



Outstanding!

Junior scientists
of the Max Planck Society
2022



Imprint

Publisher	Max-Planck-Gesellschaft zur Förderung der Wissenschaften e. V. Hofgartenstraße 8 D-80539 Munich Phone +49 (0)89 2108-0
Editor responsible for the content	Anna-Lena Korban, Kerstin Dübner-Gee Department Human Resources Development & Opportunities
Layout and Project Management	Vogt & Sedlmeir GmbH, Dießen am Ammersee and Dieckmann Design, Munich
Photos	Unless otherwise indicated, the portraits and the photos representing the research projects have been provided by the junior scientists. All pictures and texts are subject to copyright protection.
Printing	Joh. Walch, Augsburg June 2022

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Outstanding!

Dear Members and Friends of the MPG Community,

The Japanese word ›tsundoku‹ does not, as one might be tempted to believe, stand for a puzzle game fit for daily newspapers, but for the habit of accumulating books without ever reading them. The number of brochures that remain unread probably even exceeds the number of unread books. Yet this exquisite little brochure will certainly not suffer that same fate. Every year, it is presented just in time for our Annual Meeting. What always strikes me is that it is studied carefully by many of you on the spot – and also later, when it is distributed MPG-wide. Understandably so! Those who achieve impressive feats at an early age have always held a fascination. Where performance is achieved without decades of experience, talent and originality shine through with particular brilliance.

For more than 40 years now, we have been awarding prizes to junior scientists who have performed astonishing work. The Otto Hahn Medal was the first prize of this kind. 61 nominations were received this year, each of them was evaluated by two reviewers from the relevant Section, and the final decision always rests with the Vice Presidents. In recent decades, we have established further prizes and scholarships to give consideration not only to the doctoral but also the postdoctoral level, and at the same time to honour outstanding individuals of the Max Planck Society who have achieved enormous accomplishments for science or who

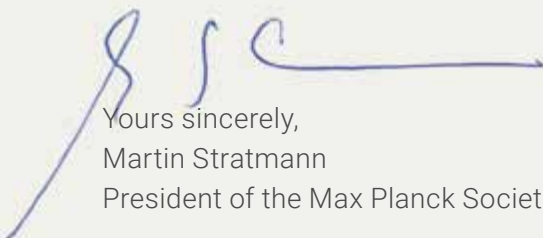


have made a remarkable contribution to our organization. Our Nobel laureates, for example, enjoy the privilege of awarding individual fellowships.

Many of the awardees go on to pursue impressive careers in or outside academia. I will never forget when a German ambassador once showed me his own Otto Hahn Medal at a meeting I had with him. It had a place of honour in his office, and it was his pride and joy.

To all of this year's honourees, I wish you an exciting Annual Meeting, and especially I wish you all the courage you may need to follow your very own path as you receive this honour for your work. You have already demonstrated with flying colours that you have all that it takes.

To all of you, dear readers, I wish you much pleasure and inspiration with this brochure. And should you have skipped my foreword – you are, of course, forgiven. But you sure don't want to miss the following pages!



Yours sincerely,
Martin Stratmann
President of the Max Planck Society



The Otto Hahn Medal

The Max Planck Society has honoured up to 30 young scientists and researchers each year with the Otto Hahn Medal for outstanding scientific achievements since 1978. The prize is intended to motivate especially gifted junior scientists and researchers to pursue a future university or research career.

Usually, the award is presented during the General Meeting in the following year.



Dr. rer. nat. Mohammed Khallaf Ali

for work on *Drosophila* pheromones
and how these substances contribute to
speciation in this genus

Max Planck Institute for Chemical Ecology, Jena
Research field: Chemical Ecology and Neurobiology
Current activity: Postdoctoral Researcher at the
Max Delbrück Center for Molecular Medicine, Berlin



My topic of interest

When choosing a partner, we easily discriminate between ourselves and members of other species. On the contrary, many fly species are morphologically similar and overlap in their geographical distributions and ecological habitats. During my PhD, I discovered how flies know who's who. I also investigated how neural circuits co-evolve with sex pheromones to permit mate recognition and hence reproductive isolation between different species.

My motivation

Nothing keeps me more engaged and engrossed than designing experiments and testing hypotheses. Research might be challenging and ambiguous, but it is oh-so-satisfying for my natural curiosity. Therefore, I feel so lucky to get paid to explore my own ideas and to discover how biology works.

My next
professional station

I moved to the Max Delbrück Center for Molecular Medicine in Berlin to study the molecular basis of touch and pain sensation in mice and naked mole-rats.

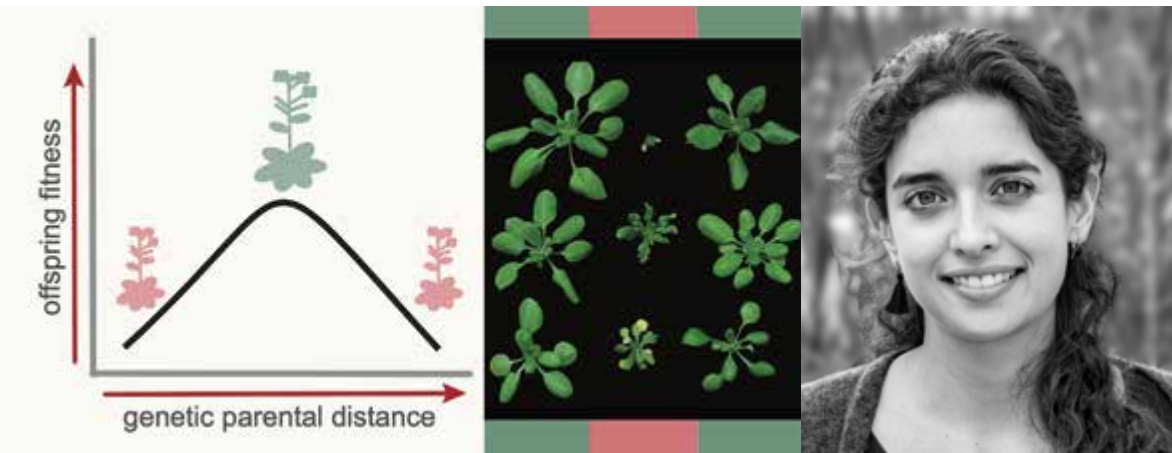
Dr. rer. nat. Ana Cristina Barragán López

for research on how excessive genetic diversity can affect the survival of populations

Max Planck Institute for Biology, Tübingen

Research field: Plant Genetics

Current activity: Postdoctoral Researcher at
The Sainsbury Laboratory, Norwich, United Kingdom



My topic of interest

Genetic material typically differs between individuals, even if they belong to the same species. I want to understand how these genetic differences affect interactions between organisms, and how these in turn shape an organism's evolutionary trajectory.

My motivation

I've always been fascinated not only by the beauty of nature, but also how so much genetic diversity can result from a combination of four bases (ATGC). By understanding genetic interactions between organisms, specifically of plants with each other and with their pathogens, my goal and motivation is to contribute to improving global food security.

My next professional station

I am currently a postdoctoral researcher at The Sainsbury Laboratory in Norwich in the UK. There, I am studying the evolution of the blast fungus, a highly devastating plant pathogen.

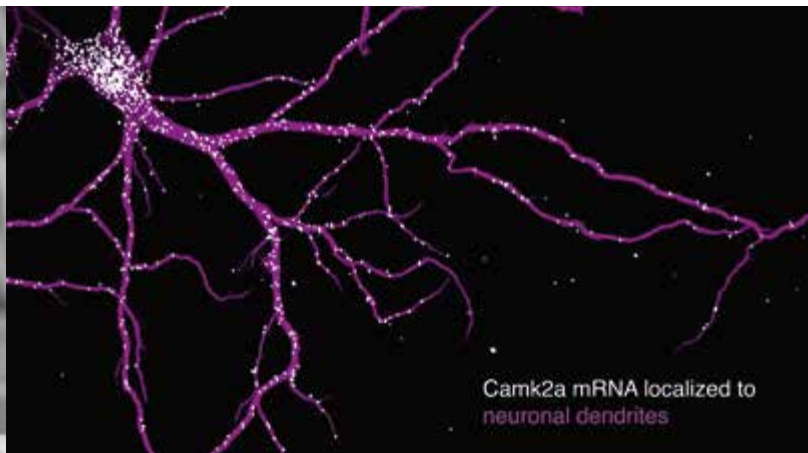
Dr. rer. nat. Caspar-Elias Glock

for discovering neuronal gene expression mechanisms including regulatory RNA features, unconventional translation mechanisms and the elucidation of proteins that are synthesized in dendrites.

Max Planck Institute for Brain Research,
Frankfurt am Main

Research field: Neuroscience

Current activity: Postdoctoral Researcher at
Genentech, San Francisco, California, USA



My topic of interest

I would like to understand how neurons maintain and modify proteins at synapses – the building blocks of memories. My work uncovered the mechanisms controlling the localization of messenger RNAs to synapses and provided unprecedented insights into how these templates are translated into protein.

My motivation

Due to their complex morphology, neurons face extreme logistical challenges. I am fascinated by the mechanisms that neurons use to ensure that the right protein is made at the right time and at the right location. I believe that understanding these fundamental molecular mechanisms occurring in our brains will eventually help the development of therapeutic strategies to fight memory disorders.

My next professional station

I recently joined Genentech for my postdoctoral training. Here, I'm using computational methods to decipher the molecular processes that go awry in neurodegenerative diseases at the single-cell level.

Dr. rer. nat. Marie Luise Grünbein

for fundamental insights into the opportunities and limitations of structural biology using X-ray lasers

Max Planck Institute for Medical Research,
Heidelberg

Research field: Time-Resolved Crystallography

Current activity: Consultant at McKinsey & Company,
Frankfurt am Main



My topic of interest

Free-electron lasers (FELs) generate extremely short and intense X-ray pulses that can be used to obtain high-resolution snapshots of molecular structure, even during very fast reactions. This allows unprecedented insights into protein dynamics. Such experiments at FELs have only been possible since a few years and are highly complex. My research aims to push the limits of FEL-based experiments and to understand under which conditions the native reaction of biomolecules can be observed.

My motivation

It motivates me immensely to investigate questions of such a complexity that only a team with expertise from different disciplines and perspectives can address them – the result is much more than the sum of the individual contributions. XFEL experiments in particular can only succeed by drawing upon scientific and engineering expertise from a great number of different fields. That this amalgamation succeeds on such a problematic scale is what impresses me most.

My next professional station

As a consultant with McKinsey & Company, I work in a new environment where I apply the skills I learned during my PhD in a different context. Here, too, the focus is on solving complex problems in an interdisciplinary team, for example to optimize processes and products in the chemical industry through improved data analyses.

Dr. rer. nat. Jascha Alexander Lau

for investigations into the vibrational dynamics of condensed phase molecules at low temperatures

Max Planck Institute for Multidisciplinary Sciences, Göttingen

Research field: Physical Chemistry

Current activity: Postdoctoral Researcher at the University of California, Berkeley, USA



My topic of interest

Carbon monoxide molecules on a salt surface can be excited with a laser, which causes them to vibrate. Those excited molecules emit infrared radiation that can be used to observe the molecules over a long period of time. During that time, vibrational energy can be exchanged between two molecules, or it can be transferred to the salt surface. The aim of my thesis was to understand the mechanism for these energy transfer processes and further test if one can control the energy transfer for utilizing it in simple chemical reactions.

My motivation

I am fascinated by the fact that spectroscopy gives me insight into the motion of molecules on the atomic level, without having to see actual pictures of the molecular motion. What also motivates me as a scientist is that I am searching for answers to questions that nobody may have asked before. Often enough, answering one question leads to new unanswered questions, which is what keeps science exciting.

My next professional station

I am a postdoctoral researcher at the University of California, Berkeley, where I extend my knowledge on molecular spectroscopy toward ionic systems and reactions in the gas phase.

Dr. rer. nat. Danai Papageorgiou

for the study of the collective movement
and social decision-making in the Vulturine
Guineafowl

Max Planck Institute of Animal Behavior,
Radolfzell

Research field: Animal Behavior

Current activity: Postdoctoral Researcher at
the University of Zurich, Switzerland



My topic of interest

Animals living in stable groups constantly need to decide together where to go and what to do, while maintaining cohesion and coordinating their actions with group mates. I study the processes that characterize how animals make collective decisions but also how the physical and the social environment they experience shapes those decisions.

My motivation

We share this planet with multiple species that organize themselves in societies for which we still know only very little, and they are under threat due to the expansion of human activities and climate change. Disentangling the mysteries that underlie social behavior of animals may allow us, humans, to better understand ourselves but to also care more for other species that live their own socially-complex lives.

My next
professional station

I will soon move to the Institute of Advanced Study in Berlin to study the in situ responses to the rising of inequality in animal societies and then I will continue on a postdoc on synchronous behaviors of wild male bottlenose dolphins. During that time I will be hosted by the University of Bristol and the University of Zurich.

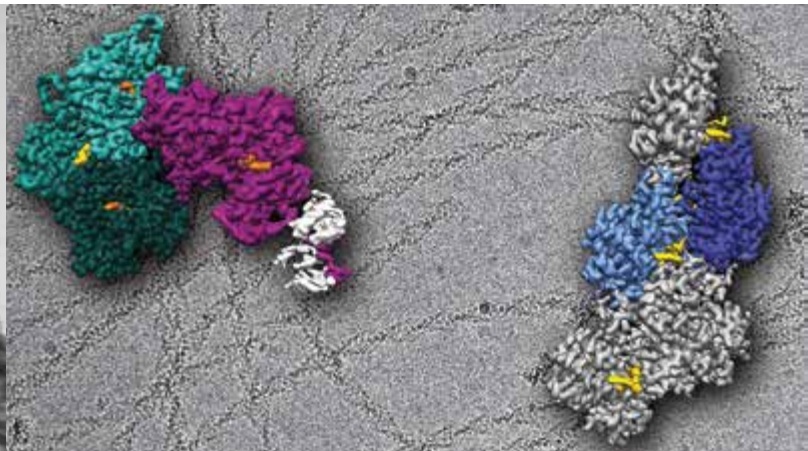
Dr. rer. nat. Sabrina Pospich

for the characterization of the structural transition of major components of the cytoskeleton and muscle by cryo-electron microscopy

Max Planck Institute of Molecular Physiology,
Dortmund

Research field: Structural Biology

Current activity: Project Group Leader at the
Max Planck Institute of Molecular Physiology



My topic of interest

Sparse structural data limit our understanding of the function and regulation of both the cytoskeleton and muscle. To fill this gap, I have used high-resolution cryo-electron microscopy to characterize the structural effects of nucleotide hydrolysis and small molecule binding on the key role players actin and myosin.

My motivation

The proteins actin and myosin are essential for the survival of all eukaryotic organisms. Understanding the biochemical mechanisms by which these two molecular machines power and maintain life is not only fascinating, but also of high medical relevance.

My next professional station

As Project Group Leader at the Max Planck Institute of Molecular Physiology I have the unique opportunity to follow my scientific interest in silk proteins and study them using latest electron microscopy techniques.

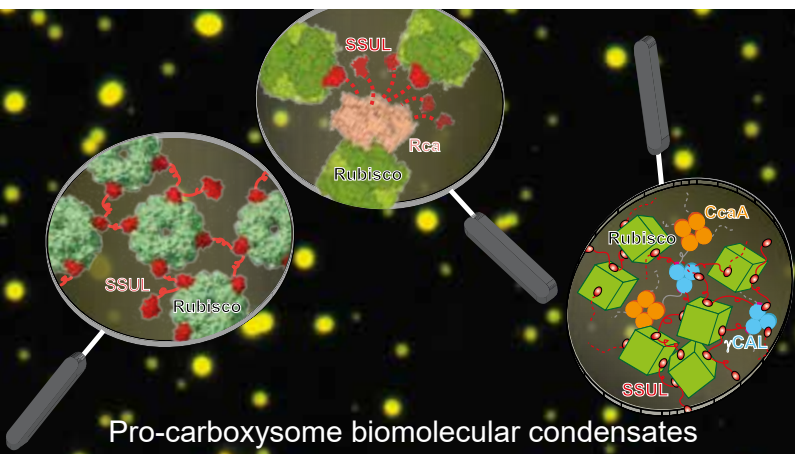
Dr. rer. nat. Huping Wang

for insights advancing our understanding of the structure and mechanism of Rubisco activase and the biogenesis of β -carboxysomes

Max Planck Institute of Biochemistry, Martinsried

Research field: Cellular Biochemistry

Current activity: Postdoctoral Researcher at the MRC Laboratory of Molecular Biology, Cambridge, United Kingdom



My topic of interest

Carboxysomes are microcompartments for photosynthetic carbon fixation in cyanobacteria. The goal of my thesis was twofold: To understand the role of the scaffolding protein CcmM in the assembly of pro-carboxysomes and to elucidate the mechanism by which Rubisco activase repairs the key photosynthetic enzyme Rubisco when it undergoes self-inhibition.

My motivation

I have a long-standing interest in understanding problems of the photosynthetic enzyme Rubisco and its complex chaperone requirements. The increasing demand for food by the growing human population as well as the anthropogenic climate change drives my interest to make the carbon fixation reaction catalyzed by Rubisco more efficient.

My next professional station

I started in January 2022 as a postdoctoral fellow in the lab of Ramanujan Hegde at the MRC Laboratory of Molecular Biology in Cambridge, UK.

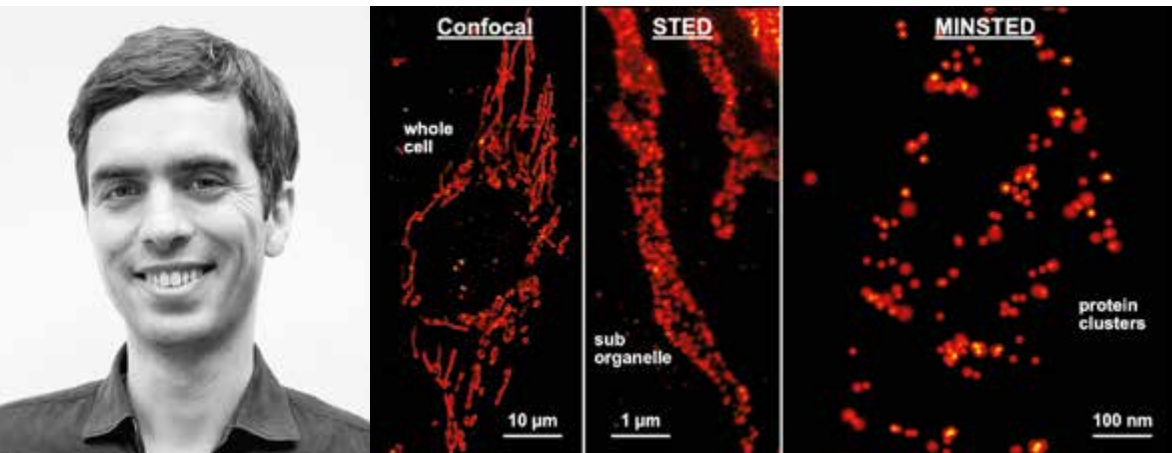
Dr. rer. nat. Michael Weber

for work on experimental demonstrations of MINSTED fluorescence nanoscopy, with imaging resolution in the range of the molecular size itself (~1-3 nm).

Max Planck Institute for Multidisciplinary Sciences, Göttingen

Research field: Optical Microscopy

Current activity: Postdoctoral Fellow at the Max Planck Institute for Multidisciplinary Sciences



My topic of interest

Cells are highly complex systems relying on the interactions of numerous components which can be investigated using fluorescence microscopy. With my work in the field of high resolution fluorescence microscopy, I would like to enable the investigation of these processes at a new level of detail.

My motivation

Solving a problem by using the approaches of physics, chemistry, biology and technology and multidisciplinary collaboration inspire and motivate me. Working together, barriers can be overcome and new ways can be created to investigate nature in all its complexity.

My next professional station

I currently proceed with my research as postdoc at the Max Planck Institute for Multidisciplinary Sciences and am planning my next steps in science.

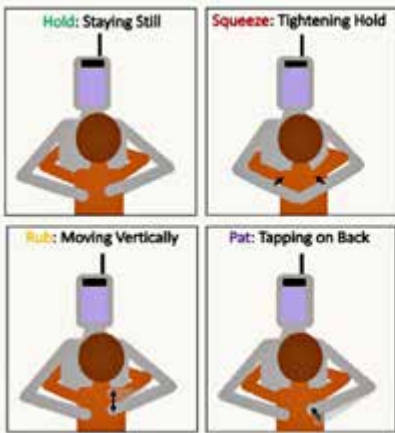
Dr. rer. nat. Alexis Emily Block

for fundamental and innovative research in the field of human-robot interaction through the creation and evaluation of intelligent hugging robots

Max Planck Institute for Intelligent Systems, Stuttgart

Research field: Human-Robot Interaction

Current activity: Postdoctoral Fellow at the University of California, Los Angeles



My topic of interest

Receiving a hug is one of the best ways to feel socially supported throughout life, but sometimes it is not possible to receive that comfort from another person. My research investigates the extent to which a robot can support people by serving as a hugging partner. What makes an excellent robot embrace? Can hugging a robot provide some of the same physical and emotional benefits as hugging a person?

My motivation

I find it incredibly rewarding to use robotics to solve real-world problems that people face in everyday life. In addition, I am excited about learning trusted research methods from fields like computer vision, machine learning, psychology and statistics to enable new insights in my interdisciplinary research field of human-robot interaction. Finally, I'm motivated by a drive to see projects I start through to the finish, like building a novel robot and improving it over time until it is good enough to compare against humans.

My next professional station

I am currently working as a Computing Innovation (CI) postdoctoral research fellow at the University of California, Los Angeles in Prof. Veronica J. Santos's Biomechatronics Lab. Here, I am combining my expertise in social robotics and affective touch with the creation of novel tactile sensors.

Chemistry,
Physics &
Technology
Section

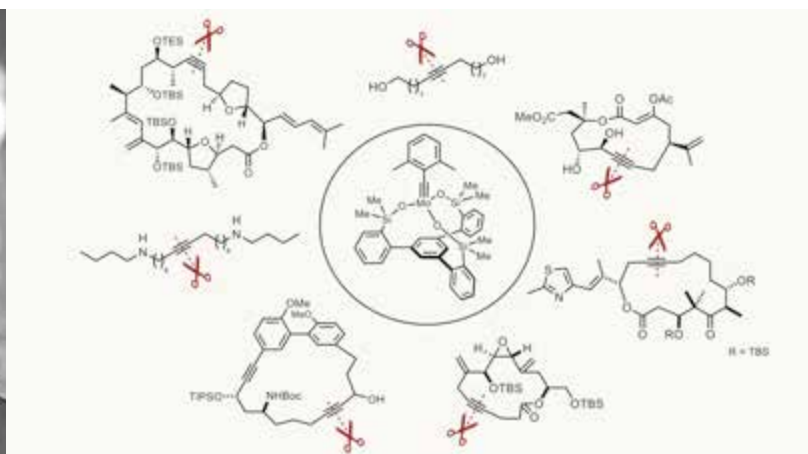
Dr. rer. nat. Julius Hillenbrand

for the development of a novel class of catalysts for alkyne metathesis, which combine high activity with an outstanding and unprecedented level of selectivity

Max-Planck-Institut für Kohlenforschung,
Mülheim an der Ruhr

Research field: Organometallic Chemistry

Current activity: Head of Laboratory in the
Pharmaceutical Development, Bayer AG, Wuppertal



My topic of interest

Alkyne metathesis has emerged as a powerful chemical reaction with a wide variety of applications in organic synthesis and polymer chemistry. In my doctoral thesis, I developed a new generation of molybdenum alkylidyne catalysts for alkyne metathesis, which combine high catalytic activity with an outstanding and unprecedented level of selectivity.

My motivation

It fascinates me how catalysts can enable a chemical transformation which would otherwise be impossible. I am passionate about the discovery and development of novel catalysts for chemical reactions and their application to make life-saving medicine.

My next
professional station

Currently, I am working as a lab head in the pharmaceutical development at Bayer.

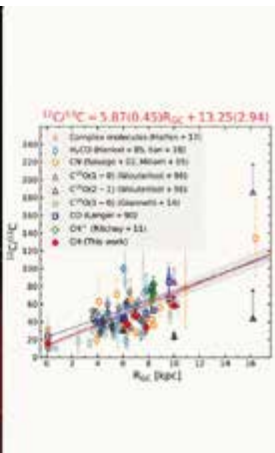
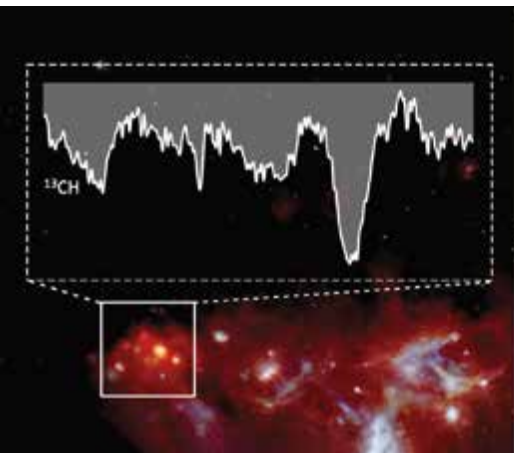
Dr. rer. nat. Arshia Maria Jacob

for novel investigations of the physics and chemistry of the interstellar medium, which employed an advanced approach using multi-wavelength data and newly developed analysis methods

Max Planck Institute for Radio Astronomy, Bonn

Research field: Astrophysics

Current activity: Postdoctoral Fellow at the Johns Hopkins University, Baltimore, Maryland, USA



My topic of interest

While the space between stars may seem empty to the naked eye, in reality, it isn't. It contains gas and dust in the form of clouds, permeated by energetic particles and exposed to radiation, collectively known as the interstellar medium (ISM). Constituting the reservoir of material from which new stars are formed, the ISM plays a fundamental role in the formation of stars and the evolution of galaxies, making its study pivotal for many fields of astronomy. The main scientific goals of my research have been to demonstrate the use of the simplest diatomic interstellar molecules – hydrides – as diagnostic tools of the different phases of the ISM.

My motivation

Intimidated, terrified but most of all in awe of the magnificence of the Universe, I am motivated by curiosity and a deep desire to understand and explain phenomena that govern the physical Universe. My research in astrochemistry attempts to bridge the gap between observations and theory.

My next professional station

I am currently a postdoctoral researcher at the Johns Hopkins University in Baltimore, Maryland, USA, working on a SOFIA (Stratospheric Observatory for Infrared Astronomy) legacy project called HyGAL, which aims to characterize properties of the ISM using chemical signatures from small molecules.

Chemistry,
Physics &
Technology
Section

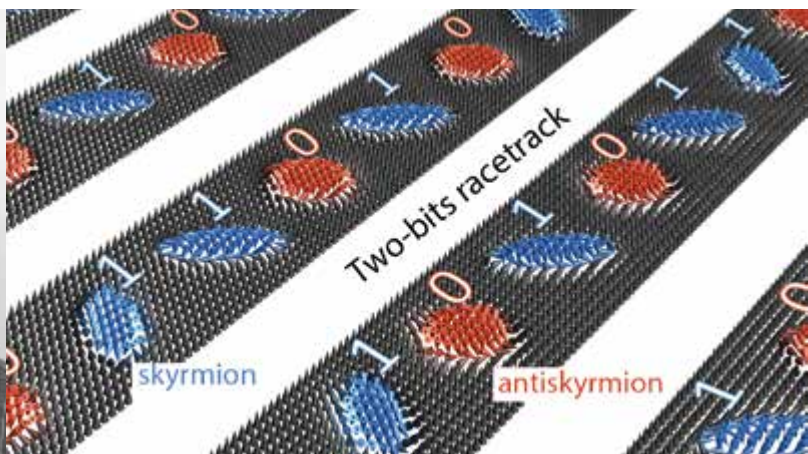
Dr. rer. nat. Jagannath Jena

for advances in chiral spintronics,
most significantly, the discovery of several
unique magnetic nano-objects in non-
centrosymmetric Heusler compounds

Max Planck Institute of Microstructure Physics, Halle

Research field: Condensed Matter Physics

Current activity: Postdoctoral Fellow at the
Max Planck Institute of Microstructure Physics



My topic of interest

Currently, I am interested in exploring exotic emergent quantum phenomena arising from the interfaces of superconductivity and chiral magnetism. I'm also interested in tackling the application-specific challenges associated with the use of magnetic skyrmions as digital data bits in memory devices. In the future, I wish to contribute in solving the mystery of dark matter detection and bridge the gap between condensed matter physics and particle physics.

My motivation

For me, research is driven by a sense of wonder. I am inspired by the beauty of material science and how it helps to shape our daily lives and has a profound effect on technology. The desire to face the challenge of solving difficult and unsolved problems and to discover the unexpected from the obvious motivates me to continue in research.

My next
professional station

I am a postdoc with Prof. Stuart Parkin at the Max Planck Institute of Microstructure Physics.

Chemistry,
Physics &
Technology
Section

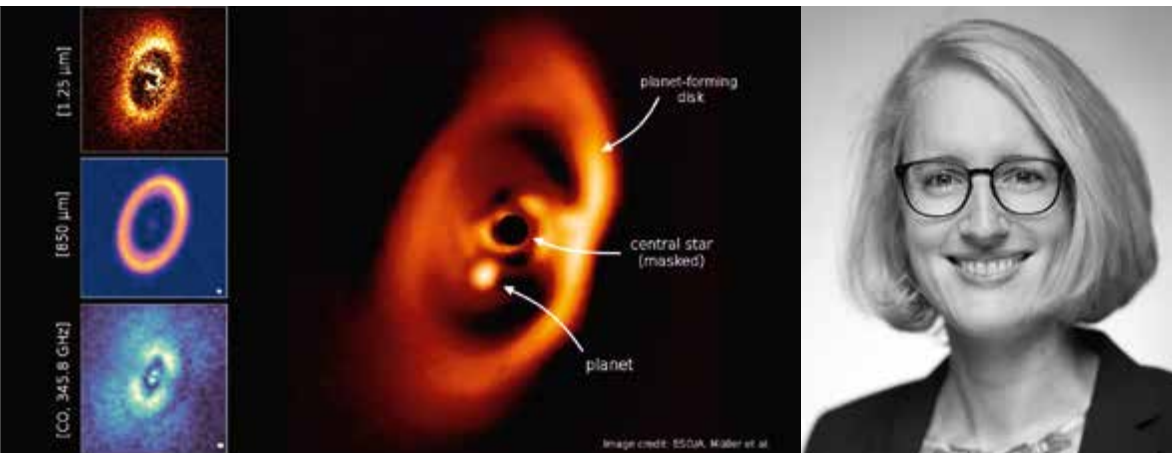
Dr. rer. nat. Miriam Keppler

for the characterization of the process of planet formation in gas-dust disks around young stars

Max Planck Institute for Astronomy, Heidelberg

Research field: Astronomy

Current activity: Postdoctoral Researcher at the University of Arizona Steward Observatory, Tucson, USA



My topic of interest

How do planets form? Despite the discovery of more than 4000 extrasolar planets, this question is not yet fully understood. My research focuses on observations of particularly young planets and of their natal environment. The goal of my work is to characterize the properties of forming planets and to study their interaction processes with the birth material in order to better constrain theoretical models of planet formation.

My motivation

I am deeply fascinated by the wealth of information we can learn about our Universe from astronomical observations. Still, the Universe holds so many new and unknown things that are yet to be discovered, and it is this chance to contribute to new discoveries that is driving my motivation. Working scientifically not only gives me the opportunity to learn something new every day, but also allows me to constantly broaden my horizon thanks to the collaborative, international, and interdisciplinary environment – an environment that I find very inspiring.

My next professional station

As of recently, I have started a new position as postdoctoral researcher at Steward Observatory at the University of Arizona in Tucson.

Chemistry,
Physics &
Technology
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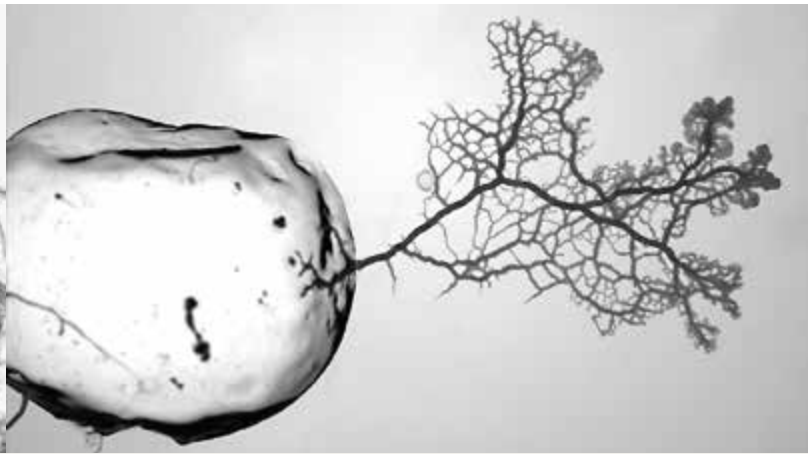
Dr. rer. nat. Mirna Elizabeta Kramar

for the discovery that life forms without neurons, such as the slime mould Physarum, store information about their environment in the architecture of their body

Max Planck Institute for Dynamics and Self-Organisation, Göttingen

Research field: Biological Physics and Morphogenesis

Current activity: Postdoctoral Researcher at the Institut Curie, Paris, France



My topic of interest

In my research, I broadly focus on the questions of behaviour, communication and memory encoding abilities in organisms that are lacking a nervous system.

My motivation

I am thrilled by thinking about phenomena which occur outside of the context where they were first found. Such pursuit of universal phenomena is very rewarding because it requires exercising flexibility and openness when designing research, and the results bring about a new understanding of the world.

My next professional station

I have not planned the exact setting of my next professional station, but I intend to continue with research, preferably establishing a research group.

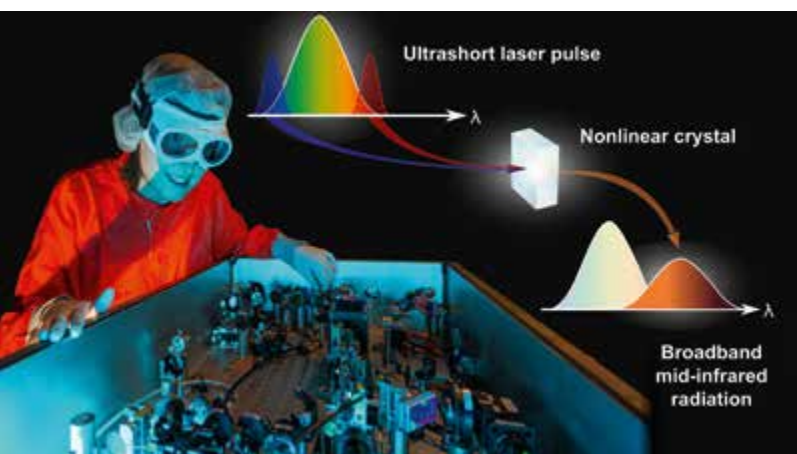
Dr. rer. nat. Nathalie Nagl

for the development of femtosecond lasers in the mid-infrared spectral range, which will greatly accelerate the wider adoption of novel spectroscopy techniques to bio-medical settings

Max Planck Institute of Quantum Optics, Garching

Research field: Laser Physics

Current activity: Postdoctoral Researcher at the Max Planck Institute of Quantum Optics



My topic of interest

Can we reach optical peak powers of 1 Million Watts with our laser when using laser diodes from the telecommunication industry for pumping? Can we send the laser pulses directly into a nonlinear crystal and generate broadband mid-infrared radiation for sensitive spectroscopic applications?

My motivation

I am committed to pushing the frontiers of ultrafast laser technology and entering territory that nobody has touched before. Moreover, it is exciting to see the potential of my new laser systems for novel and sensitive spectroscopy techniques – in particular regarding our efforts on early disease detection. Personally, it is my heartfelt wish to increase the visibility of talented young female scientists and empower them to realize their goals with equal self-confidence and determination as I do.

My next professional station

Currently, I am continuing my research as a Postdoc at the MPI of Quantum Optics while being appointed as project manager to set up a complex measurement system for the laser-based examination of blood samples. Moreover, we are also exploring opportunities to make our scientific developments commercially available to a larger community.

Chemistry,
Physics &
Technology
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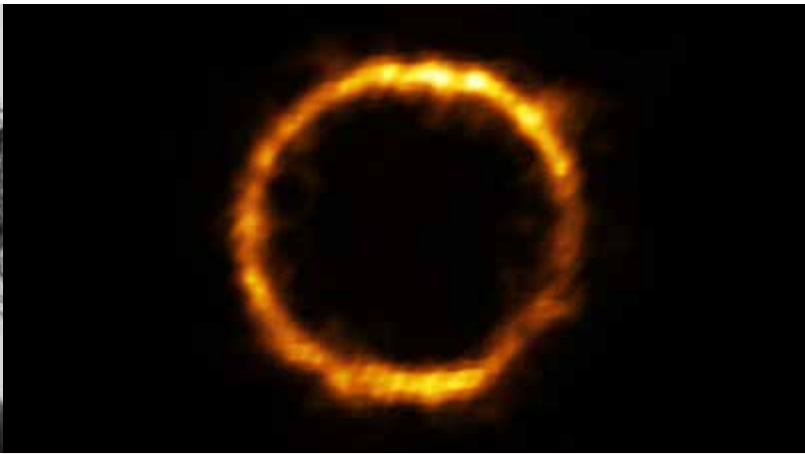
Dr. rer. nat. Francesca Rizzo

for original and groundbreaking work
into the kinematic and dynamical properties
of high-redshift galaxies

Max Planck Institute for Astrophysics, Garching

Research field: Astrophysics

Current activity: Postdoctoral Fellow at the Cosmic Dawn
Center/Niels Bohr Institute in Copenhagen, Denmark



My topic of interest

With my research, I try to understand how galaxies, such as our Milky Way, formed and evolved across cosmic time. In particular, I study young and very distant galaxies with the aim of gaining insight into the early stages of the Universe.

My motivation

When we look at the night sky, we are looking back in time. This concept has always fascinated me and pushed me to study objects that are almost at the edge of the observable Universe. The curiosity and the urge to address open questions about the cosmos drive my motivation.

My next
professional station

Currently, I am an independent postdoctoral fellow at the Cosmic Dawn Center/Niels Bohr Institute in Copenhagen.

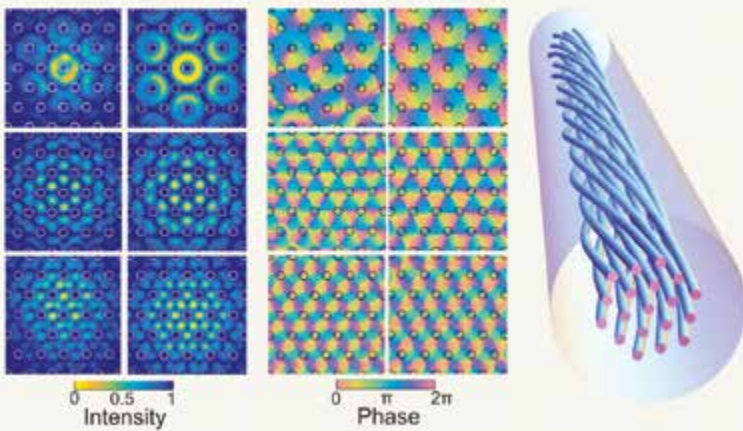
Dr. rer. nat. Paul Roth

for a series of experimental and theoretical breakthroughs in chiral photonic crystal fibres, including a new family of coreless fibre modes, geometrical dichroism and modulational instability of vortex modes

Max Planck Institute for the Science of Light,
Erlangen

Research field: Applications of Photonic Crystal Fibres

Current activity: Development Engineer at Trumpf,
Ditzingen



My topic of interest

A photonic crystal fibre is a type of glass fibre possessing a transverse microstructure surrounding a core in which light can be guided. When a fiber is twisted, new optical effects can be observed due to the twisted space. In my research I investigated different linear and non-linear properties of twisted photonic crystal fibers.

My motivation

My motivation in research has multiple sources. On the one hand, I am fascinated by the properties of light and how we can measure and control them. On the other hand, I love the experimental work, which not only needs the theoretical knowledge but also the skill for the technical implementation.

My next professional station

Currently, I am working in a team of optics developers on the development of high power CO₂ lasers for the semiconductor industry.

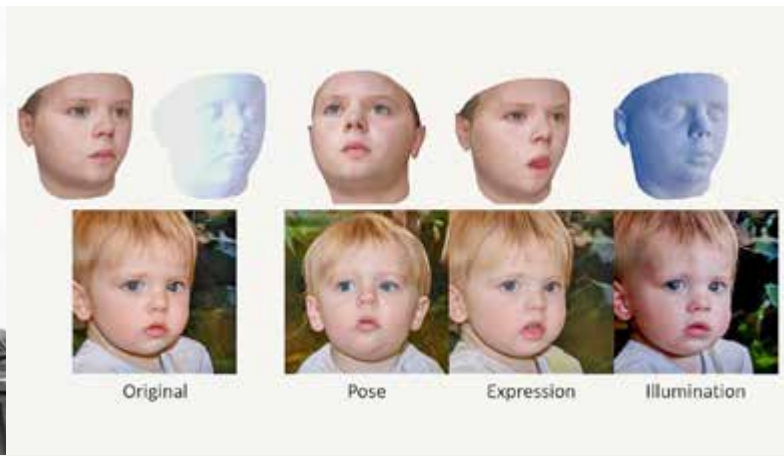
Dr.-Ing. Ayush Tewari

for the development of novel ways of integrating deep learning with 3D generative models and differentiable rendering for the purpose of self-supervised reconstruction and synthesis of faces

Max Planck Institute for Informatics, Saarbrücken

Research field: Computer Vision, Computer Graphics

Current activity: Postdoctoral Fellow at the Massachusetts Institute of Technology, Cambridge, Massachusetts, USA



My topic of interest

How can we build methods that can reason about the world in 3D from image and video observations? How can we enable 3D-aware editing of visual data?

My motivation

Recent advances in Computer Vision for 3D perception rely on supervised learning using paired training datasets with input observations and the corresponding 3D information. I am interested in designing methods that can learn about the 3D world without such paired datasets by simply observing 2D images and videos and finding the hidden 3D structure. This form of learning is more practical and closer to the way humans solve this task. I am particularly motivated by exploiting the synergies between Computer Graphics (synthesis) and Computer Vision (analysis) for self-supervised learning and 3D-aware image editing.

My next professional station

I am continuing my research as a postdoctoral researcher at the Massachusetts Institute of Technology.

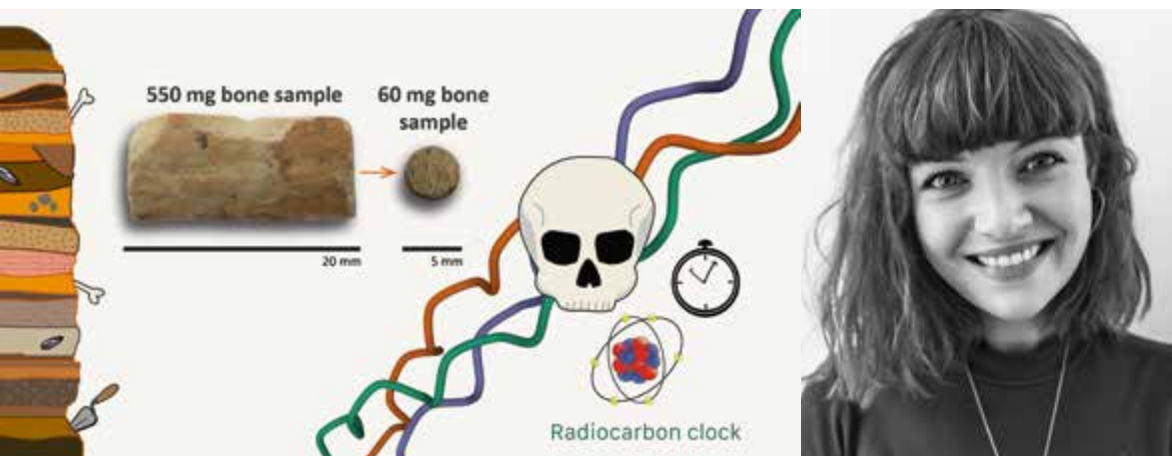
Dr. Helen Fewlass

for improving direct radiocarbon dating of fossil bone to dramatically reduce sample sizes and limit destructive sampling of precious archaeological material

Max Planck Institute for Evolutionary Anthropology, Leipzig

Research field: Archaeological Science

Current activity: EMBO Postdoctoral Fellow at the Ancient Genomics Lab, Francis Crick Institute, UK



My topic of interest

I want to improve our understanding of the timeline for the arrival and spread of our species across Eurasia after 50,000 years ago. Accurate, precise chronological information is essential for us to understand the evolution and development of our species, but how can we obtain high quality data from archaeological human remains and bone artefacts whilst minimising destructive sampling?

My motivation

The survival of bone over thousands of years is incredibly unlikely, so the ancient human remains and artefacts which do survive are incredibly precious. It is important for us to study these remains as they provide a direct link to the lives of our prehistoric ancestors but we have to balance this with being responsible when it comes to destructive sampling, so that these precious resources are preserved for the future.

My next professional station

I have started a postdoctoral fellowship in the Ancient Genomics Lab at the Francis Crick Institute (UK), where I am developing non-destructive methods to assess protein preservation in ancient bone and plan to study ancient proteins preserved in bones and fossils to answer questions about the evolution of our species.

Dr. jur. Daria Kim

for a study on the regulation of access to data collected in the course of clinical trials for the purpose of enhancing future pharmaceutical research

Max Planck Institute for Innovation and Competition,
Munich

Research field: Law and Innovation

Current activity: Senior Research Fellow at the
Max Planck Institute for Innovation and Competition



My topic of interest

How can we understand the relationship between law, innovation and social well-being? What role does law play in inducing socially beneficial innovation? How could a legal framework promote human values and societal interests better?

My motivation

I am inspired by the interdisciplinary nature of research: New technologies raise fundamental questions that have been studied in law, political philosophy, sociology, economics and other disciplines. The field of law and innovation offers plenty of room for creativity in bringing research strands from different disciplines together.

My next professional station

I have just started a post-doc position at the Max Planck Institute for Innovation and Competition, where I research topics at the intersection of law and innovation, such as regulation of biomedical research, artificial intelligence and a data economy.

Dr. jur. Ben Köhler

for the study on ›Gain-based remedies in the CISG – a Contribution on the Permissibility and Limits of an Independent Development of the Convention‹

Max Planck Institute for Comparative and International Private Law, Hamburg

Research field: International Sale of Goods, Comparative Law

Current activity: Senior Research Fellow at the Max Planck Institute for Comparative and International Private Law



My topic of interest

Does a party to a contract have a claim for disgorgement of the profits generated by a breach of contract by the other party? In my work, I try to answer this question, which has been controversially discussed in many jurisdictions, in the context of the UN Convention on Contracts for the International Sale of Goods. The inquiry requires comparative legal research as well the formulation of criteria that allow to further develop uniform private law without jeopardizing the international consensus on which it is built.

My motivation

Legal research in comparative and uniform law offers a wide range of new perspectives beyond domestic private law. It can show the variety of solutions in different jurisdictions and contributes to a better understanding of the strengths, weaknesses, and idiosyncrasies of one's home jurisdiction. At the same time, uniform law illustrates the potential of international cooperation and multilateralism.

My next professional station

Currently, I further pursue my comparative legal research as a Senior Research Fellow in the Working Group of Professor Reinhard Zimmermann at the Max Planck Institute for Comparative and International Private Law in Hamburg.

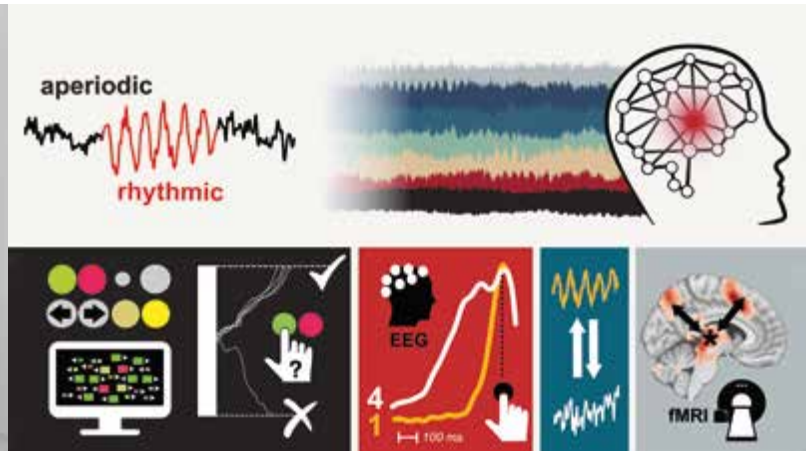
Dr. rer. nat. Julian Quirin Kosciessa

for fundamental contributions to the measurement and functional characterization of rhythmic and aperiodic activity components of the human brain

Max Planck Institute for Human Development, Berlin

Research field: Cognitive Neuroscience

Current activity: Postdoctoral Fellow at the Max Planck Institute for Human Development



My topic of interest

The brain dynamically adapts perception, cognition, and action to changing demands. My research aims to identify the inherent mechanisms whereby the brain achieves such flexibility, and attempts to improve their measurement using diverse neuroimaging methods in humans. In my dissertation work, I systematically separated two basic signatures of neural processing: rhythmic activity and aperiodic signal complexity. By combining different measurement methods, I linked the dynamic coordination of such modes to a deep brain region and demonstrated the relevance of such control for flexible decision making.

My motivation

I am fascinated by the question of how we can adequately measure and functionally understand the dynamic complexity of the human brain. The opportunity to identify adaptive principles of neural function, alongside potential points of failure, by bridging perspectives across cognitive, computational and systems neuroscience is supremely motivating, fascinating and inspiring to me.

My next professional station

I will soon join Radboud University as an Excellence Initiative Fellow to evaluate whether non-invasive stimulation of thalamic deep brain circuits can influence neural dynamics and decision processes.

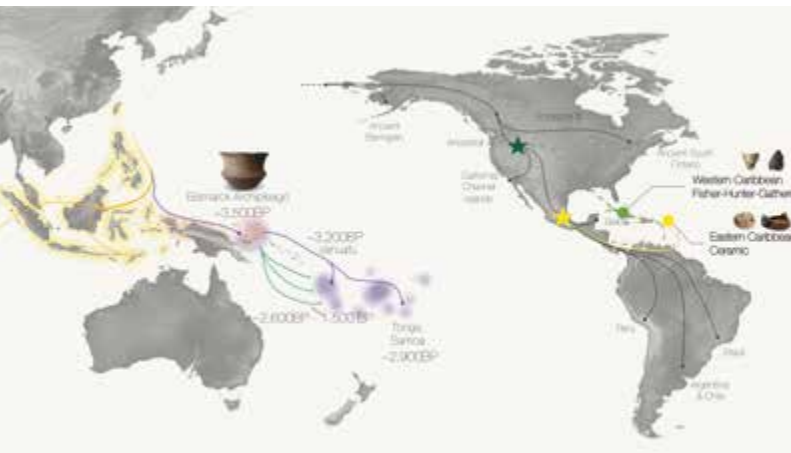
Dr. rer. nat. Kathrin Nägele

for the archaeogenetic work on the human population history of the initial settlement of the Caribbean and the Pacific

Max Planck Institute for Evolutionary Anthropology,
Leipzig

Research field: Archaeogenetics

Current activity: Postdoctoral Researcher at the
Max Planck Institute for the Science of Human History



My topic of interest

The European Invasions during the colonial period have led to a loss of information about the human past of the Pacific and Caribbean. Through the application of ancient DNA we can not only validate historical records and question colonial narratives but look beyond the colonial impact to understand how humans settled and lived together on islands.

My motivation

In tropical environments, DNA decays quickly. I enjoy the challenge of recovering genomes from these regions and, together with local scholars, rediscover lost human history.

My next professional station

Next year I will be starting a Minerva-Fast-Track Group and continue to investigate (Circum-)Caribbean human history.

Dr. oec. publ. Felix Pöge

for contributions to the analysis of innovation processes, in particular of the impact of competition on innovation outcomes

Max Planck Institute for Innovation and Competition,
Munich

Research field: Economics

Current activity: Postdoctoral Associate at the
Boston University, Massachusetts, USA



My topic of interest

Innovation is central for the development of modern economies and the wellbeing of future generations. I seek to understand how select governmental policies – investments in science, taxation, antitrust – present opportunities and challenges to innovators, and how firms rise to meet them.

My motivation

Sometimes, a phenomenon is so fascinating that I just have to investigate, to seek deeper understanding. The breakup of IG Farben, formerly the world's largest chemical company, is a case in point. I quickly realized the case held important insights for antitrust policy and innovation. Indeed, after the breakup the innovation output of IG Farben's three large successors and the overall chemical industry strongly increased.

My next professional station

After graduating, I am spending two years at Boston University.

Dr. rer. pol. Hannah Pool

for the ethnographic study of the moral economy of Afghan refugees on their way from Afghanistan to the European Union

Max Planck Institute for the Study of Societies, Cologne

Research field: Economic Sociology

Current activity: Postdoctoral Researcher at the Max Planck Institute for the Study of Societies



My topic of interest

Millions of people worldwide are forced to flee due to war, persecution and the consequences of the climate crisis. I am interested in understanding how people with limited financial reserves manage to cross borders in order to flee. To this end, I have investigated the role that money plays as credit, loans, gifts or bribes when people are forced to flee, and how social relations shape and enable economic interactions during undocumented migration trajectories.

My motivation

For my research, Afghan families allowed me to accompany and interview them during their migration trajectory from Afghanistan in Iran, through Turkey, in Greece and along the so-called Balkan route. Their courage and openness made my research possible in the first place and motivated me and my work. It fascinates me to explore the social relationships that underlie the lending, giving or exchanging of money and make mobility possible.

My next professional station

I want to continue researching how social relations enable and shape our economic interactions. I am currently a postdoctoral researcher at the MPI for the Study of Societies.

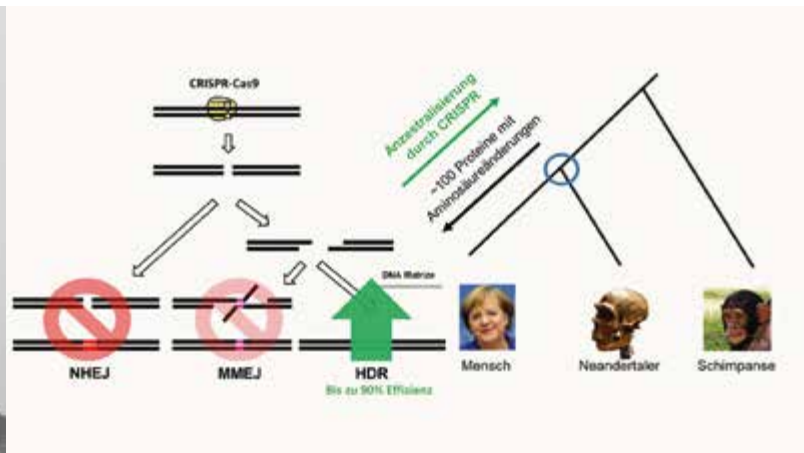
Dr. rer. nat. Stephan Riesenberg

for the investigation into methods that drastically increase precise genome editing efficiency and allow simultaneous precise editing of multiple genes in human cells

Max Planck Institute for Evolutionary Anthropology, Leipzig

Research field: Genome Editing and Evolutionary Genetics

Current activity: Postdoctoral Fellow at the Max Planck Institute for Evolutionary Anthropology



My topic of interest

I investigate how DNA repair pathways can be modulated to increase precise CRISPR genome editing efficiency via homology-directed repair to allow editing of multiple genes simultaneously.

My motivation

Comparative analysis of human and ancestralized cells after differentiation into a variety of cell types and organoids could help elucidate what makes modern humans special by finding genetic causes or predispositions that in contrast to Neandertals allowed our species to successfully populate the planet, live in complex societies and constantly push for technical development.

My next professional station

I continue my research on improving CRISPR methods at the Max Planck Institute for Evolutionary Anthropology.

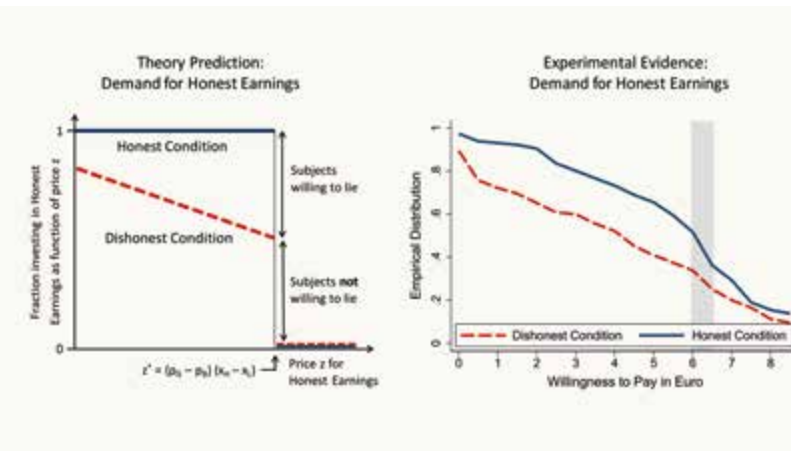
Dr. oec. publ. Sven Arne Simon

for work on experimental behavioural research in the field of the economic theory on compliance

Max Planck Institute for Tax Law and Public Finance, Munich

Research field: Public Economics, Experimental Economics

Current activity: Senior Research Fellow at the Max Planck Institute for Tax Law and Public Finance



My topic of interest

My research focuses on the broad question: why do some people cheat for a personal financial gain while others are seemingly incorruptible? For this purpose, I use experimental economics to examine specific factors for non-compliance, such as the role of team decision-making.

My motivation

As an experimental economist, I am fascinated by bringing theory-based decision models into the lab and using experiments to examine what causes a particular behaviour. Designing simple but effective experiments is both an intellectual challenge and some form of art. The result is rewarding: being able to causally explain the decision-making of economic agents is a very motivating experience.

My next professional station

I am continuing my research as a Senior Research Fellow at the Max Planck Institute for Tax Law and Public Finance. Besides my work on non-compliance, I am engaged in another line of research on the individual's motivation for the delegation of decision rights.

Dr. jur. Raquel Razente Sirotti

for a highly innovative study of the formation of criminal law as a political tool in the Brazilian First Republic

Max Planck Institute for Legal History and Legal Theory, Frankfurt am Main

Research field: History of Criminal Law

Current activity: Postdoctoral Researcher at the Max Planck Institute for Legal History and Legal Theory



My topic of interest

How was the relationship between criminal law and politics built in the daily life of the courts? Who was involved in this process? How can history help us to overcome the dichotomy between rule and exception that characterizes interpretations of the relationship between criminal law and politics in Western modernity?

My motivation

I am interested in proposing a new way of interpreting the relationship between criminal law and politics that takes into account historical developments and nuances. I want to show that ordinary criminal law and its due process was (and is) deeply functional to the repression of political conflicts in a broad variety of ways.

My next professional station

From July 2022 onwards, I will be a Junior Research Group Leader at the Bonn Center for Dependency and Slavery studies. I will be conducting and coordinating research on the history of governance, punishment and labour relations on distinct territories formerly colonized by Portugal in Africa.

The Otto Hahn Award

The Otto Hahn Award is bestowed by the Max Planck Society every year to particularly worthy recipients of the Otto Hahn Medal.

The award provides for a long-term research residency abroad, followed by leadership of a research group on the scientist's own research topic at one of the Max Planck Institutes. The award is intended to pave the way for a long-term scientific career in Germany.

Lise Meitner and
Otto Hahn in the laboratory,
Kaiser Wilhelm Institute
for Chemistry, 1913



This year, four scientists
will be honoured with the
OTTO HAHN AWARD
of the Max Planck Society.

**Dr. rer. nat.
Jascha Alexander
Lau**

Biology & Medicine
Section
see page 10



**Dr. rer. nat.
Huping Wang**

Biology & Medicine
Section
see page 13



Dr. rer. nat
Arshia Maria Jacob

Chemistry, Physics
& Technology Section
see page 17



Dr. rer. nat.
Kathrin Nägele

Human Sciences
Section
see page 29



Hermann Neuhaus
**Hermann
Neuhaus
Prize**



Hermann Neuhaus (1931– 2007) was a successful entrepreneur. Like many excellent scientists, he used his untiring creativity and critical mind to strive constantly for the best. His aim was to sustainably shape the future for generations to come. He is the most generous benefactor of the Max Planck Society and posthumously received the Harnack Medal, its highest accolade.

Since 2018, the Max Planck Foundation and the Hermann Neuhaus Foundation have awarded the Hermann Neuhaus Prize in his memory. The prize recognizes outstanding postdoctoral achievements with reference to applied research, particularly in the Biology & Medicine Section and the Chemistry, Physics & Technology Section.

In accordance with the benefactor's last will, the prize money enables the winners to further advance their research's potential for application.

Chemistry,
Physics &
Technology
Section

Dr. Vahid Babaei

for his excellent achievements at the interface between basic research and practical application, particularly regarding the development of novel computational methods for advanced manufacturing

Max Planck Institute for Informatics, Saarbrücken

Research field: Computational Design and Fabrication

Current Activity: Research Group Leader at the Max Planck Institute for Informatics



My topic of interest

Computer aided design, manufacturing, and engineering (CAD/CAM/CAE) transformed our lives by radically changing the way we design, fabricate, and analyze products. Unfortunately, these technologies cannot scale to harness the immense potential of the ongoing advanced manufacturing revolution. In my group, the Artificial Intelligence aided Design and Manufacturing Group, we focus on inventing new computer science (especially AI) tools that help release the full potential of advanced manufacturing, such as 3D printing or laser-material processing.

My motivation

My main motivation is the research question itself. I find it interesting, challenging and timely. Digital manufacturing is an important, but underrepresented, downstream application for many sub-areas of computer science. Putting our research into practice is another major motivation factor.

My next professional station

I plan to continue my academic research preferably in Germany. At the same time, I want to push our research toward having a positive impact on the industry and consequently people's lives.

The Dieter Rampacher Prize

As a motivation for students to complete a PhD when young, the Dieter Rampacher Prize has been awarded to the youngest PhD student of the Max Planck Society every year since 1985. This year, two candidates of the same age were nominated and awarded accordingly. The prize usually goes to a young researcher aged 25 to 27. The prize also includes a monetary award.

The prize was endowed by Dr. Hermann Rampacher, a Supporting Member of the Max Planck Society, in memory of his brother, Dieter Rampacher, a physics student at the TH Stuttgart, who died in battle in 1945 at the age of 20.

Herrmann Rampacher
talking with
Chaitanya Giri,
winner of the
Dieter Rampacher
Prize 2015

Carsten A. Rampacher, son of the benefactor and also a Supporting Member of the Max Planck Society, has assumed funding of the prize since 2011.



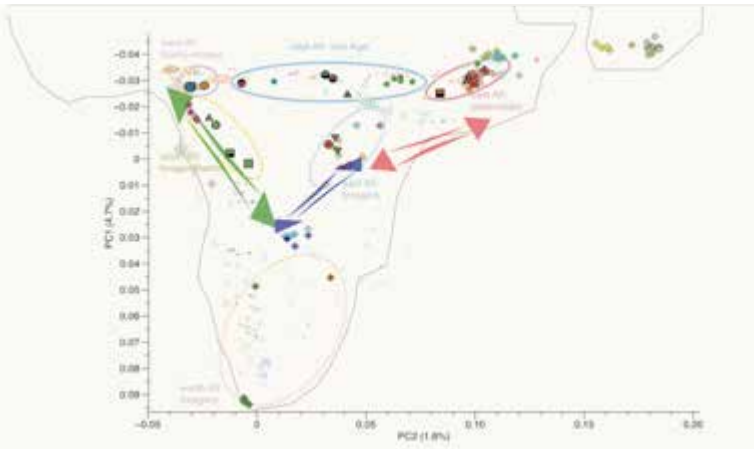
Dr. rer. nat. Ke Wang

for the dissertation 'Investigating human population structure through time with new computational methods and Ancient DNA data'

Max Planck Institute for Evolutionary Anthropology,
Jena

Research field: Ancient DNA

Current activity: Principal Investigator/Associate
Professor at the Fudan University, Shanghai, China



My topic of interest

What has shaped past and present-day population structure?

My motivation

I have been fascinated by human past and always excited to study human demographic history by ancient DNA and novel genomic sequence analytical tools. Ancient and modern DNA allows us to reconstruct human past by extracting information from genomic data. That fits perfectly to my interesting on population history and my expertise of genomic sequence analysis.

My next professional station

After a short period of postdoc at the MPI Evolutionary Anthropology in Leipzig I have started my own group focusing on ancient DNA work in East Asia at Fudan University, China, from May 2022.

Chemistry,
Physics &
Technology
Section

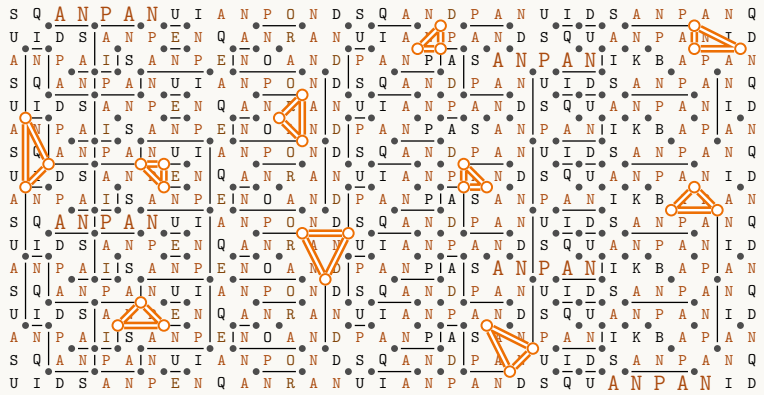
Dr. rer. nat. Philip Wellnitz

for the dissertation 'Counting in Strings
and Graphs'

Max Planck Institute for Informatics, Saarbrücken

Research field: Theoretical Computer Science

Current activity: Postdoctoral Researcher at the
Max Planck Institute for Informatics



My topic of interest

I seek to obtain faster algorithms for relevant problems – or at least clues as to why such a feat may not be achievable in the foreseeable future. Recently, I focused on problems related to counting (approximate) occurrences of patterns in huge texts or networks.

My motivation

I like to make myself believe that my faster algorithms from today will, in the future, enable someone to do something that they could not have done otherwise. From time to time, this deception alone works well enough to keep me going; most of the time, though, I am just happy that I can ever so slightly help expand the collective knowledge of this world.

My next
professional station

For now, I will continue to explore interesting problems and opportunities.

Due to the Corona pandemic, the MPG 2021 Annual Meeting was held online only.
Photo: Axel Griesch, MPG



The Nobel Laureate Fellowship

The Nobel Laureates of the Max Planck Society can each nominate an outstanding postdoc for a Nobel Laureate Fellowship in recognition of their achievements. The fellows receive an employment contract at a Max Planck Institute as well as resources for research.

This instrument for promoting junior scientists of the Max Planck Society provides postdocs with a unique insight into the research activities of the Nobel Laureates. They also benefit from excellent national and international networks for their future career.



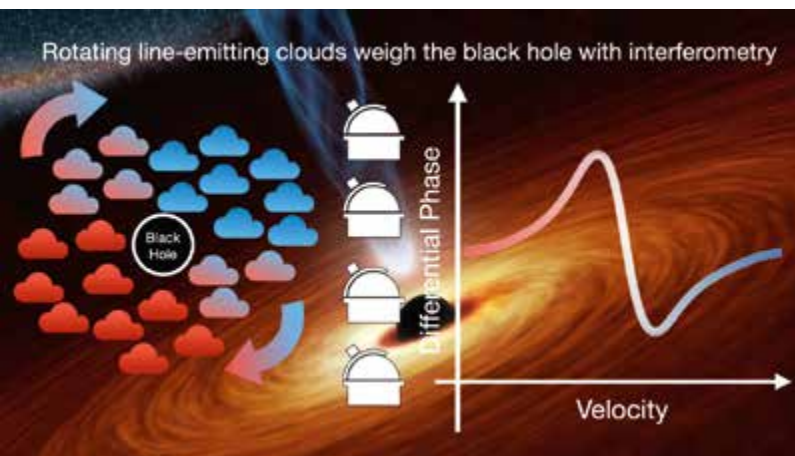
Dr. phil. Taro Shimizu

Nobel Laureate: Prof. Dr. Reinhard Genzel

Max Planck Institute for Extraterrestrial Physics,
Garching

Research field: Astronomy, Astrophysics

Current activity: Postdoctoral Fellow at the
Max Planck Institute for Extraterrestrial Physics



My topic of interest

Galaxies and the supermassive black holes that live in their centers are thought to grow together throughout cosmic time. Using high sensitivity near-infrared interferometry, we will measure the masses of these black holes in the early Universe and determine the specific relationships between galaxy and black hole properties and how black holes can influence the environment they grow in.

My motivation

In a broad sense, we are part of the Universe and are the Universe's way of observing and understanding itself and therefore we should make every effort to reveal its nature and history. Black holes in particular have fascinated me since my childhood and I want to study and learn the physics of how they work and their place in the evolution of the Universe.

My next professional station

I am very excited to continue working with Prof. Dr. Genzel and his group at MPE. In particular we will be measuring supermassive black hole masses in high redshift galaxies with GRAVITY+, the upgrade to our world leading interferometer at the European Southern Observatory.

