breaking directions in the study of intimate relations, kinship, and care, as well as difference. Strategically, it launches a first-of-its-kind international network of researchers on kinship and intimate relations, under the European Association of Social Anthropology (EASA), headed by the University of Bayreuth.

Collaborating Partners:

Professor Ricarda Bouncken

Chair of Strategic Management and Organization, University of Bayreuth

Professor Xin (Robert) Luo

Special Assistant to the Dean for Research Advancement
University of New Mexico, USA

Professor Charles Noble

Henry Distinguished Professor of Business,
University of Tennessee, USA



Project:

Digital Innovation, Empowerment and the MNE

Today, digital technology is key to innovation, as it underlies processes and the 'gestalt' of innovation. Digital technology also supports collaboration between different entities across time and space combining context specific local and global knowledge. Especially multinational enterprises with distributed units and business models can gain from better digitalized connectivity of the distributed geographical locations. Yet, connectivity does not occur automatically. It demands employees who are empowered in using and developing digital technology and who are supported in their digital empowerment by their top management. The workshop brings together researchers from the field of Innovation Management, International Business, and Information System (IS) to examine the specific conditions, complexities, and possibilities for empowering employees and how empowerment can be further supported by specific top management team constellations.

Collaborating Partners:

Professor Nina Nestler
Chairholder Criminal Law III
Vice President Internationalization, Gender
Equality & Diversity
University of Bayreuth

Professor Adam Sagan
Chairholder European Labour Law Faculty
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Professor Shelley Marshall
Associate Professor
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Prof. Dr. Lola Oyelabi
Head of Department
RMIT University, Australia

Heather Moore
PhD Candidate
RMIT University, Australia

Emma Moolchand
PhD Candidate
RMIT University, Australia

Project:
(Legal Aspects of) Supply Chains



Dealing with global supply chains in terms of respecting minimum labour standards, compliance requirements and human rights, the consideration of environmental aspects, and comprehensive risk analyses currently poses enormous challenges for companies worldwide. The topic of the workshop is closely related to global trade. For this reason alone, it is imperative to address the issue with an international focus. The legislation in Germany, the European Union and Australia shows strong parallels, as the Australian legislation had the function of a role model for legislation in the European Union. A team of researchers at the University of Bayreuth and the Royal Melbourne Institute of Technology is tackling the related (legal) problems with this workshop.

Collaborating Partners:

Professor Ruth Janal
Chair of Civil Law
University of Bayreuth

Professor Christoph Krönke
Director of BayLawTech
University of Bayreuth

Professor Derek Wilding
Co-Director, Centre for Media Transition
University of Technology, Australia

Dr Karen Lee
Senior Lecturer, Faculty of Law
University of Technology, Australia



Project:
Co-Regulation for the Digital Platforms Era

The strategic workshop “Co-Regulation for the Digital Platforms Era” investigates how and when industry-led regulation can be used for the governance of digital platforms such as social networks and online marketplaces. The workshop brings together experts from Australia and Europe. It helps to foster a comparative understanding of the use of industry codes of practice, including the effects of direct participation by industry actors, their compliance strategies, and their ways of embedding underlying values of code rules, as well as the effects of intervention by regulators. This understanding of industry-led regulation can then be used to consider how co-regulation can be optimized in a more coherent and comprehensive way. The workshop fosters closer cooperation between UBT Law and the University of Technology, Sydney and leaves room to plan further strategic collaborations.

Collaborating Partners:

Professor Johannes Margraf
Chair of Physical Chemistry V
University of Bayreuth

Professor Mie Andersen
Associate Professor
Aarhus University, Denmark

Professor Bjørk Hammer
Department of Physics and Astronomy
Aarhus University, Denmark



Project:

Frontiers in Data-Driven Materials Modelling

The goal of this workshop is to provide a forum for the in-depth exchange of ideas and insights within the broad domain of data-driven materials modelling, particularly using cutting edge machine learning (ML) and artificial intelligence (AI) methods. In this context, the closely related topics of materials design and structure prediction are of particular interest. The former is often considered a holy grail in materials modelling, since the reliable computational prediction of improved materials would avoid time- and resource-consuming experimental trials, which are currently impeding a fast transition towards more sustainable technologies in energy generation, catalysis and electronics, to name just a few. Similarly, predicting the structures of novel materials with atomistic precision is essential for understanding their functionality and rationally improving their properties.

Collaborating Partners:

Professor Stefan Schafföner
Chair of Ceramic Materials Engineering
University of Bayreuth

Junior Professor Anke Silvia Ulrich
Chair of Metals and Alloys II
University of Bayreuth

Professor Gabriella M. Tranel
Professor
Norwegian University of Science and Technology, Norway

Professor Julia Glaum
Professor
Norwegian University of Science and Technology, Norway

Professor Elizabeth Opila
Professor of Engineering
University of Virginia, USA

Professor Brian Gleeson
Professor of Materials Science
University of Pittsburgh, USA

Project:

Strategic research and education workshop on alloys, ceramics and coatings for demanding environments



Materials and coatings that need to withstand demanding environments are in rapidly growing demand. Strikingly, the challenges associated with severe environments transgress a multitude of applications such as aerospace industries, medical implants as well as metallurgical and chemical processes. An important example is the oxidation and subsequent rapid evaporation of high temperature materials in contact with gaseous water. Similarly, metal/ceramic implants are constantly exposed to chemical and mechanical attacks in the dynamic environment of the human body that put the implant reliability and the patient's health at risk. The main aim of the proposed project is to strengthen our close collaboration with leading partners in Norway and the United States working related topics. This collaboration helps us in the preparation of large-scaled projects funded by the DFG and the EU. Finally, the workshop also facilitates the exchange and education of master's and PhD students.

Workshop Report

Making (a) Difference: Intergenerational Conversations on Intimate Relations and Transformation

Making (a) Difference: Intergenerational Conversations on Intimate Relations and Transformation brought together an international group of leading anthropologists, from a variety of career stages, to reflect on how intimate social relations are produced in, with and through differences, and how intimate relations produce social differentiation in turn. While the invitees share a common interest in the anthropological exploration of intimate relations – be it marriage, parenting, friendship, or research relationships – none of them had explicitly worked on questions of difference and differentiation before attending this workshop. The angle of difference presented a new and highly productive lens to re-examine their work – and the workshop sessions provided opportunities to experiment with different ways of reflecting on research, collaborating with colleagues across career stages, and grappling with emerging concerns in academic practice as well.

Overview of sessions

After the opening session, in which Erdmute Alber introduced the thematic field and the envisaged cooperations, and Susanne Lopez welcomed the guests from the side of the Bayreuth Humboldt Centre, the main event was organized in four parallel panels on the cross-cutting issues of power, temporalities, ethics and care – all contexts in which difference is negotiated and produced. Each session featured papers paired to speak to each other, by one early or mid-career scholar and one senior scholar, to create opportunities for intergenerational dialogue. The sessions were drawn together by experienced discussants, who offered new inspiration for contributors and drew out productive lines of thinking. Discussants also presented summary reflections in plenary discussions, which engaged all workshop participants with emerging themes and thinking and created space for critical contributions.

The workshop aimed to unsettle differences within academic practice across hierarchies of gender, generation and career stage as well, thereby inverting established practices around academic workshops and conferences. In one such session, participants were invited to identify issues of cross-cutting concern and post them, with each post forming the basis of an informal discussion table for those who were interested. In another, participants were guided through a session on body mapping as a mode of connecting with embodied ways of knowing and learning



Workshop participants reflect on the event

from research. In a third, participants were invited to envision possibilities, priorities and projects for a European network of anthropologists working on kinship.

Making (a) Difference

The academic contributions to the workshop countered a vernacular view of difference as a problem or challenge to be overcome with a productive understanding of difference that constitutes social relationships, thereby adding to the analytical distinction between difference, differentiation, and inequalities. However, the polysemic nature of the concepts of difference and intimacy prompted critical reflections on their productivity as analytical categories. The discussions underscored that the thematic complex of difference and similarity as a spectrum of human social interactions represents a perspective for closer examination of diverse constructions and changes in close relationships beyond simplistic binaries.

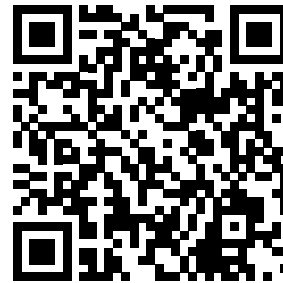
A follow-up workshop will be conducted in October 2024, focused on developing a publication from key contributions to the original workshop. Several participants at the original workshop also contributed to envisioning a European network for the anthropology of kinship, which is currently in development and will be proposed to the European Association of Social Anthropologists (EASA).



Workshop participants at the end of the two-day session



Walking and talking in Franconian Switzerland



Editing and Contact

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