Fellows 2021

Hanse-Wissenschaftskolleg
Institute for Advanced Study

Fellows 2021

Hanse-Wissenschaftskolleg
Institute for Advanced Study

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Brain 2021

Dr. Marianna Anichini

Junior Fellow

Fellowship
October–November 2021

Location
Max Planck Institute for Psycholinguistics
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Cooperation partners
Prof. Dr. Georg M. Klump
Universität Oldenburg

Dr. Andrea Ravignani
Max Planck Institute for Psycholinguistics
Nijmegen

Being a Selfish Soloist or a Cooperative Chorister? Rhythmic Tuning and Turn-Taking in Seal Pups' Choruses

Imagine you are shopping in a crowded market with your daughter. People chat away as they cross your path and your daughter gets lost in the crowd. Although she is trying to call you, her voice is drowned out in the noise. Now imagine being a female seal looking for her pup within a colony of seals. The pup's call is lost in the cacophony of hundreds of other conspecifics all trying to attract their own mothers. In both situations, individuals have to deal with a common problem: analyzing different acoustic inputs and adjusting their signals to increase their detectability.

In this project, I investigate whether and how individuals vary their vocal rhythms in response to the calls of conspecifics. I suggest that harbor seals are the ideal species to test my hypotheses thanks to promising findings on vocal production and temporal tuning abilities. Because harbor seals live in large colonies, the timing plasticity of a pup's call could be a crucial socio-ecological trait to increase the pup's survival chances.

Therefore, I will test whether harbor seal pups 1) interact vocally when their neighbors are silent; 2) maintain their timing strategy independently of the group's size and composition; and 3) display an inter-individual variation in call timing.

I aim to provide insight into the functional meaning of rhythmic behaviors and their connections to vocal production and social cognition in a noisy environment.

Note: Dr. Marianna Anichini is collaborating on a project with her twin fellow Dr. Andrea Ravignani.

Prof. Dr. Gerhard Fischer

Fellow

Fellowship
April–June 2021

Location
University of Colorado, Boulder
Department of Computer Science
Campus Box 430
Boulder, CO 80309
USA

Cooperation partners
Prof. Dr. Susanne Boll
Universität Oldenburg

Prof. Dr. Karsten Wolf
Universität Bremen

Identifying and Exploring Design Trade-Offs for Quality of Life in Human-Centered Design

Human-centered design should not be grounded only in an understanding of new media and technologies in terms of productivity, efficiency, reliability, and economics; it should also explore innovative socio-technical environments that contribute to human creativity, gratification, enjoyment, and quality of life. It is a complex issue with no correct solution or right answers.

Design trade-offs are the most basic characteristics of design. They are universal and they make us aware that there are no decontextualized "sweet spots." Unlike design prescriptions, trade-offs broaden design spaces by 1) avoiding simplistic solutions to complex problems and 2) revealing interesting new approaches that synthesize the strengths and minimize the weaknesses of the binary choice that trade-offs present in the first place.

During my fellowship at the HWK, I aim to work closely with scientists in the region to further explore initial theoretical foundations and analyze system developments for design trade-offs in specific problem domains, including: 1) artificial intelligence (replacing human beings) versus intelligence augmentation (empowering human beings); 2) multi-dimensional aspects of learning; and 3) self-driving cars versus driver assistance systems. I will focus on writing a book integrating and documenting these developments.

Prof. Dr. Mark Erno Hauber

Fellow

Fellowship
January–April 2021
July–August 2021

Location
University of Illinois at Urbana-Champaign
Department Evolution,
Ecology, and Behaviour
Urbana, IL 61801
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Drawing Up a New Theory for the Hormonal Mechanisms of Avian Host-Parasite Interactions

Parental care is costly. Several bird species avoid these costs of parenting by laying their eggs in other species' nests. In turn, many (but not all) of these hosts grab and remove the foreign egg from the nest. This presents an evolutionary puzzle: rejecting rather than accepting a parasite's egg should increase Darwinian fitness but hosts do not always reject the egg.

I intend to formulate a scientific theory of how a balance between parental- and aggressive-response hormones determines whether hosts reject or accept parasitic eggs. While based at the Hanse-Wissenschaftskolleg, I plan to write an article on theoretical principles and a data-driven article to assess experimental data (already collected by my lab) and patterns across different species (using a novel literature review) to formulate and test this new model.

My project will have broad implications for behavioral ecologists studying evolutionary arms races as well as for comparative psychologists interested in concepts of self- vs. non-self recognition.

Dr. Verena Heise

Fellow

Fellowship
June 2020–March 2021

Location
University of Oxford
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Old Road Campus
Oxford, OX3 7LF
United Kingdom

The Reproducibility/Replication "Crisis" in Biomedical Sciences—A Scoping Literature Review

Over the last decade, large-scale replication projects have led to mounting evidence that there is a "replication crisis" in the biomedical sciences. We appear to produce results that cannot be replicated, i.e., confirmed using independent datasets. Unreliable research is not only a waste of time and money, it also slows down translation from preclinical research into clinical benefit for patients and might even put patients at risk if clinical trials are initiated based on unreliable preclinical evidence.

While many underlying causes and potential solutions to this "crisis" have been proposed, it is unclear what the evidence is that the "crisis" even exists and that suggested solutions would make a difference. Therefore, I propose to conduct a scoping literature review with three main aims:

1) To provide an overview of the current state of the literature in biomedical meta-research on the "replication crisis," its underlying causes and solutions;
2) To identify gaps in knowledge where more meta-research is required;
3) To investigate differences between preclinical and clinical research regarding the evidence for a "replication crisis."

As grassroots networks of researchers are starting to advocate for systemic cultural change to improve reliability of research results, a solid and critical review of the evidence is required if we want to convince researchers, institutions, funders, and government agencies that this culture change is needed and a good investment of both time and money.

Prof. Dr. András Imre Mihály

Joint Research Fellowship
funded by the Medical Faculty Oldenburg

Fellowship
August 2020–February 2021

Location
University of Szeged
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Kossuth L. Ave. 40
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Cooperation partner
Prof. Dr. Anja U. Bräuer
Universität Oldenburg

Survey of Anatomy, Histology, and Embryology Education in the Medical Curriculum of Three Different European Union Universities: Comparison of Anatomy Teaching in the Medical Faculties of Groningen, Oldenburg, and Szeged

The European Commission aims to create the European Education Area by 2025, in which learning, studying, and research will transcend borders. We plan to study and compare the education systems of three different EU universities. We have chosen to focus on medical faculties because, on the one hand, the quality of the training provided by these faculties greatly impacts public health. On the other hand, the migration of medical doctors increased significantly over the last ten-to-fifteen years, meaning that EU countries now host medical practitioners coming from other EU countries. The mobility of these medical practitioners makes it clear that quality standards in training are essential.

Anatomy is not only a cornerstone of basic and clinical sciences, but also one of the biggest learning challenges for the medical student. New and advanced educational methods have made greater knowledge possible. We intend to study these methods and the number of anatomy topics and their place in the curricula of Rijksuniversiteit Groningen, Universität Oldenburg, and University of Szeged. We will also observe, discuss, and conduct literature research and statistical evaluations to ascertain the possible practical significance of gross anatomy, neuroanatomy, histology, and medical embryology for medical students.

Dr. Andrea Ravignani

Twin Fellow

Fellowship
October 2021

Location
Max Planck Institute for Psycholinguistics
Wundtlaan 1
6525 XD Nijmegen
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Cooperation partner
Dr. Marianna Anichini
Junior Fellow BRAIN
Max Planck Institute for Psycholinguistics

Being a Selfish Soloist or a Cooperative Chorister? Rhythmic Tuning and Turn-taking in Seal Pups' Choruses

Imagine you are shopping in a crowded market with your daughter. People chat away as they cross your path and your daughter gets lost in the crowd. Although she is trying to call you, her voice is drowned out in the noise. Now imagine being a female seal looking for her pup within a colony of seals. The pup's call is lost in the cacophony of hundreds of other conspecifics all trying to attract their own mothers. In both situations, individuals have to deal with a common problem: analyzing different acoustic inputs and adjusting their signals to increase their detectability.

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Therefore, I will test whether harbor seal pups 1) interact vocally when their neighbors are silent; 2) maintain their timing strategy independently of the group's size and composition; and 3) display an inter-individual variation in call timing.

I aim to provide insight into the functional meaning of rhythmic behaviors and their connections to vocal production and social cognition in a noisy environment.

Note: Dr. Andrea Ravignani is engaged in a collaborative project with fellow Dr. Marianna Anichini.

Prof. Dr. Sabine Sielke

Fellow

Fellowship
October 2021–January 2022

Location
Universität Bonn
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Cooperation partner
Prof. Dr. phil. Peter Schneck
Universität Osnabrück

Memory, Mediation, Seriality: Recognizing Literary and Cultural Studies, Remembering the Subject

Without memory, human life would be devoid of meaning. Consequently, memory became a crucial concept in the humanities as well as in the social and natural sciences. At the same time, literary and cultural studies approach memory with entirely different methods than the cognitive sciences. This raises the question as to what cognitive science can do for literary and cultural studies and vice-versa. Can, for instance, neurophysiology inform how we remember a novel or film and in what ways text- and image-recall differ?

My book project explores such questions by focusing on three well-known US-American authors who themselves interrogated how the brain and the mind work: Emily Dickinson (1830-86), Henry James (1843-1916), and Gertrude Stein (1874-1946). My interest is in both their literary interventions and in how other media have serially memorialized these writers, e.g., in advertisements echoing Stein's famous lines, in cinematic adaptations of James's fiction, and in art, cartoons, and video games featuring Dickinson's poems.

My aim is to map a common ground between cultural studies and the cognitive sciences and to mark its limits. As I interrogate how memory in cognition and cultural practice involves a kind of updating or seriality and how literary and cultural studies can inform cognition research—which cannot measure the effect of distinct media formats on memory processes—, our sense of what it means to be human also transforms.

Prof. Dr. Myat Su Yin

Junior Fellow

Fellowship
December 2021–April 2022

Location
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999 Phuttamonthon 4 Rd.
Salaya, Nakhon Pathom 73170
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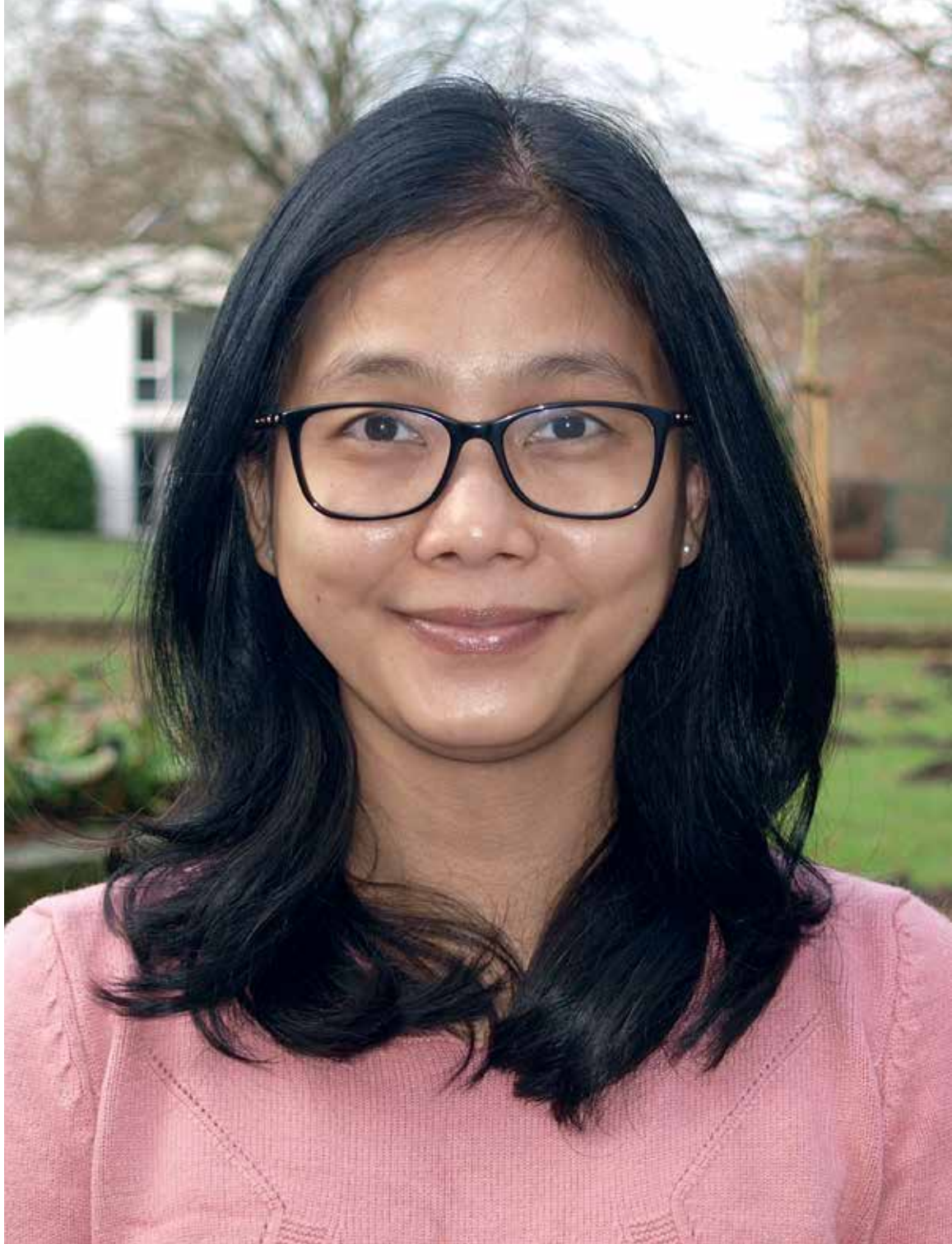
Cooperation partners
Prof. Dr. Michael Beetz
Prof. Dr. Gabriel Zachmann
Universität Bremen



Representation of and Reasoning About Surgical Procedures for Intelligent Virtual Training Environments

To devise effective tutoring strategies, it is essential in surgical training systems to understand the sources of errors in surgical procedures. Errors can arise for a variety of reasons, including lack of technical ability, lack of knowledge of anatomy, and failure to understand the task. Identifying the cause of errors requires knowledge of what actions were taken, how they were carried out, and what effects they had. This requires the simultaneous representation of low-level motion data and high-level symbolic information, as well as the relation between them. Once the performance errors have been identified, generation of formative feedback also requires representation of information at these two levels.

Communication with the student should occur using the language that surgeons commonly use in discussing surgery and to which the students are accustomed.

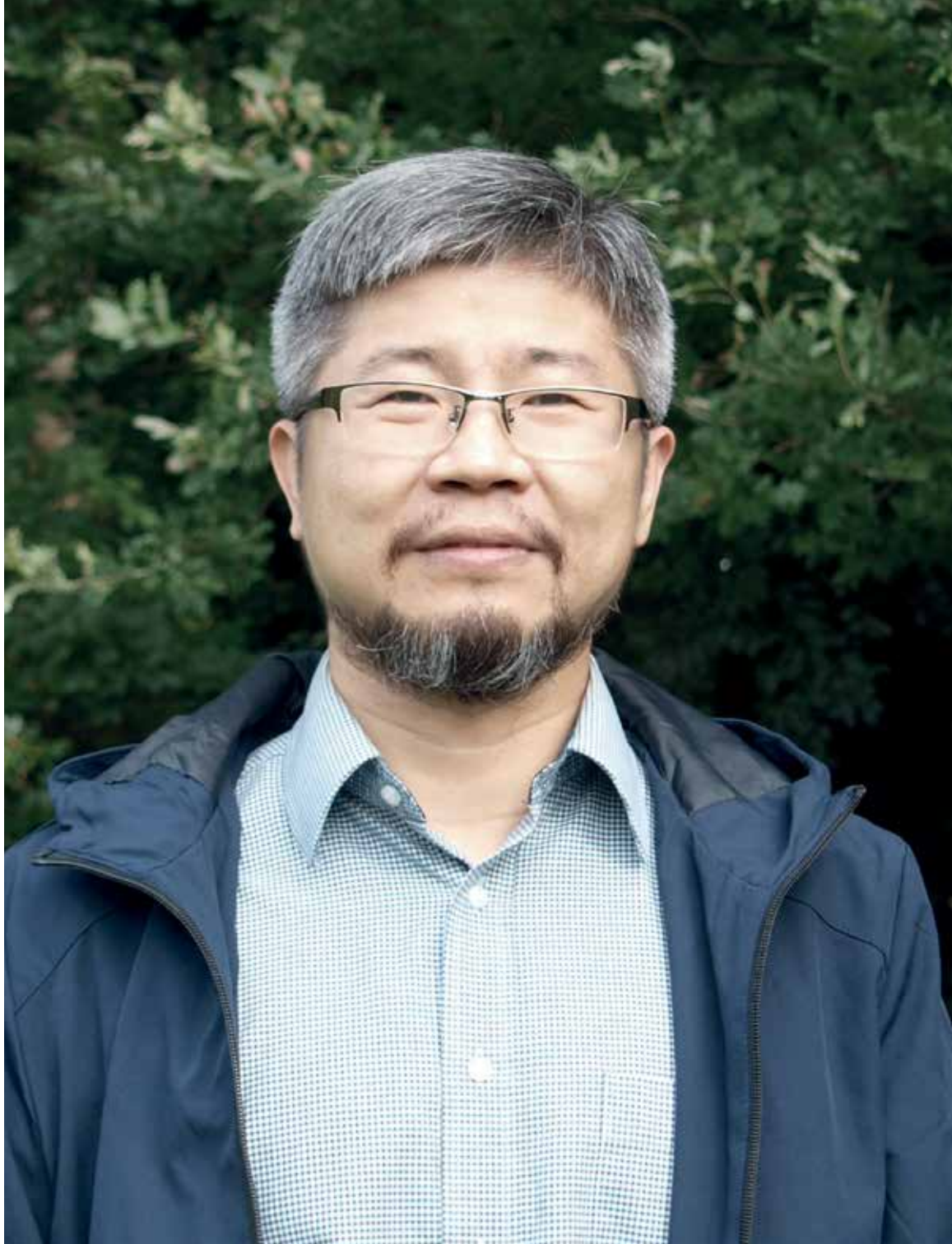
My work focuses on representing surgical procedures at multiple levels to capture the symbolic and kinematic description of the procedure and the relation between them with the aim of effectively analyzing and discussing procedures and to communicate about them.

Prof. Dr. Bin Zhou

Fellow

Fellowship
September 2021–July 2022

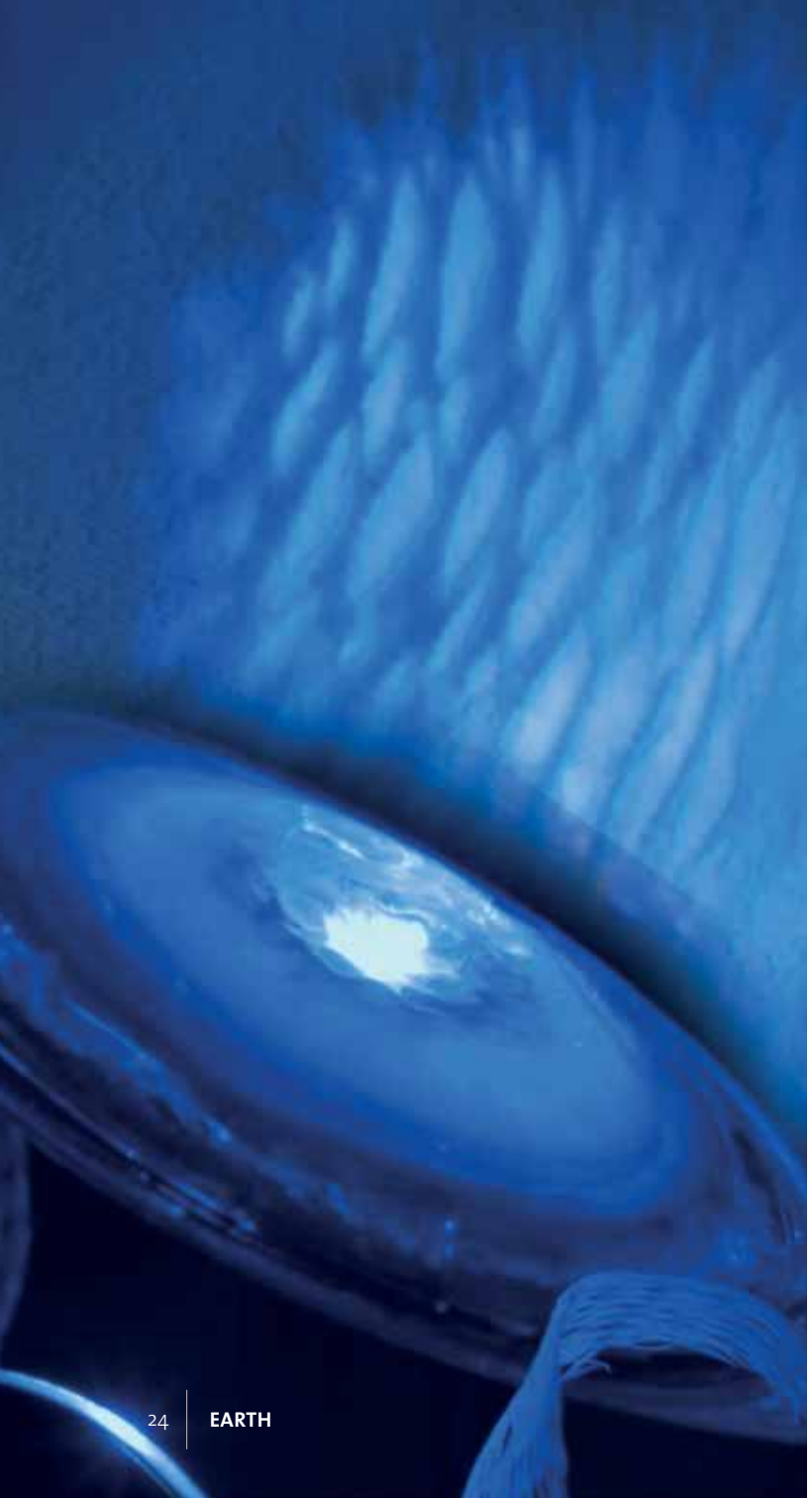
Location
Chinese Academy of Sciences
Institute of Psychology
Beijing
PRC



Object Processing and Its Role in Time Perception

Perceiving the passage of time is an intrinsic aspect of our daily experience. Such temporal experience is often attached to the perception of objects and events. The close relationship between object representation and subjective time is clearly reflected in phenomena where perceived properties of an object modulate how long the subjective duration of the object is. This suggests that a comprehensive understanding of how subjective time, especially in the sub-second-to-second range, is generated by our mind and requires an analysis of object processing and its link with time perception.

The proposed project treats objects represented in the brain as the basis for clarifying why and how objects processed in our mind are important for duration perception. Objects are often embedded in situations alongside other objects in spatiotemporal context; their representation and perceptual interactions with other objects are also dependent on the time window in which they are processed. Thus, the project also critically examines the influence of perceptual organization and processing time windows on subjective duration of single objects. By adopting an object-based perspective, I aim to go beyond previous frameworks emphasizing either perceptual grouping or perceptual strength, and to provide a new way to look at duration perception in a broader context.



Earth 2021

Prof. Dr. Raeid M. M. Abed

Fellow

Fellowship
July–September 2021

Location
Sultan Qaboos University
Biology Department
College of Science
Al Khoud 123
Muscat
Sultanate of Oman

Cooperation partners
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Prof. Dr. Rudolf Amann
Max-Planck-Institut für Marine Mikrobiologie
Bremen

Prof. Dr. Meinhard Simon
Universität Oldenburg

Asst. Prof. Dr. Dagmar Wöbken
Universität Wien

Metabolic Activity of Microorganisms in Microbial Mats Thriving at Saturation-Level Salinity and Their Potential Use in Biofuel Production

Man can tolerate only a limited range of environmental conditions, whereas microbes thrive under the most intense circumstances. We now know that where there is liquid water there is life. So what we previously considered an inhospitable environment is now seen as yet another habitat for extremophilic microbes.

In this project, I will study microbial mats from Oman subject to multiple extreme environmental conditions. These mats are found under a layer of 3-5 centimeters of salt and exposed to temperatures that can reach up to 60° Celsius, and very high UV and light intensities. I will investigate the types and activity of microbes in these mats—particularly the archaeal community.

I will also explore the potential use of halophilic and halotolerant archaea and microalgae in these mats in the production of biogas and biodiesel respectively. Furthermore, I will use a suite of molecular and geochemical techniques to study the adaptation and tolerance of these microbes to salt saturation and during tidal events.

The project will reveal which microbial processes are susceptible to very high salt stress and which ones remain viable to maintain the functioning and survival of the whole ecosystem. Such data are important for greater understanding of Earth's past and future, and for astrobiologists in their search for life on other planets.

Dr. Leonie Tabea Esters

Junior Fellow

Fellowship
November 2021–February 2022

Location
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Villavägen 16
752 36 Uppsala
Sweden

Cooperation partner
Dr. Mariana Ribas
Universität Oldenburg

Oceanic Turbulence in Coastal Regions— Driver for Air-Sea Gas Exchange

The rapidly changing climate is a significant threat to our society. Societies rely on accurate climate predictions. Oceans are particularly important in this regard. Covering over 70 % of Earth's surface, oceans form one of the largest sinks for atmospheric greenhouse gases. Thus, adequate descriptions of how the oceans absorb or release greenhouse gases are essential for predicting how much of the greenhouse gases remain in the atmosphere.

Current descriptions of the exchange processes diverge greatly in their predictive value. This divergence is particularly distinctive in coastal areas. Coastal seas differ from open-ocean dynamics and make up 10.5 % of the global ocean area. Most of these descriptions assume that the wind alone is responsible for the volume of greenhouse gases exchanged between the atmosphere and the ocean. When the wind is calmer, less gas is exchanged and when the wind is stronger, more gas is exchanged. However, we know that the actual processes are far more complex. The main driver of the exchange process is the intensity of turbulence in the uppermost meters of the ocean.

In my project I aim to reduce the uncertainties in the air-sea gas exchange descriptions in coastal areas and to understand the specific processes that control exchange. I will measure the gas flux and oceanic turbulence at two coastal sites in the Baltic and North Seas.

Dr. Alessa J. Geiger

Junior Fellow

Fellowship
November 2020–June 2021

Location
Pontificia Universidad Católica de Chile
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Av. Vicuña Mackenna 4860
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Cooperation partners
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Helmholtz-Zentrum für Polar- und
Meeresforschung (AWI), Bremerhaven

Prof. Dr. Cornelia Spiegel-Behnke
Universität Bremen

Combining Terrestrial and Marine Records to Track Patagonian Ice-Sheet Dynamics in Southwestern Chile

Numerical models are used to predict future changes in the loss of glacier ice mass and subsequent global sea-level rise associated with increasing global atmospheric temperatures. These models are based on physical principles governing our natural environment. To fine-tune these models, they need to be tested against empirical data of glacier change during periods of non-anthropogenic climate change to understand the natural variability of glacier and climate systems.

I aim to build a chronology of glacier change along the former marine terminating margin of the Patagonian Ice Sheet in southwestern Chile. For the project, I will use geological dating techniques to establish when, for how long, and what shape the Patagonian Ice Sheet took in the Chilean Fjords between 52-56° South. In parallel to land-based work, marine cores collected west of the Chilean Fjords will be analyzed for traces of sediment transported by icebergs to further elucidate changes in Patagonian ice-sheet dynamics during the last glacial period and deglacial phase 115-12 thousand years ago. Ice-sheet changes in morphology over time will be compared to the marine core sediment flux and to empirical constraints at the eastern margin in order to build a comprehensive understanding of Patagonian ice-sheet dynamics during the latest major natural climate reorganization.

The empirical data from this study will be used to test and refine coupled climate-ice-sheet models to enhance their predictive capacity.

Dr. ir. Veerle Ann Ida Huvenne

Fellow

Fellowship
October 2021–February 2022

Location
National Oceanography Centre
Southampton
European Way
Southampton, SO14 3ZH
United Kingdom

Cooperation partners
Prof. Dr. Gerhard Bohrmann
Prof. Dr. Dierk Hebbeln
Universität Bremen

Multi-Scale Habitat Mapping of Deep-Sea Environments Based on Marine Robotic Survey Data

The deep ocean is the last frontier on the planet, but is increasingly impacted by human activities. To support its effective management, there is an urgent need for a better understanding of its spatial patterns in biodiversity. While it is impossible to sample every part of the ocean, habitat mapping (a series of techniques to map the spatial distribution of environmental conditions) can provide crucial information and allows to predict species occurrences based on environmental information.

The aim of my project is to map the habitats, quantify the spatial environmental variability, and investigate its influence on the distribution of specific species in two complex deep-sea environments: a region of cold-water coral mounds, and a hydrothermal vent field. Because of their distinct 3D morphology, complex deep-sea environments host a high biodiversity, making them priority areas for conservation. However, they are particularly challenging to study. Thanks to the latest marine robots, they can now be investigated in detail.

During my project, habitat mapping will be adapted to the particular scales of the two study areas, incorporating fine-scale information collected with marine robots. Predictive maps of cold-water coral species will result in a better understanding of their environmental requirements, while habitat maps of the hydrothermal vent field will show the relation between species, the rapidly changing terrain characteristics, and geochemical gradients.

Dr. Cajetan Neubauer

Fellow

Fellowship
October–November 2021

Location
University of Colorado Boulder
Institute of Arctic and Alpine Research (INSTAAR)
Campus Box 450
Boulder, CO 80309-0450
USA

Cooperation partner
Prof. Dr. Kai-Uwe Hinrichs
MARUM – Zentrum für Marine
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Universität Bremen

Studying the Biosynthesis of Unusual Archaeal Lipids With New Tools for Isotope Quantification

How do microbes live in their natural habitat? This question becomes important every time we want to kill a pathogen or need to predict how a changing environment will affect microbial processes, for example production of the potent greenhouse gas methane. Today, we can closely examine living things by weighing the masses of molecules with a mass spectrometer. Particularly useful for answering our question are isotopes, variants of the chemical elements that differ only in the number of their neutrons. Biological processes lead to ordering of the isotopes in biomolecules. These small variations can then tell us much about what microbes are doing in an environment.

During my fellowship, I plan to access new types of information about microbial metabolism by measuring isotopes. I add rare isotopes to microbes and determine how much of it gets incorporated into certain lipid metabolites. By doing so, I want to better understand a type of methane-producing microbe that has only recently been discovered in marine sediments. In a similar way, I also wish to measure natural isotope differences in lipids extracted from deep-sea sediments, which harbor a vast biosphere of poorly understood microorganisms. This can tell us how microorganisms live when they have severely limited access to nutrients and energy.

Dr. Covadonga Orejas Saco del Valle

Fellow

Fellowship
October 2021–July 2022

Location
Instituto Español de Oceanografía (IEO)
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Cooperation partners
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MARUM – Zentrum für Marine Umweltwissenschaften
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Prof. Dr. André Freiwald
Senckenberg am Meer
Wilhelmshaven

Prof. Dr. Claudio Richter
Alfred-Wegener-Institut, Helmholtz-Zentrum für Polar- und Meeresforschung (AWI)
Bremerhaven

Biogeography of Cold-Water Coral Populations: A Story of Success and Adaptation to Different Environmental Settings in the Northern and Southern Hemispheres

Tropical corals have relatives living in the deep waters of the oceans: the so called "cold-water corals" (CWCs). Indeed, they occur everywhere in the deep oceans of the planet, also outside the tropics, populating extended areas and building reefs that act, as for their tropical relatives, as home and refuge for many other animals forming important ecosystems. Their wide geographical distribution reveals these animals' enormous adaptability to different environments, e.g., different temperature and oxygen conditions. However, how these animals adapt to—sometimes extreme—environmental conditions is not yet well understood.

With this project, I would like to contribute to the understanding of how these animals have been adapting to different geographical features and environments. For this, I analyze underwater videos that have been collected in three different geographic areas in the Atlantic Ocean. Furthermore, I perform experiments with living corals in aquaria, manipulating the conditions of the water (e.g., temperature, salinity) to explore the capabilities of the corals to adapt to different environments. This is especially important for considering the predictions for future ocean conditions (e.g., temperature increase, ocean acidification) in light of ongoing global change.

In addition to the academic activities to be conducted at the Hanse-Wissenschaftskolleg, this project will also be presented at two high schools in Bremen and Lower Saxony to introduce the hidden world of CWCs to young people.

Dr. Stephanie Plön

Fellow

Fellowship
December 2020–November 2021

Location
Bayworld Centre for Research
and Education (BCRE)
Port Elizabeth
South Africa

Cooperation partners
PD Dr. Oliver Hampe
Museum für Naturkunde
Leibniz-Institut für Evolutions- und
Biodiversitätsforschung Berlin

Dr.-Ing. Katharina Albrecht
Hochschule Bremen

Whales and Dolphins as Indicators of Ocean Health—A New Transdisciplinary Approach to the Anthropocene

We are living in an era that is recognized as having been shaped by man to a greater extent than ever before—scientists are calling it the Anthropocene. This means we are increasingly seeing a number of impacts on marine mammals caused by human developments. These include pollution, noise, disease, poor nutrition due to overfishing and habitat degradation, and the effects of climate change—together reflecting a deterioration of ocean health. Yet increasing evidence suggests that marine mammals play an important part in regulating climate.

Living in the Anthropocene means that we need to find new solutions to ensure our survival on this planet. Using marine mammals as indicators of ocean health, I intend to develop a science and communication strategy that launches ocean health science as a new way of finding solutions across different disciplines. Studies on marine mammals will be used as illustrations and will help motivate partners, especially in the field, to join the discussion to restore and promote ocean health. Central to this will be a bilateral workshop between South Africa and Germany, the development of a transdisciplinary training course, a communication strategy involving natural history museums in London and Berlin, as well as a website and television documentary.

Ultimately, I hope to engage the community of marine mammal scientists to establish a global network of ocean health researchers that act locally to promote ocean health and ocean health science.

Asst. Prof. Dr. Alberto Robador Ausejo

Fellow

Fellowship
October 2021–June 2022

Location
University of Southern California
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Cooperation partner
Prof. Dr. Boris Koch
Alfred-Wegener-Institut,
Helmholtz-Zentrum für Polar-
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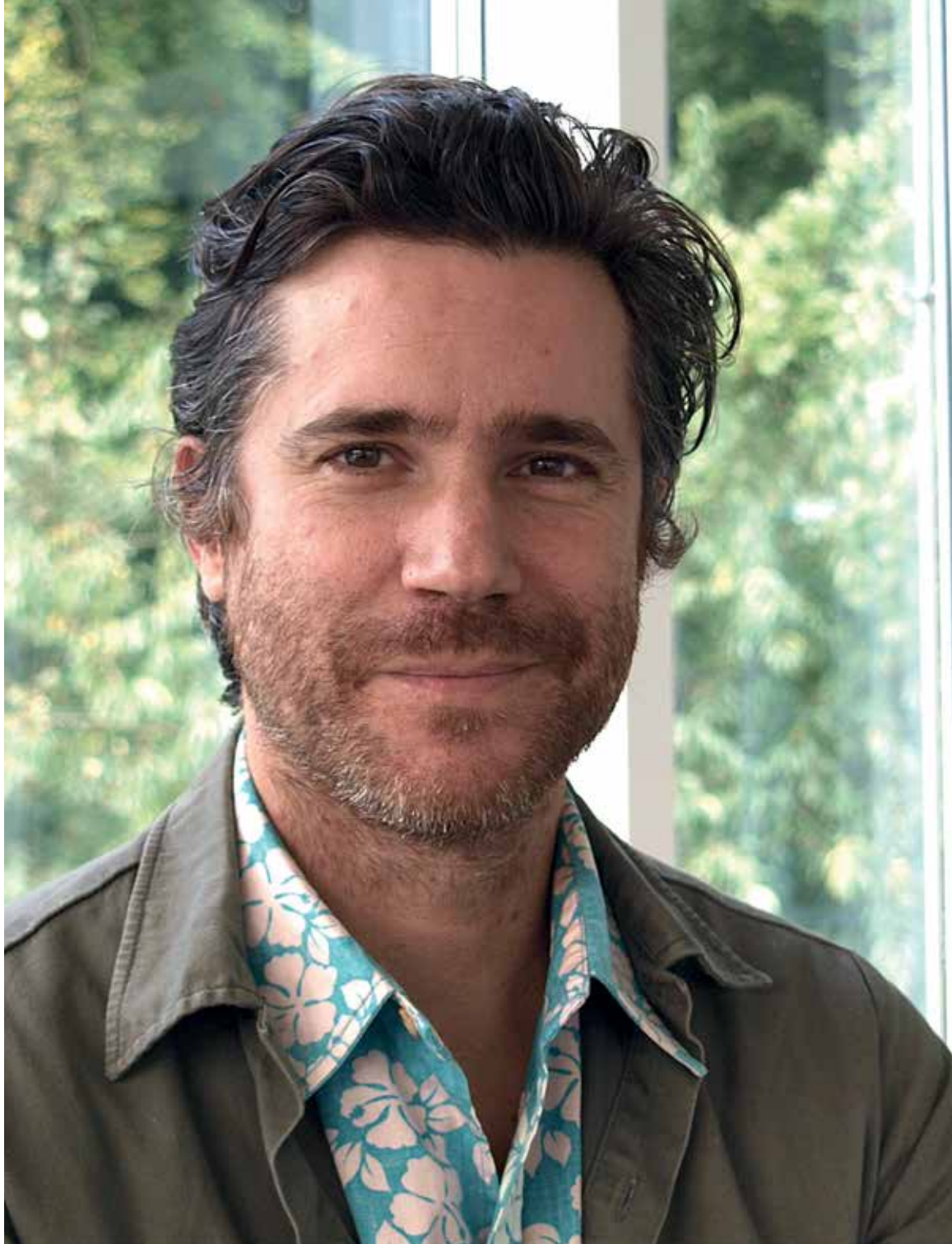
Bremerhaven



Energy Bookkeeping in Ocean Ecosystems

The marine microbiome is a vital component in determining the structure and function of oceans, including the regulation of elemental cycles in response to environmental forcing (natural or anthropogenic in nature) and the balance of the global marine biomass. One of the most fundamental questions is how all microorganisms in marine ecosystems are supplied with sufficient energy to sustain power demands. Virtually every aspect of microbial behavior in a given environment requires energy supplied at a rate sufficient to meet power demands. This includes typical functions such as growth and nutrient uptake. In addition, microorganisms must sometimes use energy to combat environmental stressors. Energy turnover is therefore at the core of ecosystem function, but it is rarely if ever quantified in field studies. Direct quantification of microbial energy metabolism in marine environments has in most cases represented an exercise in feeding and weighing bacteria, and this approach has been confounded by variations in growth rate, cell composition, and exact knowledge of molecular-energy yielding and consuming mechanisms. Here, I propose a novel experimental approach to investigate how microorganisms involved in elemental cycling evolve under different energy regimes, how they work, and the environmental processes that control their activity on both molecular and global scales.

Dr. Luiza Teixeira-Costa

Fellow

Fellowship
September 2021–June 2022

Location
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Universität Oldenburg

Effects of Climate Change on the Physiology of Parasitic Flowering Plants

Climate change can affect life in multiple ways, including the interactions established between living organisms. Possible impacts on parasitic interactions raise special concern and interest, given that these relations can lead to broader ecosystem alterations. Parasitic relations among plants are no exception, as these parasitic plants are highly diverse and distributed across all continents and vegetation types, including both natural and human-made environments.

In this context, the main goal of my project is to analyze how parasitic plants and their respective hosts react to an elevated concentration of carbon dioxide in the atmosphere, which is understood to be the main driver of climate change. To do so, I use a type of experiment shown to be very useful for climate-change research, but that has not been applied in investigations of parasitic plants so far. In the experiments, I will analyze the growth and photosynthesis of both parasite and host plants, as well the nutrients exchanged between these plants.

Results obtained by this investigation will help us understand not only how specific plants react to shifts in climate, but also how the interaction between plants can be affected. This understanding will be crucial for studies of how the distribution of parasitic plants might change in the future, as well as for planning conservation action and managing unbalanced host-parasite interactions.

Energy 2021

Dr. Kamal Hajian

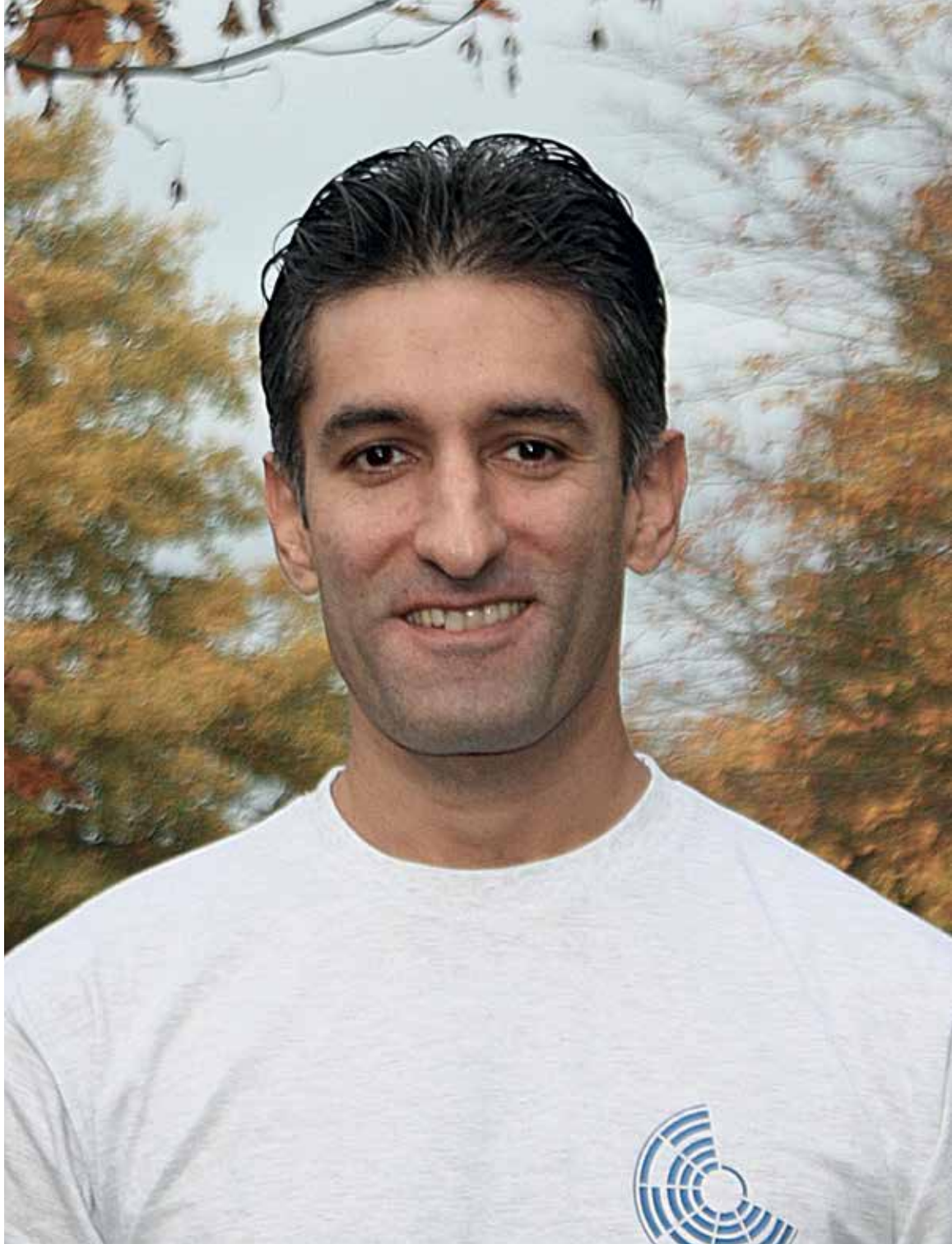
Junior Fellow

Fellowship
November 2020–November 2021

Location
Institute for Research in
Fundamental Sciences (IPM)
Teheran
Iran

Cooperation partners
Prof. Dr. Jutta Kunz
Universität Oldenburg

Prof. Dr. Claus Lämmerzahl
Prof. Dr. Domenico Giulini
Universität Bremen



Gravitational Waves, Memory Effect, and Black Hole Microstates

After the initial observation of gravitational waves in 2015, researchers have been investigating different aspects of this interesting physics phenomenon. One important aspect of these waves is the memory effect: when such a wave passes through an empty region of space, it affects the empty space and leaves a memory imprint behind. This effect is different from other such imprints (e.g., on hard disks in our computers), as the memory imprint is saved in an empty region of space where no matter is present. The data in the gravitational memory effect are encoded in some conserved charges called soft hairs. This amazing feature of nature opens a gate to our understanding of spacetime. Specifically, the memory effect is related to black hole physics.

About forty years ago, physicists discovered that black holes exhibit interesting features: they have some (yet unknown) microstates that can carry and store information. In fact, black holes are known to have the highest capacity-to-volume ratio for storing information. Nonetheless, how to identify the physical entities responsible for carrying this information remains a mystery. Recently, there has been progress in this interesting line of research thanks to the identification of the soft hairs of black holes. Soft hairs exist close to the horizon of a black hole, and are called horizon fluffs. Studying soft hairs sheds light on some long-standing problems in black hole physics.

Prof. Dr. Stefan Heinz

Fellow

Fellowship
May–August 2021

Location
University of Wyoming
Department of Mathematics
1000 East University Avenue
Laramie, WY 82071
USA

Cooperation partner
Prof. Dr. Joachim Peinke
Universität Oldenburg

Cutting-Edge Turbulence Simulation Methods for Wind Energy Problems

Wind energy problems (air flow around turbines in wind farms) are characterized by extremely challenging flow regimes. The accurate and efficient analysis of these flow patterns via computational fluid dynamics (CFD) poses a huge challenge. Basically, standard CFD methods are incapable of dealing with reliable and feasible predictions of such flow regimes: they are either way too expensive computationally or are known to often provide unreliable results. Combinations of existing methods have been suggested as an alternative. However, existing methods face significant problems because of the uncontrolled balance of their elements. As a consequence, existing combination methods do not yet offer an alternative to pure methods.

I have developed a mathematical exact solution to the combination of existing computational methods. First applications in real-world conditions show the huge potential of these novel methods. For the first time, we have access to reliable simulation methods that behave stably in strongly variable conditions. In particular, for the first time we can provide reliable predictions for extreme flow regimes relevant to wind energy problems (where all existing methods are hardly applicable).

The goal of my project is to explicitly demonstrate the advantages of our new methods for wind energy simulations based on an existing long-term collaboration with colleagues at the Universität Oldenburg.

Dr. Ingrid Neunaber

Twin Fellow

Fellowship
July–August 2021

Location
Laboratoire de Recherche en Hydrodynamique,
Énergétique et Environnement Atmosphérique
(LHEEA), Centrale Nantes
1 rue de la Noë
44321 Nantes Cedex 3
France

Cooperation partner
Assoc. Prof. Dr. Martin Obligado
Fellow ENERGY
Laboratoire des Ecoulements Geophysiques
et Industriels (LEGI)

A Benchmark Study on the Role of Turbulent Dissipation in Wind Energy Applications

In the last few years, wind energy research has experienced exponential growth worldwide. In particular, the study of the air flow that occurs downstream from one or several turbines has captured the attention of the turbulence-research community. It is a fascinating problem that involves turbulent wakes, interactions between them, and their coupling with the background turbulent flow.

Despite this growing interest, many recent advances in the modelling of turbulent flows have not yet been adapted to such studies. They concern the understanding of the inner structure of turbulence: the energy cascade. The models show how energy is transferred from large to small scales and how the energy of the flow is dissipated. This complicated phenomenon has been found to ultimately define important properties of turbulent wakes, such as their velocity deficit and how they spread in the direction of the air stream. It has recently been discovered that the standard model, developed by Kolmogorov in the 1940s, is not the only one relevant to wind energy applications. In the last few years, a new type of cascade has been identified in these flows. Because the conception and modelling of wind turbines and of wind farms relies on the standard model, it is key to study and characterize the presence of this new cascade in scenarios related to wind energy generation.

In my project, I carry out a fundamental study on the energy cascade of the turbulent wakes, and of how they are coupled to the background turbulent flow, shedding light on the relevance of the energy cascade for wind energy.

Note: Dr. Ingrid Neunaber is engaged in a collaborative project with Prof. Martin Obligado.

Assoc. Prof. Dr. Martin Obligado

Fellow

Fellowship
June–August 2021

Location
Laboratoire des Ecoulements Geophysics
et Industriels (LEGI)
1209-1211 Rue de la Piscine
Saint-Martin-d'Hères
France

Cooperation partner
Prof. Dr. Joachim Peinke
Universität Oldenburg

A Benchmark Study on the Role of Turbulent Dissipation in Wind Energy Applications

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Note: Prof. Martin Obligado is engaged in a collaborative project with Dr. Ingrid Neunaber.

Dr. Oleg Tsupko

Fellow

Fellowship
November 2021–April 2022

Home institution
Space Research Institute of the
Russian Academy of Sciences
Profsoyuznaya 84/32
Moscow 117997
Russia

Cooperation partners
Prof. Dr. Domenico Giulini
Dr. Volker Perlick
Universität Bremen

Prof. Dr. Jutta Kunz
Universität Oldenburg

Appearance of Strongly Gravitating Objects to a Distant Observer: Black Hole Shadows and Self-Lensing of Emitting Compact Stars

In space, there are objects exhibiting very high gravitational energy: black holes and neutron stars. In such objects, a large mass is concentrated in a small region of space, which gives rise to strong gravitational fields. An effect of these fields is that light rays that pass close by these objects, or that are emitted by them, move along curved paths. This affects the image of the object that a distant observer detects: we perceive them in unusual, distorted ways. An amazing example of such an object is what is known as the black hole shadow: a very specific dark silhouette of a black hole which was recently observed in the galaxy M87. By studying the properties of this image, we can draw conclusions about the properties of the distant object itself.

In my project, I intend to focus on situations in which compact objects are surrounded by plasma. Plasma is a dispersive medium, and in this case "rainbow effects" may be observed, caused by light rays of different frequencies that are deflected by it at different angles. In other words, gravitating objects surrounded by plasma act like refractive prisms, splitting light into its spectral colors.

In my project, I will investigate how properties of such objects and their environments can be deduced from their appearance to the distant observer.

Assoc. Prof. Dr. Martin Wosnik

Fellow

Fellowship
October–November 2021

Location
University of New Hampshire
Department of Mechanical Engineering
33 Academic Way
Durham NH 03824
USA

Cooperation partners
Prof. Dr. Martin Kühn
Prof. Dr. Joachim Peinke
Universität Oldenburg

Flow Physics of Wind Turbine Wakes

Wind energy plays a key role in achieving renewable energy targets and has seen a tremendous increase in installed capacity, both on- and off-shore. However, many science and engineering challenges still exist. One of them is to understand, model, and control how wind turbines and the wake flows they generate interact with the atmosphere and with other turbines downwind. In large wind farms, these interactions can cause a significant decrease in energy yield and lead to increased wear on wind turbine components, thereby reducing turbine service life. The flow physics of wind turbine wakes, in particular with complex inflows, are not well-understood.

My project initiates and conducts collaborative studies of wind turbine wakes in two large-scale experimental facilities, at WindLab at Universität Oldenburg and at the University of New Hampshire.

Specifically, wind turbine wakes are investigated using model turbines under different inflow and boundary conditions to study flow phenomena that have high importance at the application level.

Combined with field observations in wind farms, these experiments will guide the development of flow-physics-based models. My project helps establish generally applicable results regarding wake flow-physics and wind-turbine wake development. The insights will be transferable to the practice of design, operation, and maintenance of wind farms, thereby increasing energy yield and turbine service life, and reducing energy cost.

Society 2021

Asst. Prof. Dr. Sara Brandellero

Fellow

Fellowship
February–July 2021

Location
Leiden University
Centre for the Arts in Society
PO Box 9500
2300 RA Leiden
The Netherlands

Night Narratives of Migration in The Netherlands

This transdisciplinary project is part of a larger collaborative study of eight European cities in collaboration with Dr. Derek Pardue at the Hanse-Wissenschaftskolleg with the aim of understanding the key question of how migrant communities in Europe produce, imagine, experience, and narrate night spaces. It recognizes migration as a key and often polarizing topic in political and public discourse in Europe and addresses the issue through the study of the material, symbolic, and virtual public spaces associated with and created by migrant communities in nighttime urban settings—understood as important sites of crisis and regeneration, memory and heritage, and community solidarity and growth.

Historically, authorities have wrestled with the issue of nighttime control, and the hours after dark are often still perceived as a threat to public order and potential opportunity for crime. Yet the current policy attention to nighttime urban economies, exemplified by the creation of a night mayor's office (Amsterdam, 2014), illustrates the increasing interest in the potentialities of the urban night. Harnessing this growing interest, my contribution combines ethnographic fieldwork and cultural analysis of selected literary and film texts, music, and theater performances to illuminate traditionally overlooked stories played out in the key migration centers of Rotterdam and Amsterdam, towards a better understanding of multifaceted life experiences in today's urban centers.

Note: Prof. Sara Brandellero is collaborating on a project with Prof. Derek Pardue.

Dr. Ismael del Olmo

Junior Fellow

Fellowship
July–December 2021

Location
Universidad de Buenos Aires
Facultad de Filosofia y Letras
Departamento de Historia
Puan 480
Ciudad de Buenos Aires
Argentina

Demonic Possession, Exorcism, and Biblical Exegesis at the Close of the Early Modern Era: From Revelation to Culture (England, France, and the Netherlands, c. 1650-1750)

Research on demonology—the science and theology of demons and their dealings with God, nature, and humans—has focused mostly on its Late Medieval and Renaissance manifestations. Black magic, witch-hunts, and mass possessions of Catholic nuns are perhaps their best-known features. Less has been written, however, on its decline between c. 1650 and c. 1750. There is no specific study on the ways in which biblical criticism concerning possession and exorcism could have served as a critique of demonology, and as a source for a secular understanding of Scripture. Drawing upon Materialism, Cartesianism, Spinozism, Scepticism, and other philosophies, diverse authors from England, France, and the Netherlands interpreted biblical possession as diseases or metaphors for deranged bodily and mental states, and exorcism as a natural cure. Furthermore, using etymology, comparative mythology, and exegesis, they developed a new interpretation of demonic themes in the Bible, viewing devils, demoniacs, and exorcists not as part of Revelation but as products of the Hebrew, Greek, and Roman influence during the writing of the Gospels.

My project sets out to show that criticism of the scriptural evidence for possession and exorcism played an unacknowledged role in relativizing religious thought. Could a biblical debate on demonology have contributed to the disenchantment of Christian Europe, transforming religion from revelation to culture?

Christophe Delory

Fellow / Artist in Residence

Fellowship
May–July 2021

Location
Independent
Argenton sur Creuse
France

Cooperation partner
Dr. Carsten Jöhnk
Nordwestdeutsches Museum
für IndustrieKultur
Delmenhorst

Norddeutsche Wollkämmerei & Kammgarnspinnerei (NDW): Photographs by Christophe Delory

From 1884 to 1981, the Norddeutsche Wollkämmerei & Kammgarnspinnerei (NDW) in Delmenhorst was an important company for the treatment of wool and combed yarn. It grew in the 1920s and eventually closed in 1981. Today, some of its buildings remain preserved and constitute one of the major industrial monuments of Europe. They are an important testimony to the historic architecture of large factories. On the site of the decommissioned factory, a district with a modern residential development deeply connected to the historic site was built. The district was a mix of old buildings later converted into new constructions. This rehabilitation took many years and gave rise to different architectural styles. These differences are testimonies to the period of their creation as well as the people they were built for. The integrity of these buildings forms a particularly complex whole.

I aim to document this kind of architectural richness. I also plan to reflect on the people's social interaction with this architecture and how they, the people and the buildings, "live together." My goal will be to create links between past and present, as well as between people of different cultures and social backgrounds.

Photography has the power to connect people. In collaboration with the StadtMuseum Delmenhorst, I am also planning a public exhibition of the final works. The photographs will include portraits of citizens as well as architecture. This will be an opportunity to encourage today's inhabitants of the Nordwolle grounds to visit the museum revisit their collective memory, and remind themselves that the present does indeed write the past.

Assoc. Prof. Dr. Catherine Gegout

Fellow

Fellowship
September 2020–March 2021

Location
University of Nottingham
School of Politics and International Relations
University Park
Nottingham, NG7 2RD
United Kingdom

The European Union and the Developing World: Protectionism and Exploitation, or Economic and Social Development

The EU intends to fight poverty and promote development globally. However, it has come under criticism from civil society. Firstly, the EU's Common Agricultural Policy establishes trade barriers and competes with exports from developing states worldwide. Secondly, with the Common Fisheries Policy, the EU subsidizes fish caught by European vessels and sets strict rules on market access. Thirdly, the EU has very limited regulation controlling European companies working in the developing world. Fourthly, the EU has few regulations to protect social and gender rights.

Despite these charges, there has been little research on the shortcomings of EU protectionist measures, regulations that affect the developing world, and trade policies. How does the EU hinder or, on the contrary, contribute to economic and social development?

My project, which consists in the writing of a book, will result in the first study of: 1) the challenges faced by the EU to promote development (economic growth and reduced inequalities); and 2) the extent to which EU economic policies help development.

It brings together three interdisciplinary literatures: political economy and critical political economy, labour rights, and gender. The book will consist of two parts. The first part will analyze the EU policies' impact on the development of agriculture and fisheries and regulations on resource exploitation and supply chains. The second part will show the extent to which the EU promotes or hinders development in Vietnam, Mauritius, and Peru.

Assoc. Prof. Dr. Piers Hale

Fellow

Fellowship
September 2021–June 2022

Location
University of Oklahoma
Department of History of Science
College of Arts and Sciences
Norman, OK 73019-3106
USA

Cooperation partner
Prof. Dr. Anton Kirchhofer
Universität Oldenburg

Darwin in History. Evolution, Science, and Society

Historians of science have long agreed that the publication of Charles Darwin's *Origin of Species* in November 1859 was a signal event not only in the history of science, but in the history of modern western thought. A veritable "Darwin industry" of scholarship emerged as testament to this fact and the subsequent publication of Darwin's notebooks, journal, and correspondence have not only made Darwin and his works more accessible, but underlined their importance.

Darwin in History: Evolution, Science, and Society, will introduce scholars, students, and general readers to the main debates in science to which Darwin's work was intended as a contribution, as well as to the social, religious, and political debates upon which it had an impact. This includes the "species question" in science, which sought an acceptable explanation for the new species then recently uncovered in the fossil record, raising theological concerns regarding the implied common ancestry of man and ape. Of even greater concern at the time was the suggestion that morality, conscience, and ethics were but contingent outcomes of natural selection. Such questions about human nature provided social theorists with a new perspective on old political and social issues, inspiring them to ask whether our politics should best mirror or combat our natural instincts and inclinations. Darwin's theory of evolution by means of natural selection challenged every aspect of the lives of his contemporaries, and continues to inform how we think about what it means to be human.

Dr. Lasisi Adeiza Isiaka

Junior Fellow
co-funded by the HANSA-FLEX Stiftung

Fellowship
September 2021–February 2022

Location
University of Toronto
Department of French
50 St. Joseph Street
Toronto, ON, M5S 1J4
Canada

Cooperation partners
Dr. Inke Du Bois
Prof. Dr. Marcus Callies
Universität Bremen

Diasporic Spaces: Rethinking Digitality, Language, and Mobility

My work seeks to understand the combined impacts of language and the new media on transnational movements among West African migrants in Germany and, specifically, to assess the ways in which migration experiences, social memberships, integration, and prospects are determined and made visible by digital linguistic practices. I focus on the reliance of migrants on digital means for reorganizing relationships, maintaining identity, and interacting with host communities.

Drawing on concepts in language and diversity (ethnolinguistics, digital ethnography, and superdiversity), I examine the linguistic practices of prospective and resident migrants with a view to better understanding how the new mediascapes transform virtual togetherness, socialization processes, and mobility. While this has implications for theories of communication in transnational contexts, our understanding of mobility and sociality vis-à-vis the notion of globality can refine diasporic discourse and relevant socio-political engagements.

Assoc. Prof. Dr. Liliia Korol

Fellow

Fellowship

August 2021–August 2022

Location

The National University of Ostroh Academy
str. Seminarska, 2
35800 Ostroh
Ukraine

How and When Social Exclusion Might Create a Risk of Violence Among Immigrant Youth of Post-Socialist Eastern European Background

Given increasing ethnic diversity in Europe, the harmonious integration of immigrants and their descendents, who will shape the Europe of tomorrow, is no longer an option but a pressing concern for the well-being, social cohesion, and prosperity of the host societies. And yet, anti-immigrant hostility is rising, and immigrant youth frequently face social exclusion in and outside school contexts across the EU. These negative experiences have deleterious consequences, including violence, for the successful adjustment of immigrant adolescents. Concerns over antisocial behavior, violent offenses, and radicalization among immigrant youth are growing in Europe. Yet existing research lacks comprehensive understanding of the factors that might put socially excluded immigrant youth at risk of endorsing and engaging in violence.

The research I propose aims to fill this gap in current knowledge and gain in-depth insight into the underlying processes that explain why and when social exclusion might drive immigrant adolescents to approve of and engage in violence over time. The project focuses on immigrant adolescents of Post-Socialist Eastern European (PSEE) background residing in three different European countries: Germany, Sweden, and Norway. This knowledge will contribute to preventing escalating cycles of violence from adolescence through adulthood among immigrant youth.

Assoc. Prof. Dr. Carsten Levisen

Fellow

Fellowship
August 2020–February 2021

Location
Roskilde Universitet
Universitetsvej 1
4000 Roskilde
Denmark

Cooperation partner
Prof. Dr. Ingo H. Warnke
Universität Bremen

The Anglo Order of Knowledge: A View from Postcolonial Semantics

English has become the default language of international collaboration, theorizing, and scientific publication. Yet the use of English in academia and its consequences and complications are only rarely studied. All too often, English is believed to be transparent—a pure language of human thought and communication. Recently, linguistic research has begun to illuminate the pitfalls of international academia's reliance on English, and this project launches a new cross-linguistic and interdisciplinary investigation of Anglocentric concepts, using new techniques from linguistic semantics, and with a postcolonial perspective that allows a critical exploration into "the Anglo order of knowledge."

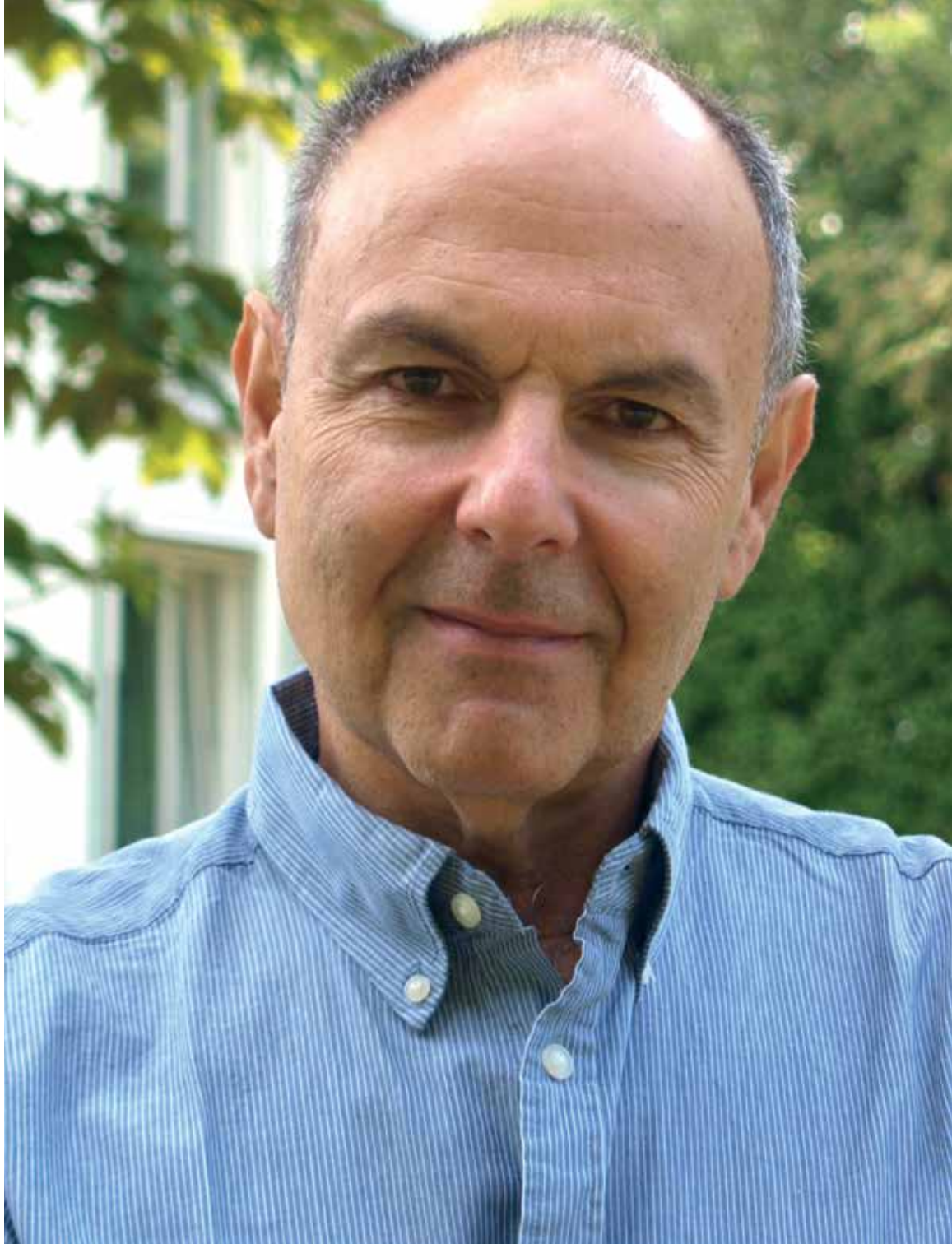
The goal of the project is to identify and challenge some of the most problematic Anglocentric biases in current global scholarship and is intended as a preventative: with cross-linguistic evidence, we seek to establish new guidelines for improving the current "language of knowledge" in global academia.

Prof. Dr. Semion Lyandres

Fellow

Fellowship
May–August 2021

Location
University of Notre Dame
Department of History
219 O'Shaughnessy Hall
Notre Dame, IN 46550368
USA



The February Days, 1917: The Downfall of the Old Regime and the Politics of Russia's Failed Attempt at Democracy

The Russian Revolution of February 1917 was a defining event of the twentieth century. In nine short days, the centuries-old tsarist regime was overthrown, and a chain of events was set in motion that led to the disintegration of the Russian empire and the rise of the Soviet regime that would come to dominate the world stage. The February Revolution also constitutes one of the most exciting, innovative, and formative events in all of Russian history.

The lessons of the Revolution transcend the year of 1917, since many of the institutions, practices, and attitudes it introduced lasted through much of the Soviet period, with ramifications until the present day. The book I intend to write will rely on a wide range of previously unavailable archival sources to explore how pre-revolutionary ideas shaped revolutionary politics in February 1917 and defined the form and composition of the Russian Provisional Government.

More broadly, the book will focus on ideas and elite politics to explain Russia's failed transition to democracy in 1917, with global implications for modern and contemporary revolutions, including Eastern Europe and the Arab Spring.

Assoc. Prof. Dr. Derek Pardue

Fellow

Fellowship
March–July 2021

Location
Aarhus University
Institute of Culture and Society
Department of Global Studies
8000 Aarhus
Denmark

Cross-Cultural Understandings of 'Night' and Their Impact on Social Integration

This transdisciplinary project is part of a larger collaborative study of eight European cities in collaboration with Dr. Sara Brandellero at the Hanse-Wissenschaftskolleg with the aim of understanding the key question of how migrant communities in Europe produce, imagine, experience, and narrate night spaces. It recognizes migration as a key and often polarizing topic in political and public discourse in Europe and addresses the issue through the study of the material, symbolic, and virtual public spaces associated with and created by migrant communities in nighttime urban settings—understood as important sites of crisis and regeneration, memory and heritage, and community solidarity and growth.

Historically, authorities have wrestled with the issue of nighttime control, and the hours after dark are often still perceived as a threat to public order and potential opportunity for crime. Yet the current policy attention to nighttime urban economies, exemplified by the creation of a night mayor's office (Amsterdam, 2014), illustrates the increasing interest in the potentialities of the urban night. Harnessing this growing interest, my contribution combines ethnographic fieldwork and cultural analysis of selected literary and film texts, music, and theater performances to illuminate traditionally overlooked stories played out in the key migration centers of Rotterdam and Amsterdam, towards a better understanding of multifaceted life experiences in today's urban centers.

Note: Prof. Derek Pardue is collaborating on a project with Prof. Sara Brandellero.

Prof. em. Dr. Endre Sik

Fellow

Fellowship
July–December 2021

Location
Centre for Social Sciences
Institute of Sociology
IX. Tóth Kálmán u. 4.
H-1097 Budapest
Hungary

The Sociology of the Moral Panic Button

The Moral Panic Button (MPB) is a government-induced series of moral panics. The MPB assumes governmental control of the media, the use of various propaganda instruments beyond the mass media (e.g., fake national consultations, push polls, distorted referenda), and strong framing and priming techniques.

In Hungary, when the MPB was pressed seventeen times between 2015 and 2019, it had a tangible impact on the political landscape (the hegemony of the ruling party), on public opinion (high and increasing level of xenophobia), and on the structure of the media (oligopoly).

The research I plan to do at the Hanse-Wissenschaftskolleg will focus on the following questions: What are the historical, social, political, and economic bases of the emergence of MPB? To what extent can MPB be considered as a Hungarian innovation (a so-called *Hungaricum*)? What are the consequences of the application of MPB on the political processes such as politicization, de-democratization, hybridization, and new tribalism? How does MPB influence the politics of the EU in general and in the former post-communist EU countries in particular?

Prof. Dr. Gerry van Klinken

Fellow

Fellowship

August 2020–February 2021

Location

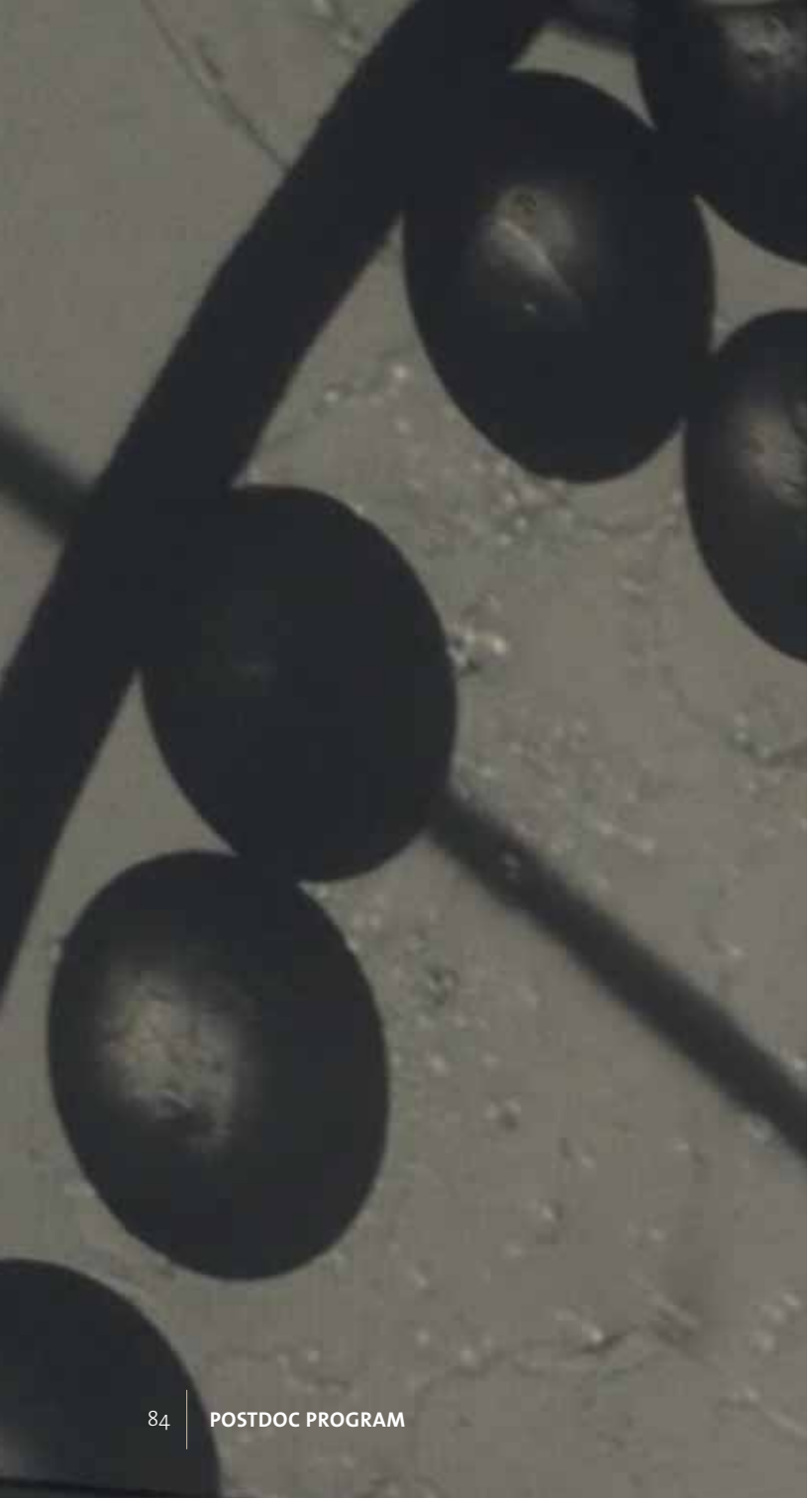
The University of Queensland
School of Historical and Philosophical Inquiry
St. Lucia QLD 4072
Australia

Typhoon Politics in Twentieth-Century Asia: States, Markets, Patronage

Of the 1.2 million killed by storms worldwide in the twentieth century, 1.1 million died in Asia alone. Ninety percent of those died due to storm surges that caused the sea level to momentarily rise by 5 meters or more, flooding low-lying coastal areas. Despite the use of satellite-based forecasting technology, the rate of deaths due to storms has not declined in Asia since the 1970s. Japan—rich and democratic after WW2—launched massive state-funded seawall engineering projects beginning in 1959. India did little in this regard until after 1999 and then adopted digital warning technologies. The Philippines attempted similar projects, but failed consistently to put in place effective and fair protective mechanisms.

Why these differences? Uncovering the answer with a view to the twenty-first century is the aim of my project. Climate change will increase the frequency and impact of severe tropical storms. More extreme weather plus incremental temperature and sea-level changes threaten to undo decades of developmental progress in the Global South.

How well can Asian societies cope with these climate-related disasters? What alternative forms of governance emerged on a national level in the twentieth century? Which losses caused by typhoons may be managed communally or which risks may be transferred? How can we explain their emergence? (Loss-sharing refers to state formation; risk transfer to market-based initiatives.) Asian polities show great diversity on the levels of state capacity and democracy, now considered crucial to their adaptive capacity.



Postdoc Program 2021

Dr. Stefanie Arndt

Associate Junior Fellow

Fellowship
July 2021–June 2024

Location
Alfred-Wegener-Institut,
Helmholtz-Zentrum für Polar-
und Meeresforschung (AWI)
Bremerhaven
Germany

Snow Depth on Antarctic Sea Ice: A Big Unknown

Snow depth on sea ice is an Essential Climate Variable because it dominates the energy and momentum exchanges across the atmosphere-ice-ocean interfaces and actively contributes to sea-ice mass balance. Yet snow depth is one of the least known and most-difficult-to observe parameters of the Arctic and Antarctic sea-ice cover, mainly due to its exceptionally high spatial and temporal variability and the lack of suitable remote-sensing retrieval concepts. This is particularly true for Antarctic sea ice, as it exhibits a comparably high year-around snow load-to-ice thickness ratio, resulting in a strong impact of the sea ice freeboard and causing high uncertainties in Antarctic sea-ice thickness retrievals.

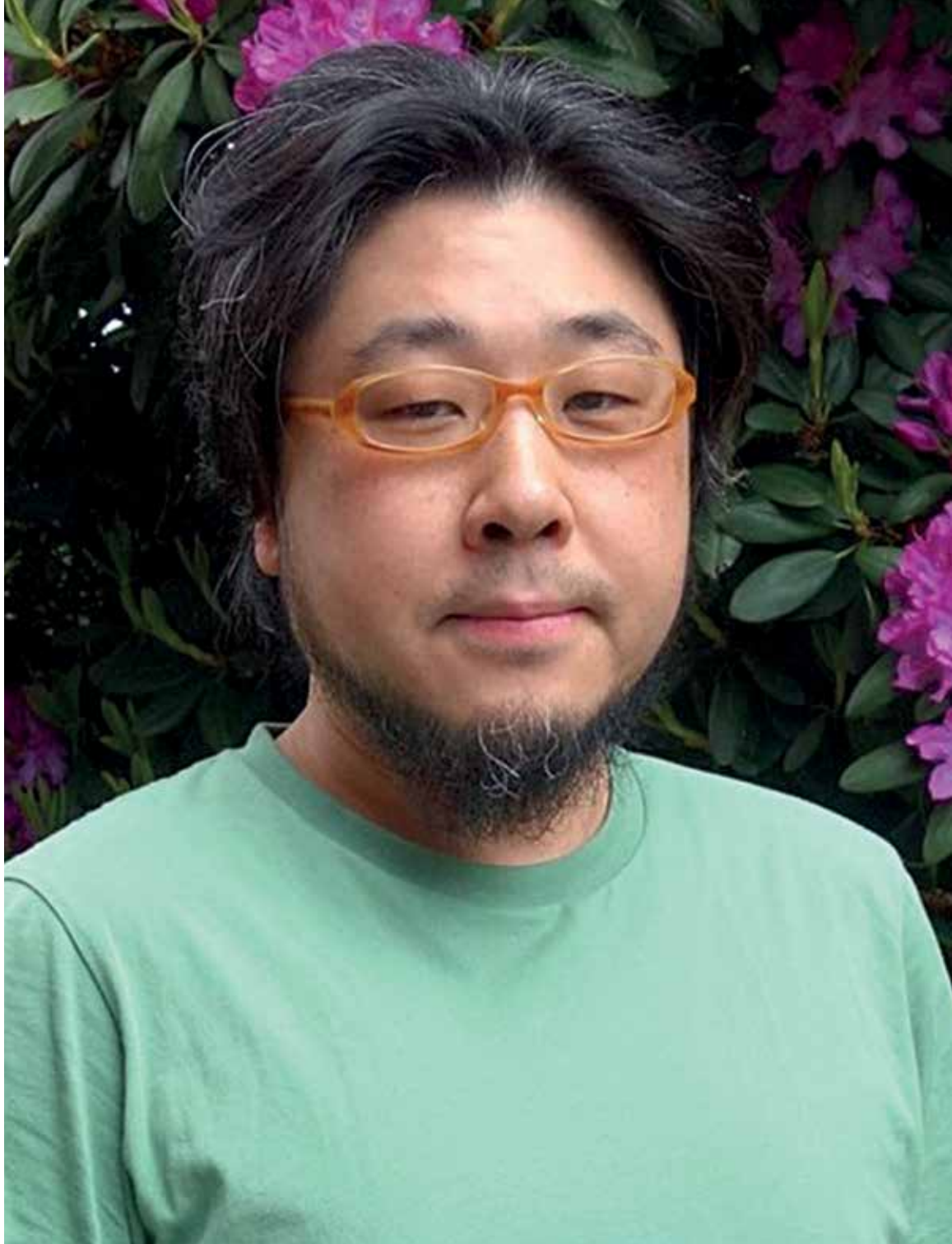
The workshop Snow Depth on Antarctic Sea Ice: A Big Unknown aims, therefore, to outline and propose a processing chain to derive snow depth on Antarctic sea ice from a variety of remotely sensed observations. Evaluating existing and new (forthcoming) data products of snow depth with comprehensive in-situ snow-depth data will make it possible to propose commonly used snow-depth climatology. Joint discussions and scientific analysis of such a snow-depth dataset within a group of experts of satellite data interpretation, field-data providers, as well as numerical modelers are expected to result in the review of current ocean-ice-atmosphere process analyses, which should in turn lead to greatly improved numerical parameterizations in sea-ice and climate models.

Dr. Go Ashida

Associate Junior Fellow

Fellowship
July 2020–June 2023

Location
Universität Oldenburg
AG Computational Neuroscience
Exzellenzcluster "Hearing4all"
26111 Oldenburg
Germany



Computation in the Auditory Periphery: Physiological Foundations and Comparative Modeling

Computational modeling is an essential tool for hearing research. Auditory periphery models help us understand the fundamental functions of the first stages of the auditory system and enable us to simulate how and what sort of acoustic information is transferred to the brain to form a perception of sounds. Currently available auditory periphery models have been developed and tuned mostly with neurophysiological data from cats and psychoacoustic data from humans. In experimental auditory neuroscience, however, rodent species such as gerbils, chinchillas, and guinea pigs are now much more frequently used than cats. It is unclear how precisely the auditory functions of these lab animals can be simulated using existing models.

I intend to hold a two-day workshop towards the development of an auditory periphery model applicable to rodents. The first day will focus on comparative auditory nerve physiology and aims to reveal the similarities and differences among animal species that serve as the bases for computational modeling. The second day will focus on previous and ongoing modeling approaches to review existing techniques and to identify current and future challenges to auditory periphery models.

During the workshop, participants will have ample time for in-depth discussion with the goal of devising a set of physiological criteria that a good auditory periphery model should satisfy. I hope that this workshop will facilitate collaboration between auditory physiologists, model developers, and model users.

Dr. Anna Auguscik

Associate Junior Fellow

Fellowship
September 2018–June 2022

Location
Universität Oldenburg
Institut für Anglistik und Amerikanistik
Fak. III - Sprach- und Kulturwissenschaften
Postfach 25 03
26111 Oldenburg
Germany

Expedition Narratives

The analysis of the science novel within the framework of the Hanse-Wissenschaftskolleg's Fiction Meets Science Program 1 (FMS) has shown that expeditions are an important part of scientific practice in many different disciplines. In contrast, public interest often focuses on the famous expeditions of great explorers. The sub-project in FMS 2 examines the contemporary historical novel, which reveals an interest in explorers but also in the narrative representation of the many players that form an expedition. The broader project I wish to pursue as part of my Associate Junior Fellowship concerns expedition narratives that focus on the expedition as a standard component of collaborative institutional scientific practice. The focus here is not on the individual heroic researcher or explorer. Instead, my aim is to examine scientists' experiences and practices of form of research, both mundane and exceptional, that take place not in the laboratory but while traveling and interacting with the real world and its inhabitants. To consolidate the corpus, research questions, and hypotheses, I am planning a retreat at the HWK to facilitate exchange with scientists currently doing expedition work, authors working on expedition narratives, and literary experts in the field.

Jun. Prof. Dr. Katharina Block
Dr. Thorsten Peetz

Associate Junior Fellows

Fellowship
July 2020–June 2023

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Mary-Somerville-Straße 9
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Jun. Prof. Dr. Katharina Block

Dr. Thorsten Peetz

Digitalization and Society: Do Social Transformations Call for New Theoretical Paradigms?

Today's societies are facing digitalization processes that have the potential to result in fundamental social transformations. Since sociology as a scientific discipline is deeply intertwined with its subject, namely society, this situation also calls for reflection upon the analytical power of its core concepts.

During our fellowships, we will discuss the consequences of digitalization for sociological theory. To do so, we will organize a symposium with leading international scholars in multiple disciplines and with expertise on digitalization. The symposium will address three central theoretical questions:

1) Do we need new basic concepts for social theory?
2) Are prevalent theories of society, with their focus on modernity, differentiation, and individualization still sufficient to grasp societal developments?
3) How do digitalization processes interact with other important current transformations like the rise of populism, the ecological crisis, or the emergence of valuation society?

With the interdisciplinary focus of the event, we aim to inform sociological theory in dealing with multiple perspectives, as "doing theory" requires a cross-disciplinary practice.

Dr. Marijke de Belder

Associate Junior Fellow

Fellowship
July 2020–June 2023

Location
Universität Oldenburg
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Germany

The Morphology-Phonology Interface

Word-formation relates to phonology, as words consist of sounds. My work raises the question about whether the sound/form aspects of word-formation belong to the independent module of morphology or whether they should be understood as properly belonging to the module of phonology in human cognition.

The conundrum is that in some empirical domains in some languages, words are systematically built in such a way as to become phonologically optimal (i.e., they become easier to pronounce). When word-formation fully obeys phonology, it seems that the form aspects of word-formation are phonology: a module will of course fully respect its own principles. However, in other domains, the principles of word-formation make words phonologically more difficult. When morphology violates phonology, it seems to have its own requirements, suggesting that it is a module of its own.

My planned workshop will bring together scholars who currently contribute to our understanding of the interface between morphology and phonology. The goal is to define the most sophisticated current theoretical proposals and the data used to contribute to the debate. Specific attention will be given to scholars who have approached new empirical domains. Both experimental and theoretical work will be included in the workshop.

Dr. Jan Matti Dollbaum

Associate Junior Fellow

Fellowship
July 2020–June 2023

Location
Universität Bremen
Forschungsstelle Osteuropa
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Bottom-Up Policy Change in Autocracies

How and under what conditions do citizens succeed in influencing policy decisions in authoritarian regimes? This question is at the heart of a multi-year postdoc project, of which my workshop will be an early and essential part.

Research literature holds that rulers have an incentive to respond to popular demands even in regimes that severely restrict mechanisms of participation and government accountability such as elections, courts, and the media. However, the conditions for such bottom-up influence on authoritarian policymaking remain poorly understood.

The purpose of my workshop will be to begin with a systematic discussion of the theoretical implications, measurements, and influencing factors of bottom-up policy change in autocracies. It will bring together experts on authoritarian regimes, social protest, non-contentious civic participation in autocracies, and policy outcomes of social movements.

The workshop is being held at an early stage in my project and will thus help me design concise hypotheses and robust research that allow for systematization and generalization in a methodologically and theoretically demanding research environment. It will stimulate joint publications by workshop participants and provide a solid basis for tackling research questions that are very important to both researchers and practitioners.

Jun. Prof. Dr. Mario Dunkel

Associate Junior Fellow

Fellowship
September 2018–August 2021

Location
Universität Oldenburg
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Political Music as a Field of Action in Musical and Political Education

What does it mean when, for example, tens of thousands of people in the Ruhr region or Berlin don costumes resembling traditional dress for a large-scale "folk rock'n'roll" concert where, among other things, they listen to a song questioning whether we really live in a democracy? Why are German rock festivals becoming larger and more frequent, with some bands stylizing themselves as heroic resisters in a battle with "the media"? What explains the popularity of gangsta rap with anti-Semitic and sexist lyrics?

At the symposium Political Music as a Field of Action in Political and Musical Education, we will develop the first interdisciplinary approaches to using education to address political music. Questions regarding changes in music culture are closely linked to considerations about pedagogical imperatives and possibilities for action. Thus, a dialogue between educators in music and politics should provide relevant new insights.

The symposium is based on the project Popular Music and the Rise of Populism in Europe (Dunkel, 2019-2022), funded by the Volkswagen Foundation.

Dr. Nicolas W. Jager

Associate Junior Fellow

Fellowship
July 2021–June 2024

Location
Universität Oldenburg
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Germany

Social-Ecological Fit and Intergovernmental Cooperation in Federal Systems

As many of today's urgent sustainability challenges cut across territorial boundaries, traditional governance responses often lead to piecemeal solutions that neglect the environmental integrity of ecosystems. This problem of social-ecological fit, while well-acknowledged in international and inter-local settings, could gain less attention in the context of federal systems (e.g., Germany, the United States, Brazil), where authority over environmental resources is split among several substates within countries. Hence, this workshop will address the question: How can we assess social-ecological fit within federal systems and its potential to meet pressing regional environmental challenges?

This workshop will bring together experts on federalism and inter-governmental cooperation with experts on social-ecological fit and social-ecological networks.

Social-ecological network approaches provide a promising avenue for studying how the health of our ecosystems is connected to governance structures and processes. They merge in the same scientific model biophysical dynamics of ecosystems, with the social and institutional dynamics set out to address these. Dialogue between experts on federalism and social-ecological fit will inspire ideas for research and potential collaboration.

Dr. Sarah Lentz

Associate Junior Fellow

Fellowship
July 2021–June 2024

Location
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Germany

Abolitionists at Home—Slaveholders Abroad? The Involvement of People of German Origin in Slavery and the Slave Trade, 1700–1850

My workshop will bring together experts on the participation of Germans in the global slave system with the goal of better understanding to what extent German-speaking territories were entangled in the global slave economy. As specialists for different geographical slave economies, these historians will shed light on the individual situation in each of the relevant territories, while the collective expertise of the participants will for the first time enable a comparison of German involvement in slavery and the slave-trade worldwide. Besides focusing on those who profited in the global slave trade, the workshop will also explore the societal, discursive, and economic entanglements with the German territories. Consequently, such a systematic inquiry would a) reveal biographical patterns of German profiteers, b) add to the already-established data on enslaved people brought to the German territories, c) highlight estimated profits from involvement in slavery, and d) illuminate the discourse on slavery. This workshop will be the starting point for subsequent research cooperation, such as a database on those who profited in the global slave trade.

Dr. des. Karsten Levihn-Kutzler

Associate Junior Fellow

Fellowship
July 2020–February 2022

Location
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Imperial Britain and the Memorialization of Extinction

The current biodiversity crisis, shaping up to be the "sixth extinction" of geological history, must be read against the background of European colonialism. The nineteenth century saw both a significant acceleration of species extinction globally and the formation of the modern scientific understanding of extinction. The genesis of this understanding was deeply entangled with debates about cultural and linguistic extinction, processes that were also hastened by colonialist policies. Yet British imperialism not only caused extinctions, both cultural and biological; it also memorialized them in popular narratives, visual culture, zoos, museums, botanical gardens, and ethnographic exhibitions.

My proposed workshop will explore the entanglement of the scientific discourses of extinction, British imperial expansion, and the emergence of institutions and practices for preserving and remembering extinct species and cultures in the nineteenth century. It will bring together scholars of environmental history, the history of science, cultural memory studies, postcolonial ecocriticism, and literature and science scholarship to offer complementary perspectives on the emergence of narrative, visual, and museological practices of preserving and memorializing extinct species and cultures throughout the nineteenth century.

Dr. Dirk Scheele

Associate Junior Fellow

Fellowship
July 2021–June 2024

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26120 Bad Zwischenahn
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Social Isolation and Loneliness as Risk Factors for Psychological Disorders: From Neurobiological Mechanisms to Interventions

With economic lockdown and social distancing in place in most countries around the world, COVID-19 is expected to have a significant impact on physical and mental health, particularly in people with poor resilience to social adversity due to pre-existing low levels of social integration. In recent years, policymakers and clinicians have viewed perceived social isolation as a major public health concern with high economic costs for society and a premature mortality risk comparable to the risk from smoking or obesity. The planned workshop will address this issue and feature talks on basic research and clinical interventions. Specifically, the four-part workshop will focus on 1) the prevalence of and risk factors for loneliness, 2) the neural and hormonal mechanisms of loneliness, 3) clinical implications of social isolation and loneliness, and 4) behavioral and pharmacological interventions to reduce loneliness. Each topic will be introduced in one-to-two keynote lectures, followed by practical sessions with four–six shorter presentations by junior researchers. All speakers will be encouraged to indicate publicly available data sets that can be used to initiate a research consortium. The proximate goal of the workshop is to publish a systematic review that will give an overview of state-of-the-art methods and identify open questions for greater understanding and treatment of social isolation and loneliness.

Dr. Juliane Schlesier

Associate Junior Fellow

Fellowship
July 2021–June 2024

Location
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Promoting Teacher-Student Interaction in Achievement-Emotions Situations

Especially during the Corona pandemic, teacher-student interaction is disrupted or possible only in a dysfunctional digital context because operations in primary schools are taking place under strict hygiene regulations, including social distancing of at least 1.5 meters and the wearing of face masks in lessons. Thus, pupils' emotions (i.e. anxiety, anger, shame etc.) are not or not easily recognized by teachers and possible emotional dysregulation (i.e., aggression, work refusal, etc.) cannot be prevented or responded to. Teachers are not prepared for this; to date, hardly any explicit training program or further education for teachers has been offered in this area. Thus, the goal must be to promote interaction between teachers and pupils in face-to-face and online learning situations to create positive child development and a helpful learning environment, especially as the situation will most likely continue for years to come. This is the purpose of the workshop on teacher-student interactions. The aims of the workshops are 1) to discuss findings on the impact of current restrictions on teacher-student interactions in achievement-emotions situations with researchers and principals, and 2) to talk about possible/feasible or implemented interventions to promote teacher-student interaction in achievement-emotions situations during online and in-person teaching.

Dr. Tim Ziemer

Associate Junior Fellow

Fellowship
July 2020–June 2023

Location
Universität Bremen
Medical Image Computing Group
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28359 Bremen
Germany

Interactive Sonification Workshop

The ISon 2022 is the seventh international workshop on interactive sonification. It will focus on psycho-acoustic closed loops. Sonification and auditory displays are increasingly becoming an established technology for exploring data, monitoring complex processes, or assisting exploration and navigation of data spaces. Sonification addresses the auditory sense by transforming data into sound, allowing human users to extract valuable information from data by using their natural listening skills. The main differences between sound displays and visual displays are that sound may:

- alert listeners to events outside of their visual foci,
- represent changes over time,
- emphasize microstructures,
- rapidly portray large amounts of data, and
- holistically bring together many channels of information.

Sonifications typically evolve over time since sound is inherently a temporal phenomenon. Interaction thus becomes an integral part of the process because we must select, manipulate, excite, or control an auditory display. This has implications for the interface between humans and computers.

Working sonification requires the interpretability of the sonified data. Psychoacoustics offers a way to improve interpretability. The 2022 meeting will offer the chance to:

- meet experts in sonification,
- present and demonstrate individual research projects,
- attend practical workshops on selected topics,
- strengthen international networking in sonification research, and
- learn about new exciting trends.

Arts & Literature 2021

Dr. Vlad R. Baciu

Artist in Residence

Fellowship
October 2020–February 2021

Location
Independent
Iași
Romania

Candle of the Soul: An Opera Inspired by Eye Movement Desensitization and Reprocessing Psychotherapy

Eye movement desensitization and reprocessing (EMDR) psychotherapy has proven a successful method for treating trauma. Although EMDR psychotherapy was initially developed with eye movement in mind, scientists have recently experimented with alternating sounds.

Inspired to compose an opera incorporating the EMDR procedure, I plan to do research on this therapy by working with neurologists, psychotherapists using EMDR, and acousticians who work in medical research. I intend to understand the states of the brain during the REM (Rapid Eye Movement) phase of sleep and the link between REM and EMDR. This will include identifying brain frequencies modulated by EMDR in order to translate them into melodies, sound intervals, rhythmic pulsations, etc. After doing this research, I plan to write an opera entitled *Candle of the Soul* under the motto "The Eye is the Lamp of the Body" (Matthew 6:22). The main character experiences a childhood trauma and later develops a multitude of symptoms. He is taken through the eight phases of EMDR psychotherapy, all organized into three acts: Act 1 (Phase 1: History and Treatment Planning; Phase 2: Preparation; Phase 3: Assessment); Act 2 (Phase 4: Desensitization; Phase 5: Installation; Phase 6: Body Scan), and Act 3 (Phase 7: Closure and Phase 8: Reevaluation).

Sandra Boeschenstein

Artist in Residence

Fellowship
November 2020–April 2021

Location
Independent
Zürich
Switzerland

WHEN BOUNDARIES VISIT THE CENTER—Drawing Research on the Qualities of the Unideal and the Indirect

I draw in various ways to create collisions and layers: unspectacular but with underlying meaning with respect to the question of how meaning itself emerges. Developments and statements are often visualized in juxtaposed sequences of images. I am interested in a less visible structure: the principle of layering. Overlays, covering up, crossing out, scraping away, and erasing are being used less and less. And visible edges, ruptures, and changes in direction are increasingly being removed or deleted. In remembering, memory, and history, however, superimposing or layering remains a seminal principle.

We learn to perceive the tension between imagination and surprise by looking at layers and their non-linear qualities. One layer is called into question by the next and in the best case, we become immersed in a dense weave of losing and finding. This way of proceeding offers an opportunity for knowledge that can be gained only indirectly.

Thorsten Encke

Artist in Residence

Fellowship
October 2020–February 2021

Location
Independent
Hannover
Germany

Algorithms and Their Applicability in Composing Music

The Greek word *technología* can be translated as "systematic treatment of an art." Today, the term "technology" stands for the highly specialized conversion of raw materials into technically sophisticated products. These are changing the world at ever greater speeds. New forms of communication and a society that is globally connected thanks to media are pushing established systems to the brink. Or, as the author Neil Postman writes, "...technological change is always a Faustian bargain: technology giveth and technology taketh away."

For its 200th anniversary, the Konzerthaus Berlin (formerly Schauspielhaus Berlin) has commissioned me to create a music composition. The motto of the anniversary celebration is "The Pact with the Devil." The conversion of the musical raw material into forms of mathematically structured sound puzzles is the speculative "devil's pact" in my piece.

I would like to use my composition to research the effects of algorithms on the composition process. To what extent are computer-based, controlled procedures able to solve creative problems? How can we connect the technical handling of music materials with the intuitive nature of the creative process? In cooperation with researchers at the Hanse-Wissenschaftskolleg, I would like to find out whether we can use digital methods to inspire artists' imaginations and expand their creative horizons.

Julia Hogan

Writer in Residence

Fellowship
January–July 2021

Location
Arizona State University
Tempe, Arizona
USA

Mothertongue

While at the Hanse-Wissenschafts-kolleg, I will work on two novels. The first, *Mothertongue*, explores the intersections of historical and environmental violence, particularly within the American South. When Olivia moves back to her childhood home, she finds that the changed landscape reveals more about her past than she wants to remember. The second novel follows a scientist with a deep connection to an Arctic whale. Set in the near future and the distant past, this novel is heavily informed by my conversations with scientists at other institutions such as the Alfred Wegener Institute and the European School of Governance. This novel weaves together the threads of language and identity, art and science, reality and myth-making. It is an interdisciplinary novel, and could be conceived only in such an environment. At the Hanse-Wissenschaftskolleg, I will also be working on a short story, "Those They Left Behind," in *Everything Change: Climate Anthology*, Vol III, and the story, "As I Make My Crooked Way," which is to be published in *CRAFT*.

Future Fellows 2022

Prof. Dr. Silke Schicktanz

Fellow

Fellowship
February–September 2022

Location
University Medical Center Göttingen
Department of Medical Ethics and
History of Medicine
Humboldtallee 36
37073 Göttingen
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Cooperation partners
Prof. Dr. Andreas Hein
Offis e.V
Oldenburg

Prof. Dr. Mark Schweda
Institut für Medizinethik
Universität Oldenburg

Human-Machine Interaction in Dementia Care: Implementing Empowerment and Developing ‘Co’-intelligent Cooperation

In western societies, the number of people with dementia is increasing. Engineers are attempting to develop new technologies to help care for people with dementia. Such technology can make everyday activities such as cooking, personal hygiene, or walking easier. This would allow people with dementia to keep living in their own homes and live independently. For those living in nursing homes, such technology can help professional caregivers in their daily tasks or help predict potential problems. In my project, I want to analyze the ethical aspects of such technologies and how they empower patients and caregivers, i.e., how they give them a greater sense of control over their own lives and jobs. Empowerment stands for a concept of strengthening the interests and needs of a group of people that has been powerless or dependent. My ethical analysis will be complemented by interview data. We have interviewed lay people and experts about their moral attitudes towards and experiences with such systems. Finally, I want to reflect more deeply on how cooperation between humans and such technology can be enhanced by better understanding the cognitive competencies and limitations of each. My research is based on close collaboration with researchers from medical ethics and engineering. Together, we will organize seminars and a workshop and jointly analyze data already collected.

Prof. Dr. Juan Manuel García-Ruiz

Fellow

Fellowship
January–July 2022

Location
Universidad de Granada (CSIC)
Instituto Andaluz de Ciencias de la Tierra
Spain

Cooperation partner
Prof. Dr. Wolfgang Bach
Fachbereich Geowissenschaften
Universität Bremen

Biomorphs in Science and Art

The belief in a clear boundary in symmetry, which divides the realm of biology and sensuality from the realm of minerals and the rational, is deeply rooted in our minds. This belief has important implications in science, for instance in efforts to detect primitive life on Earth, Mars, and elsewhere, but it has also permeated and fragmented the arts, dividing them into two forms, one of perfect beauty and one of moral symbols. Italo Calvina has described the artists of each as "artists of the crystals" and "artists of the flame." Then there is the divide between abstraction and empathy pointed out earlier by Wilhelm Worringer. The discovery of biomorphs and other purely self-organized mineral structures that form in the absence of life has shown that this boundary is not as rigid as previously thought. I plan to explore the universe of biomorphs, to 1) understand the physics and chemistry behind the formation of these fascinating structures; 2) test the geochemical plausibility of biomorph formation under the reducing atmosphere of the early Earth; 3) reveal the limits of complexity reachable by mineral self-organization; and 4) study how scientific ideas permeate art and mind, and how knowledge of the lack of a scientific basis for the perceived boundary of symmetries could affect the arts.

Assoc. Prof. Dr. Morgan Stefik

Fellow

Fellowship
September 2022–January 2023

Location
University of South Carolina
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Cooperation partner
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Fraunhofer-Institut für Fertigungstechnik
und Angewandte Materialforschung IFAM
Oldenburg

Development of Advanced Porous Battery Electrodes

This project examines how function follows form in the context of batteries. The form under investigation is similar to a kitchen sponge. The function of a sponge is as much defined by its positive space, its material, as it is defined by its negative space, the voids. Similarly to how a sponge soaks up spills, battery materials soak up ions when charging or discharging. In a battery, the speed with which it can charge is similarly determined by how these components are organized in space. Specifically, this project examines how function follows form in a class of ultrafast battery materials called pseudocapacitors. My group's PMT process allows independent variation of the material and void dimensions which uniquely informs design improvements by separating the effects of each space. Translating these lab-scale methods to industrial manufacturing remains a challenge, in part due to the 1000x gap in length scale between the micrometer-sized particles used in modern battery manufacturing and the nanometer-sized features needed for pseudocapacitance. This project will first extend our PMT approach to nanoporous microparticles that are compatible with industrial manufacturing and then study their performance. Advancing the capabilities of energy storage devices will support broader use of sustainable energy resources.

Asst. Prof. Dr. Inna Melnykovska

Fellow

Fellowship
November 2022–May 2023

Location
Central European University
Poltical Science Department
Vienna
Austria

Cooperation partners
Prof. Dr. Heiko Pleines
Forschungsstelle Osteuropa
an der Universität Bremen

Prof. Dr. Michael Rochlitz
Universität Bremen

Global Money, Local Politics: Big Business, Capital Mobility and the Transformation of Crony Capitalism in Russia and Ukraine

How can we effectively manage financial globalization without feeding corruption in democratizing, institutionally weak states and without empowering illiberal, kleptocratic regimes? This is a core concern of Western societies because the legitimacy of modern capitalism and democracy depends on it. Furthermore, it is crucial to promoting the values of Western democracy and to security policies around the globe, particularly in Eurasia. This project takes innovative approaches to accomplishing the goal of effective management tracing the influence of the global capital mobility of Russian and Ukrainian holdings and the off-shoring of their corporate activities on business behavior and the political and economic systems, characterized by "crony capitalism," in Russia and Ukraine. It highlights a new channel of external influences that has been largely overlooked in studies on democratization, Europeanization, and promoting autocracy. It contributes to an understanding of the determinants of business political strategies. It also contributes to the debates across political science, international relations, sociology, and history about the mechanisms of institutional diffusion and the interplay of agency and structures in these processes. Finally, it is policy-relevant, as it helps hone U.S. and EU financial regulations for more precise financial sanctions and effective engagement policies.

Prof. Frederick Reiken

Fellow

Fellowship
September–December 2022

Location
Emerson College
Department of Writing,
Literature and Publishing
Boston, MA
USA

Science, Fiction and the Anthropocene

I am in the beginning phase of a new novel, one that builds on some of the scientific themes from my previous novel, *Day for Night*, which was a finalist for the Los Angeles Times Book Prize and featured a marine biologist as one of its protagonists, in narrative contexts related to endangered marine mammals as well as coral reef ecology. Though my new project is still in its nascent stage, I am drawn again to some of the same questions, with the same two indicators of ocean health—coral reefs and marine mammals—in the foreground of the narrative. I intend to explore questions related to what possibilities remain for the preservation of these and other archetypal, wonder-inducing life forms, as we face the sobering understanding of current global warming trends and other effects of what scientists are now calling the Anthropocene epoch. As with my prior novels, I will be open to shifts in my plan as I make new discoveries in the writing process.

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