Hector Fellow Academy

Interdisciplinary Cutting-Edge Research Network

2025

Foreword

Dear readers,

How can the natural sciences and engineering meet the social, ecological and economic challenges of tomorrow? By bringing together top researchers from different disciplines, the Hector Fellow Academy supports the development of new ideas and approaches.

At the same time, the focus is on promoting young scientists and their innovative research projects. The Hector Fellows teach and conduct research at a wide variety of universities and research institutions in Germany. They represent disciplines within the natural and engineering sciences, AI, psychology and medicine. Their fields of activity range from research into cell mechanisms to the elucidation of galaxy evolution. In addition to the Hector Science Award, all Hector Fellows have received other prestigious national and international research awards. They hold important positions in central associations and societies in their field.

The Hector Fellow Academy aims to initiate visionary socio-political discourse, contribute to solving global challenges and at the same time strengthen Germany as a center of research and science.

Gain an insight into the activities of the Science Academy and the fascinating research of the Hector Fellows and their early career researchers. Get to know our network and join us in providing impetus for innovation.

Josephine and Dr. h.c. Hans-Werner Hector

The Hector Fellow Academy

The Hector Fellow Academy (HFA) is a young science academy. It provides a platform for its members to network across fields and collaborate on interdisciplinary projects. The HFA also supports promising young scientists. Alongside the winners of the Hector Science Award, the HFA includes the recipients of the Hector Research Career Development Award, as well as doctoral and postdoctoral researchers from STEM disciplines, medicine and psychology. The Academy has also established a network for former members, facilitating ongoing dialogue beyond the lifespan of individual projects.

Hector Science Award

Since 2008, the Hector Foundation II of Josephine and Dr. h.c. Hans-Werner Hector has awarded the Hector Science Award each year. The award recognizes professors at German universities and research institutions working in the natural and engineering sciences, medicine or psychology for their outstanding research achievements and their special dedication to teaching and the fostering of young scientists.

Hector Research Career Development Award

The Hector Fellow Academy has been awarding the Hector Research Career Development Award since 2020. With this award, the HFA supports excellent scientists with a W1 professorship or junior research group leadership on their academic career path. The award winners' research projects can be made possible with the help of the prize money and funding for a doctoral position.

Promotion of young talent: Doctoral projects

One focus of the HFA is the promotion of young academics. In the annual application process, excellent Master's graduates are selected to work as research assistants in the working group of the Hector Fellow or Hector RCD Awardee. They also receive additional research funding.

In line with a holistic approach, all early career researchers acquire management skills in addition to their research expertise.

In selected trainings, including courses at the HECTOR School of Engineering & Management – the Technology Business School of the Karlsruhe Institute of Technology – they acquire skills in project organization, scientific writing and presentation.

They can apply the know-how they acquire directly in their research project. At the same time, they gain long-term qualifications for leadership-level positions

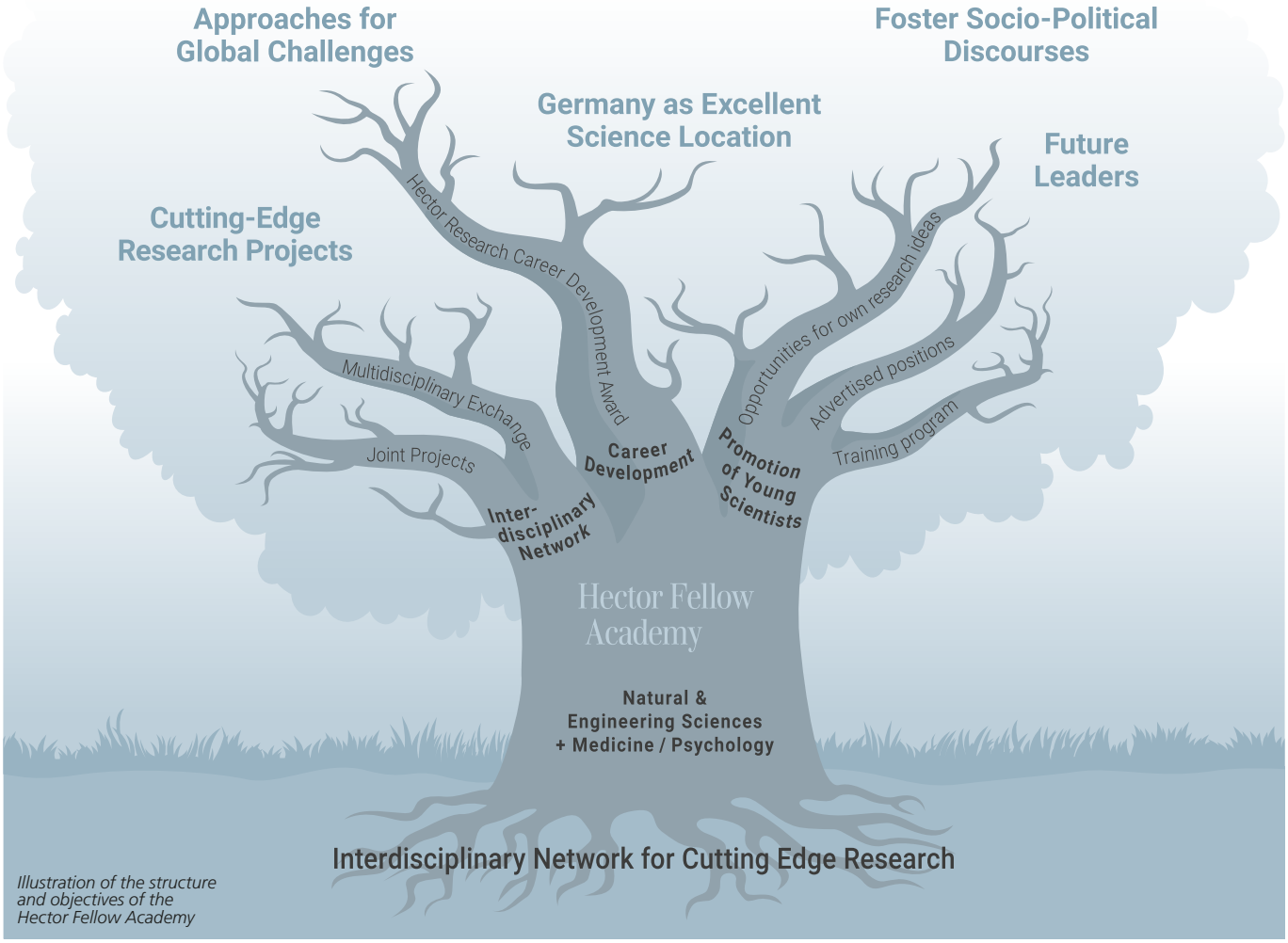
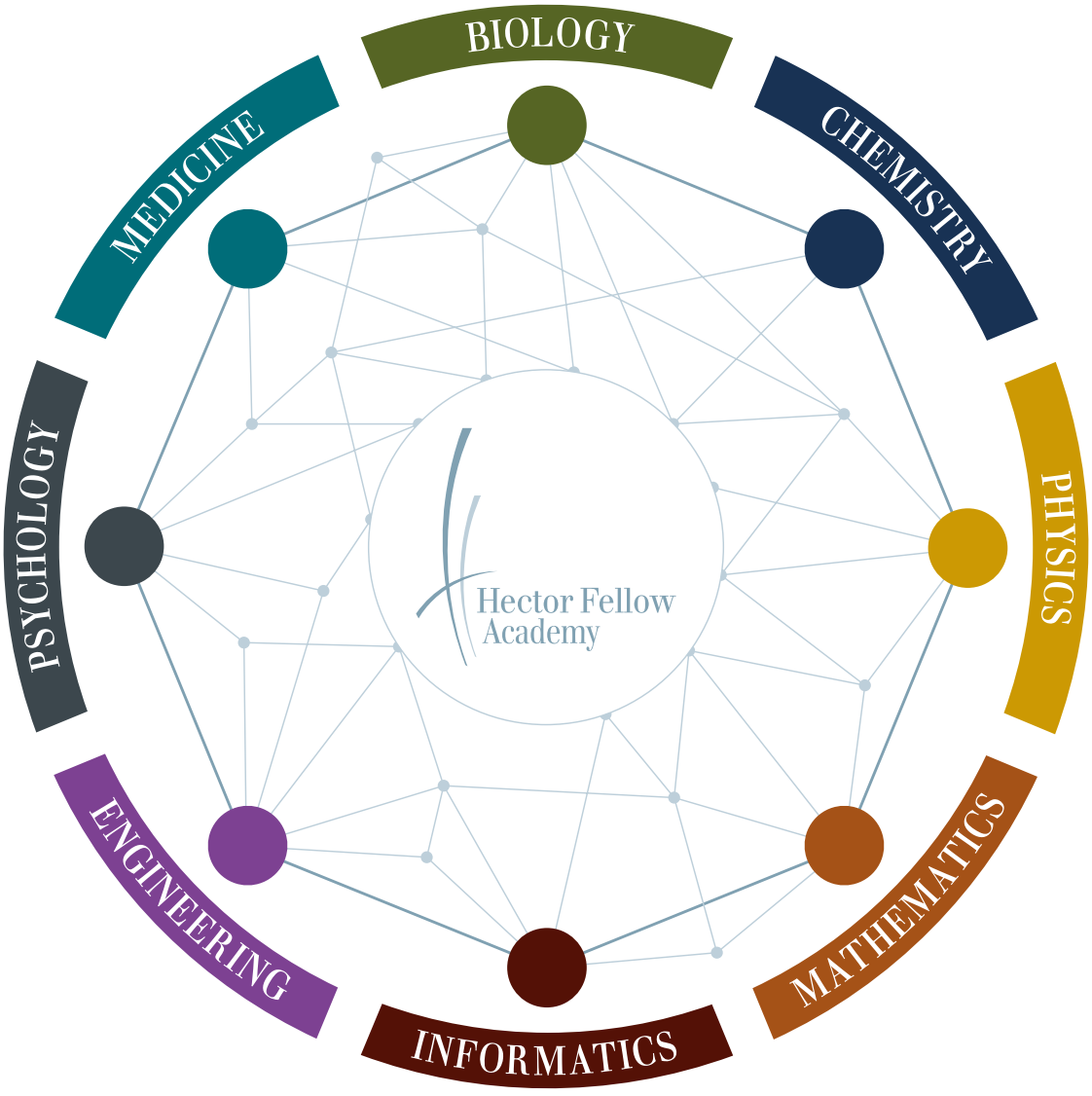


Illustration of the structure and objectives of the Hector Fellow Academy

Excellence across disciplines

The Hector Fellow Academy's primary focus is facilitating interdisciplinary exchange among its members. The HFA supports this by creating a framework for interdisciplinary projects involving Hector Fellows and Hector Research Career Development Awardees. These projects can employ junior researchers. Additionally, annual symposia and interdisciplinary conferences on innovative issues provide an opportunity to initiate new collaborative research projects. Networking among the members is a particularly central goal of the Hector Fellow Academy office activities.



A portrait of the HFA

On YouTube: https://youtu.be/Ga1G2TApukA

Events for scientific exchange

The Hector Fellow Academy sees itself as a place for dialogue. The annual symposium gives members the chance to engage with the public and representatives from science, politics and industry on socio-political topics. The HFA also promotes joint conferences between Hector Fellows and Hector Research Career Development Awardees, supports the recruitment of keynote speakers, and acts as a sponsor of speaker awards at conferences.

Annual Symposium & Science Evening

The HFA symposia take place annually throughout Germany on a rotating basis at the Hector Fellows' locations.

At the public HFA Science Evening, connections are forged between the Hector Fellows' research topics and the key challenges facing our society today. Experts present their research in an accessible way and discuss their visions for the future. Panel discussions encourage dialogue between science and the public, helping to initiate visionary discourse. During the internal program, HFA members can network, present the current status of funded projects, and familiarize themselves with the research facilities at the venue. The Hector Research Career Development Award ceremony is also held during the symposium.

Conferences & Workshops

Joint workshops or conferences of several Hector Fellows and Hector Research Career Development Awardees can be funded by the HFA. This strengthens interdisciplinary cooperation between the members of the academy.

Keynote Speakers

The Hector Fellow Academy helps its members to attract renowned keynote speakers to conferences and meetings. Such specialist events are hosted or co-organized by a Hector Fellow or Hector RCD Awardee, and feature top-class scientists from Germany and abroad as speakers.

HFA Speaker´s Award

As the chair of a scientific conference, Hector Fellows or Hector RCD awardees may present the Hector Fellow Academy Speaker's Award. Through this award, they honor the best presentations given by young scientists during the event.

- 2026 What children teach us – the future of personalized medicine Munich/online
- 2025 Brain, computer and AI – soon not to be distinguished? Düsseldorf/online
- 2024 Why do children learn differently than adults? Hamburg/online
- 2023 Light in biology – photosynthesis, visual processes and neuronal applications. Berlin/online
- 2022 3D printing – tailor-made and at the touch of a button. Karlsruhe/online
- 2021 Expeditions into the unknown – North Pole and Deep Sea as extreme regions of Earth. Online
- 2019 Galaxy fusion and new earths – galactic archeology and an interstellar second home. Heidelberg
- 2018 The second quantum revolution – from quantum communication to quantum computers. Munich
- 2017 Medicine 4.0 – organic electronics in modern medicine. Dresden
- 2016 Mathematics and Science Fiction - visions for the year 2^{11}=2048. Berlin
- 2015 Local science & global challenges. Tübingen

Impressions of HFA Science Evenings (2015 - 2024)

Panel discussion at the HFA Science Evening 2024 with scientific host Prof. Dr. Brigitte Röder (middle) in Hamburg

Scientific organizer of the HFA Science Evening 2023 was Prof. Dr. Peter Hegemann. The event took place in Berlin.

First after-COVID HFA Science Evening in 2022 by Prof. Dr. Martin Wegener (middle) together with Prof. Dr. Tal Dvir (right) and Andrea Grießmann (left) in Karlsruhe.

Scientific organizer of the HFA Science Evening 2021 Prof. Dr. Antje Boetius (middle) with speaker Prof. Dr. Markus Rex (left) and moderator Dirk Steffens (right), due to COVID it was an online-event streamed from Bremen.

From left to right: Prof. Dr. Stephen A. Hashmi, Hector Foundation members Uwe Bleich, Horst-Bodo Schauer and Hans-Werner Hector, Prof. Dr. Eva Grebel (organizer), Prof. Dr. Joachim Wambsganß (speaker), Prof. Dr. Harald Lesch (moderator).

Prof. Dr. Anton Zeilinger in front of a big auditorium in Munich in 2018.

In 2016, the event took place in Berlin with Prof. Günter M. Ziegler, PhD.

The first public event was organized by Prof. Dr. Eberhart Zrenner in Tübingen, 2015.

The Hector Science Award and the Hector Fellows

Since 2008, the Hector Foundation, established by Josephine and Dr. h.c. Hans-Werner Hector, has awarded the annual Hector Science Award, endowed with €150,000. The award recognizes professors in STEM disciplines, psychology, or medicine who have made outstanding contributions to research and teaching. Hector Fellows teach and conduct research at universities and research institutions in Germany and Switzerland.

„They are beacons in their fields, chosen as the best from the circle of extraordinary university lecturers," emphasized Dr. h.c. Hans-Werner Hector at the first award ceremony in 2009. With the announcement of the Hector Science Award, the honorees become Hector Fellows. The award is intended to encourage the Hector Fellows to share their scientific expertise with students and young academics, as well as disseminate it to society.

Rectors and presidents of German universities, as well as heads of renowned non-university research institutions, can nominate one candidate from their institution each year.

The award winners are selected by the Hector Foundation's Board of Trustees, consisting of: Prof. Dr. Klaus van Ackern, long-time dean of the Mannheim faculty of medicine at Heidelberg University; Dr. John Feldmann, former member of the executive board of BASF; Prof. Dr. Stefan Hell, 2014 Nobel prize winner in chemistry; Prof. Dr. Otmar Wiestler, president of the Helmholtz association of German research centers; representatives of the Hector Fellows; and the Hector foundation's board of directors. 33 professors have received the award for their exceptional research achievements and commitment to teaching and promoting young scientists.

The Hector Fellows have received other national and international research awards and hold important positions in central committees and institutions in their field.

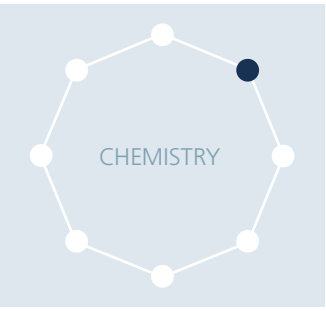
Award winners automatically become members of the Hector Fellow Academy. HFA members elect an Executive Committee to direct the HFA's thematic and academic work. The current members of the Executive Committee are Prof. Dr. Ralf Bartenschlager, Prof. Dr. Karl Leo, and Prof. Dr. Brigitte Röder.

The Hector Award winners 2024: Prof. Dr. med. Dr. h.c. Matthias H. Tschöp and Stefanie Dehnen with Josephine Hector and Dr. h.c. Hans-Werner Hector (f.l.t.r.)

Welcome New Hector Fellows 2024

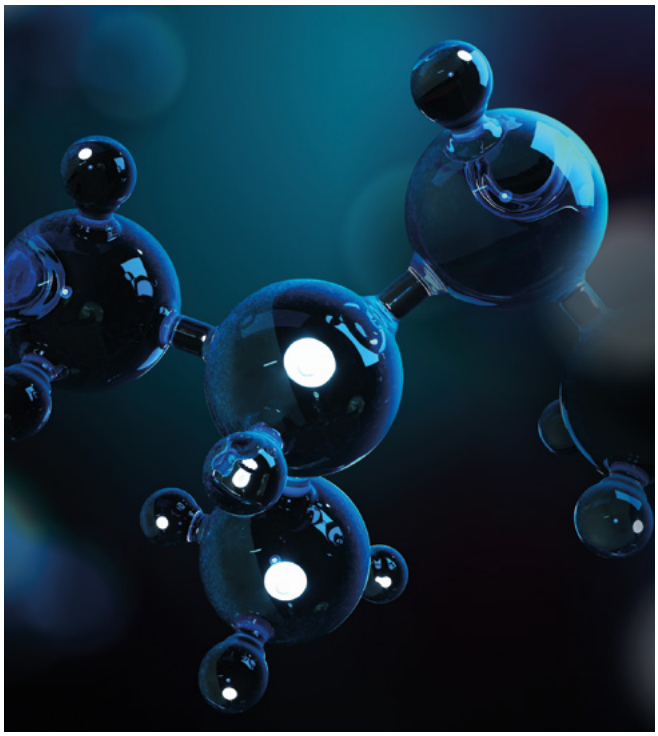
Stefanie Dehnen and Matthias H. Tschöp receive the Hector Science Award 2024 for their research.

Hector Fellow since 2024



Prof. Dr. Stefanie Dehnen

Professor Stefanie Dehnen of the Karlsruhe Institute of Technology is an expert for highly innovative, extremely sophisticated, and also sustainable inorganic and organoelement synthesis. She has made significant contributions to the chemistry of cluster compounds and their creative extensions to material science.
Clusters are key linkers between small defined metal complexes and much larger, yet atomically undefined nano-particles. Clusters can help to solve future problems regarding energy transfer or storage and sustainable synthesis, but given their atomically-precise nature, they also serve to elucidate relevant fundamental knowledge of chemical bonding and reactivity.
The understanding of both is critical to a sustainable design of innovative functional materials for future applications. Still, the biggest challenge in cluster chemistry is their controlled synthesis. The Dehnen group master the design and preparation of tailor-made clusters of very different sizes, shapes, and compositions by innovative and straight-forward synthesis strategies in combination with quantum chemical studies.



RESEARCH FIELDS:
CLUSTER-BASED MATERIALS, CHEMICAL SYNTHESIS, STRUCTURE ELUCIDATION, SPECTROSCOPY AND SPECTROMETRY, MOLECULAR QUANTUM CHEMISTRY

Hector Fellow since 2024

Prof. Dr. med. Dr. h.c. Matthias H. Tschöp

Matthias Tschöp is the Chief Executive Officer and Scientific Director of Helmholtz Munich, Alexander von Humboldt Professor at the Technical University of Munich and Adjunct Professor at Yale University.
Following his discovery of the human hunger hormone, ghrelin, Matthias Tschöp unraveled fundamental gut-brain signals to discover medicines to safely normalize body weight in patients struggling with obesity. In close collaboration with the chemist Richard DiMarchi, he discovered the dual and triple gut hormone co-agonists. Tirzepatide (Mounjaro®, Zepbound®, Eli Lilly & Co.) is the first representative drug in this class that is FDA-approved.
For his achievements, Matthias Tschöp received the Ernst Schering Prize, the Banting Medal and the Heinrich Wieland Prize among many others. He is a member of the American Society for Clinical Investigation, the American Association of Physicians, the German National Academy of Sciences (Leopoldina).

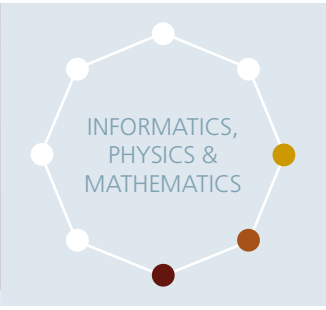
RESEARCH FIELDS:
DIABETES & OBESITY, METABOLIC DISEASES, PREVENTION MEDICINE, DRUG DISCOVERY & PHARMACOLOGY

Hector Fellow since 2023

Prof. Dr. Magdalena Götz

Magdalena Götz is Chair of Physiological Genomics at the Biomedical Center of the Ludwig-Maximilians University, director of the Institute of Stem Cell Research at the Helmholtz Center Munich and external member of the Max-Planck Institute of Biochemistry in Martinsried.
Her research focuses on mechanisms of brain development and how neurons are generated. This led her to discover direct neuronal reprogramming converting reactive glia after brain injury into new neurons. Her research now aims to move this further towards application and apply cell engineering in a broader perspective including her novel insights into organellar diversity in cells.
She received the Gottfried-Wilhelm Leibniz Award in 2007, the Ernst Schering Award in 2014 and the Mendel Medal of the Leopoldina Academy in 2019 to name a few. In addition, she is a member of EMBO, the Bavarian Academy of Sciences, Leopoldina and the Royal Academy of Pharmacy in Spain.

Hector Fellow since 2023



Prof. Dr. Klaus-Robert Müller

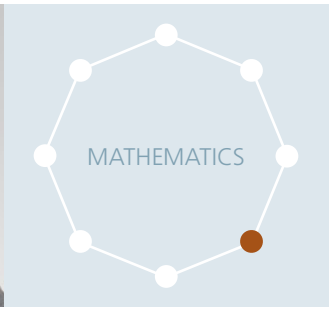
Klaus-Robert Muller is Professor of Machine Learning at the TU Berlin and Director of BIFOLD (Berlin Institute for the Foundations of Learning and Data). He conducts research in the field of machine learning and artificial intelligence, focusing on fundamental research at the intersection of machine learning and big data management, with an emphasis on explainable AI, deep learning and multimodal learning. He aims to apply the methods of machine learning and AI to other scientific disciplines, such as quantum chemistry, digital histopathology, neuroscience and humanities, to create genuinely new knowledge. He is a distinguished professor at Korea University in Seoul, a member of the Leopoldina, the Berlin Brandenburg Academy of Sciences and Humanities and the German Academy of Science and Engineering; in addition to various „best paper" awards, he received the Berlin Science Prize in 2014, the Vodafone Innovation Prize in 2017 and the Feynman Prize in 2024. Since 2019, he has appeared on Clarivate Analytics' list of „Highly Cited" scientists.

Hector Fellow since 2022

Prof. Dr. Dr. h.c. Christian Haass

Christian Haass is Professor of Metabolic Biochemistry at the Ludwig-Maximilians-Universität München and spokesperson for the German Center for Neurodegenerative Diseases Munich. Christian Haass is a German biochemist known for his work on the cell biology of neurodegenerative diseases. Together with an interdisciplinary team, he has elucidated the molecular mechanisms of the development of Alzheimer's disease and identified target molecules for therapeutic approaches. Christian Haass is spokesperson for the Munich Cluster of Excellence for Systems Neurology (SyNergy). He is a member of the Leopoldina, the European Molecular Biology Organization (EMBO) and the Bavarian Academy of Sciences and Humanities. He is the recipient of numerous national and international prizes such as the Ernst Jung Prize for Medicine, the Gottfried Wilhelm Leibniz Prize of the German Research Foundation, the Brain Prize and the Potamkin Prize of the American Academy of Neurology. He has been one of the world's most cited researchers since 2018.

Hector Fellow since 2022



Prof. Dr. Anna Wienhard

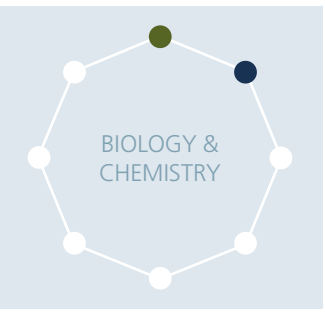
Anna Wienhard is Director at the Max Planck Institute for Mathematics in the Sciences and one of the world's leading mathematicians in the field of differential geometry. Symmetries and how they work in topological and geometric spaces play a central role in her research. One of her focal points is the field of higher Teichmüller theory, which she co-founded, and she is committed to closely linking basic mathematical research with other sciences. Her focus is on interactions with theoretical physics and the application of geometric and topological methods in data analysis and machine learning. Anna Wienhard is Scientific Director of the Heidelberg Laureate Forum Foundation. She was a founding member and co-spokesperson of the interdisciplinary Cluster of Excellence STRUCTURES, has been awarded an ERC Consolidator and an ERC Advanced Grant, is a Fellow of the American Mathematical Society and a member of several science academies..

Hector Fellow since 2021

Prof. Dr. Dr. h.c. Katrin Amunts

Katrin Amunts is Professor of Brain Research and Director of the C. and O. Vogt Institute for Brain Research at Heinrich Heine University Düsseldorf and Director of the Institute of Neuroscience and Medicine (INM 1) at Forschungszentrum Jülich. From 2016 to 2023, she was scientific director of the European flagship project, The Human Brain Project, and now coordinates the resulting digital platform EBRAINS. She is a German neuroscientist known for her work on mapping the human brain. In order to better understand the organisational principles of the human brain, she and her team have developed the Julich Brain Atlas, a new type of atlas that brings together data from all levels of the brain and gives them a spatial framework. Katrin Amunts is spokesperson of the Helmholtz Joint Lab Supercomputing and Modelling for the Human Brain (SMBH). She is co-spokesperson of the Graduate School Max Planck School of Cognition. She is also a member of the German National Academy Leopoldina, the National Academy of Science and Engineering (acatech) and the North Rhine-Westphalian Academy of Sciences and Humanities and holds an honorary doctorate from Maastricht University.

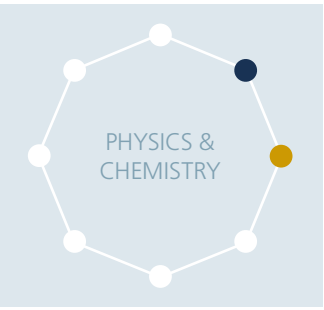
Hector Fellow since 2020



Prof. Dr. Patrick Cramer

Patrick Cramer has been serving as President of the Max Planck Society since 2023. Cramer studied chemistry at Stuttgart, Heidelberg, Bristol and Cambridge. In 1998, he earned his PhD from the University of Heidelberg for research he conducted at the European Molecular Biology Laboratory in Grenoble. He was then a postdoctoral fellow with Roger Kornberg at Stanford University. From 2001 to 2014, he was Professor of Biochemistry at LMU in Munich before serving as Director at the Max Planck Institute for Multidisciplinary Sciences in Göttingen (formerly Max Planck Institute for Biophysical Chemistry). For his research on gene transcription and its regulation in eukaryotic cells Cramer received numerous awards, including the Shaw Prize in 2023, the Gregori Aminoff Prize of the Royal Swedish Academy in 2022 and the Louis Jeantet Prize for Medicine in 2021. Cramer is a Member of the German National Academy Leopoldina, the American National Academy of Sciences and The Royal Society.

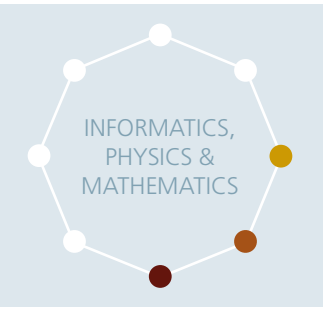
Hector Fellow since 2019



Prof. Dr. Wolfgang Wernsdorfer

Wolfgang Wernsdorfer is a Humboldt Professor at the Physics Institute and at the Institute for Quantum Materials and Technologies of the Karlsruhe Institute of Technology (KIT). He specializes in experimental solid-state physics at the interface of chemistry and materials science. He is one of the world's leading experts on nanomagnets and their use in molecular quantum spintronics. With the nano-SQUID, he has developed a groundbreaking measuring instrument with which he was able to investigate the magnetic properties of individual nanostructures and molecules. He is currently working on the integration of small, molecular quantum processors into other quantum technologies, such as superconducting circuits and CMOS microelectronics. Molecular nanomagnets could be used in future quantum computers. He is also working on miniaturized cryostats that can cool quantum technologies efficiently to very low temperatures. For this Wolfgang Wernsdorfer has been awarded numerous awards for his work.

Hector Fellow since 2018



Prof. Dr. Bernhard Schölkopf

Bernhard Schölkopf is Scientific Director of the new ELLIS Institute, Director at the Max Planck Institute for Intelligent Systems, Affiliated Professor at ETH Zurich, and Honorary Professor at the University of Tübingen and TU Berlin. He works on the recognition of regularities from observational data and has significantly shaped the research field of machine learning. With his work on kernel methods, he has shown how a large class of learning algorithms can be generalized to the non-linear case and to non-vectorial data. More recently, he has brought together machine learning and causal inference, in order to analyze not only statistical dependencies but also causal structures from observations and generative models that allow interventions. Bernhard Schölkopf is a member of the German National Academy of Sciences (Leopoldina) and has been awarded the Gottfried Wilhelm Leibniz Prize of the German Research Foundation (DFG), the Milner Award of the Royal Society, the BBAW Foundation Frontiers of Knowledge Award, the Körber European Science Award and the ACM AAAI Allen Newell Award.

Hector Fellow since 2017

Prof. Dr. Brigitte Röder

Brigitte Röder is Professor of Biological Psychology and Neuropsychology at the University of Hamburg and a visiting scholar at the LV Prasad Eye Institute in Hyderabad (India). As a psychologist and neuroscientist she investigates how the human brain connects inputs from different sensory systems to a coherent percept and how infants and children learn to do this. Brigitte Röder's research focusses on the role of experience for human brain development. In particular, her team explores the neural mechanisms of so-called sensitive periods, that is phases of enhanced neuroplasticity during brain development. For example, people who were born blind and regained sight only later in life are investigate with behavioral, electrophysiological and brain imaging techniques. Brigitte Röder is a member of the National Academy of Sciences (Leopoldina)and the Academy of Sciences in Hamburg. She has received the Gottfried Wilhelm Leibniz Prize from the DFG, an ERC Advanced Investigator Grant and the Wilhelm Wundt Medal from the German Psychological Society. She has been a member of the DFG Senate since 2019.

Hector Fellow since 2016

Prof. Dr. Ralf Bartenschlager

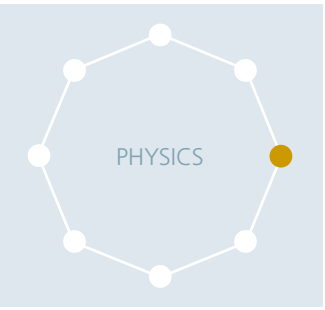
Ralf Bartenschlager is Director of the Department of Infectious Diseases, Molecular Virology at the Ruprecht-Karls-University Heidelberg and Head of the Department of Virus-associated Carcinogenesis at the German Cancer Research Center Heidelberg. The virologist researches replication strategies and immunobiology of medically important hepatitis viruses, flaviviruses (dengue virus, Zika virus) and the SARS coronavirus-2. He has succeeded in developing cell culture models for the hepatitis C virus (HCV), with which the viral replication cycle could be simulated in vitro for the first time. These models formed the basis for the development of antiviral drugs that eliminate the virus in more than 95% of those treated. His work provided fundamental insights into the replication strategy of the hepatitis C virus and flaviviruses. Ralf Bartenschlager has been honored with the Lasker-DeBakey Award, Robert Koch Prize, Prince Mahidol Award, Beijerick Virology Prize and Ernst Jung Prize, among others. He is a member of the German National Academy of Sciences (Leopoldina), the European Molecular Biology Organization (EMBO) and holds an honorary doctorate.

Hector Fellow since 2015

Prof. Dr. Dr. h.c. Peter Hegemann

Peter Hegemann is Head of the Experimental Biophysics Group and Hertie Senior Professor of Neuroscience at the Humboldt University in Berlin. The world's leading expert in photobiology is a co-founder of optogenetics, which combines methods of optics and genetics for the non-invasive stimulation of individual neurons. His research on algae photoreceptors led to the discovery of light-dependent ion channels. The proteins involved ("channelrhodopsins") enable the precise control of genetically modified cells by light pulses, opening up new possibilities for the treatment of neuronal diseases. Peter Hegemann has received the Albert Lasker Basic Medical Research Award, Shaw Prize, Rumford Prize, Gairdner Award, Gottfried Wilhelm Leibniz Prize of the German Research Foundation (DFG), Grete Lundbeck European Brain Research Prize, among others. He is a member of the National Academy of Science and Engineering (acatech), the Berlin-Brandenburg Academy of Sciences and Humanities (BBAW), the European Molecular Biology Organization and the German National Academy of Sciences (Leopoldina).

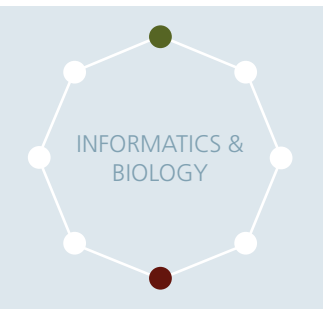
Hector Fellow since 2014



Prof. Dr. Eva Grebel

Eva Grebel is professor of astronomy and director of the Astronomisches Rechen-Institut at Heidelberg University. The astronomer is one of the world's leading researchers in the field of galaxy evolution. As a pioneer of "galactic archaeology", she uses ages, kinematics, and composition of stars as fossil tracers of the evolutionary history of nearby galaxies and our Milky Way. She investigates how star formation and enrichment with heavier elements occur and what role merger processes with smaller galaxies play. Eva Grebel has been awarded the Ludwig Biermann Prize, the Lautenschläger Research Prize, and the Caroline Herschel Medal, among others. She is a member of the Heidelberg Academy of Sciences and of the German National Academy of Sciences (Leopoldina). From 2013 to 2019 she was in the Senate of the DFG.

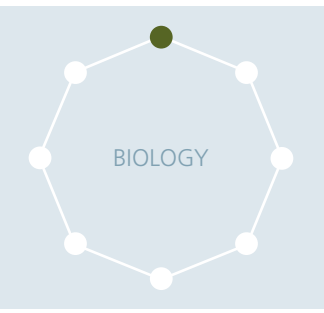
Hector Fellow since 2014



Prof. Dr. Dr. Thomas Lengauer

Thomas Lengauer was Director until 2018 and is an Emeritus Scientific Member at the Max Planck Institute for Informatics in Saarbrücken as well as an Honorary Professor at Saarland University, the University of Bonn and the University of Cologne. The pioneer in the field of bioinformatics has conducted research into the analysis of molecular sequences and structures, among other things, and is now primarily concerned with disease-oriented issues. His research has been honored with the Konrad Zuse Medal of the German Informatics Society, the Karl Heinz Beckurts Prize and the AIDS Research Prize of the Heinz Ansmann Foundation. He is a member of the Presidium of the German National Academy of Sciences (Leopoldina), the German Academy of Science and Engineering (acatech), the Academia Europaea and a Fellow of the Association for Computing Machinery (ACM) and the International Society for Computational Biology (ISCB). He was President of the International Society for Computational Biology from January 2018 to January 2021. He is co-founder of BioSolveIT GmbH, which develops software for computer-aided drug design.

Hector Fellow since 2013



Prof. Dr. Antje Boetius

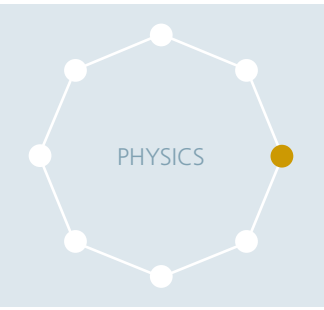
Antje Boetius is President of the Monterey Bay Aquarium Research Institute in California. From 2017 to early 2025, she served as Director of the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, and as Professor of Geomicrobiology at the University of Bremen. As an internationally renowned deep-sea researcher, she investigates the biodiversity and biogeochemistry of the deep ocean and polar seas. Her work focuses on the interactions between the geosphere and biosphere, and she develops underwater technologies to monitor marine environments. In 2019, Antje Boetius was awarded the Federal Cross of Merit. She has also received the German Environmental Prize, the Communicator Prize, an ERC Advanced Grant, and the Gottfried Wilhelm Leibniz Prize from the German Research Foundation (DFG). She is a member of the German National Academy of Sciences (Leopoldina), the Berlin-Brandenburg Academy of Sciences and Humanities (BBAW), the Academy of Sciences and Literature Mainz, and the Max Planck Society.

Hector Fellow since 2013

Prof. Dr. Dr. Christoph Klein

Christoph Klein is Professor of Pediatrics and Adolescent Medicine and Medical Director of the Children's Clinic at the Dr. von Hauner Children's Hospital at Ludwig Maximilian University in Munich. He is one of the pioneers of cell and gene therapy for children with rare congenital immunological and hematological diseases. Together with his interdisciplinary team of researchers, he clarifies the genetic causes of diseases, studies the disease mechanisms and develops new therapeutic strategies with the aim of improving the chances of recovery for affected children in the long term. For his achievements, he has been awarded an Advanced Grant from the European Research Council (ERC), the William Dameshek Prize from the American Society of Hematology and the Gottfried Wilhelm Leibniz Prize from the German Research Foundation (DFG), among others. He is the founder of the Care-for-Rare Foundation to support children with rare diseases.

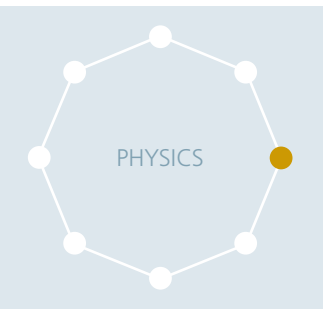
Hector Fellow since 2013



Prof. Dr. Karl Leo

Karl Leo is professor of optoelectronics and head of the Dresden Integrated Center for Applied Physics and Photonic Materials (IAPP) at the Technical University of Dresden. He is one of the leading international scientists in the field of organic semiconductors. His research aims to explore the fundamental properties of novel flexible, biocompatible and degradable electronic components. His work has been awarded, among others, the Gottfried Wilhelm Leibniz Prize of the German Research Foundation (DFG), the Federal President's Future Prize, and the Inventor Prize of the European Patent Office. He is a member of the European Academy of Sciences, the National Academy of Sciences (Leopoldina), the National Academy of Engineering Sciences (acatech), and a fellow of the Optical Society of America. With spin-offs (Novaled AG & Heliatek GmbH), he successfully transferred his research into industrial applications.

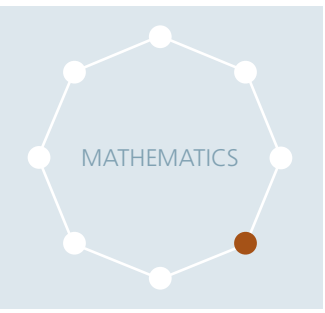
Hector Fellow since 2012



Prof. Dr. Immanuel Bloch

Immanuel Bloch is Professor of Experimental Physics at the Ludwig-Maximilians-Universität in Munich and Director at the Max Planck Institute for Quantum Optics in Garching. He is one of the world's leading scientists in the field of research into ultracold quantum matter near the absolute zero temperature. With the help of laser beams, he creates artificial crystals of light in which ultracold atoms can be trapped. This enables the investigation of fundamental quantum mechanical processes in materials. For his research, he has been awarded the Harvey Prize, the Körber Prize for European Science, an ERC Synergy Grant, the Senior Bose-Einstein Condensation Award, the Gottfried Wilhelm Leibniz Prize of the German Research Foundation (DFG), the Bavarian Maximilian Order for Science and Art (2021), the ZEISS Research Award (2022), the highest award in experimental physics of the German Physical Society, the Stern-Gerlach Medal (2024), and the Bavarian Hightech Award (2025). He is a member of the German National Academy of Sciences (Leopoldina), the Bavarian Academy of Sciences and Humanities and the National Academy of Sciences (NAS).

Hector Fellow since 2012



Prof. Günter M. Ziegler, PhD

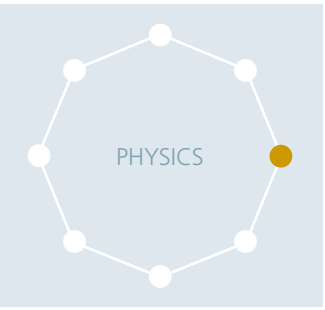
Günter M. Ziegler has been President of Freie Universität Berlin since July 2018. He is an internationally renowned mathematician who has become known for the construction and analysis of remarkably complex geometric structures, but also for the development and successful application of deep "topological" methods for problems from various fields, such as partitioning problems and optimization. Günter M. Ziegler has been awarded the Gottfried Wilhelm Leibniz Prize of the German Research Foundation (DFG) and an Advanced Grant of the European Research Council (ERC). He is a member of the Executive Committee of the German Mathematical Society and a member of the Executive Board of the International Mathematical Union (IMU). He is a member of the German National Academy of Sciences (Leopoldina) and the German Academy of Science and Engineering (acatech) and a Fellow of the American Mathematical Society.

Hector Fellow since 2012

Prof. Dr. med. Dr. h.c. mult. Eberhart Zrenner

Eberhart Zrenner is senior professor and founding director of the Research Institute for Ophthalmology at the Eberhard Karls University of Tübingen. He is a world-renowned expert in degenerative diseases of the retina, particularly in the field of causal research and therapy development. He has made a special contribution to the development of electronic subretinal retinal implants to restore vision in the blind. He played a key role in the development and implementation of the first gene therapy developments for hereditary retinal degenerations in Germany. Eberhart Zrenner has been awarded the Ludwig-von-Sallmann Prize and the Karl Heinz Beckurts Prize, among others. He is a member of the German National Academy of Sciences (Leopoldina) and the Heidelberg Academy of Sciences and Humanities, was spokesperson for the SFB 430, a member of the German Science Council and the Health Research Council until 2009, a Senator until 2005 and a member of the Board of Trustees of the Max Planck Society until 2020. He established the Foundation for Medical Innovation to support new therapeutic developments.

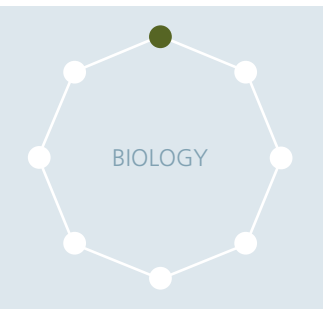
Hector Fellow since 2011



Prof. Dr. Hilbert von Löhneysen

Hilbert von Löhneysen is Professor Emeritus at the Institute of Physics and the Institute of Quantum Materials and Technology (IQMT) at the Karlsruhe Institute of Technology (KIT). He was also a founding member of the Institute of Nanotechnology (INT) at KIT and headed a working group there from 1999 to 2016. From 2000 to 2016, he was also head of the Institute for Solid State Physics (now IQMT) at KIT. His research focuses on experimental solid-state physics, on the one hand in the field of strongly correlated electron systems, in particular the investigation of magnetic quantum phase transitions, and on the other hand on the investigation of metallic nanostructures, for example nanocontacts between superconductors and ferromagnets. Hilbert von Löhneysen is a member of the Heidelberg Academy of Sciences and Humanities and the National Academy of Science and Engineering (acatech). He was a member of the Senate and Joint Committee of the German Research Foundation (DFG) until 2001, a member of the German Council of Science and Humanities until 2012 and Chairman of the Scientific Commission of the German Council of Science and Humanities until 2012.

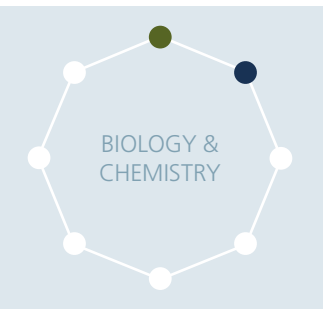
Hector Fellow since 2011



Prof. Dr. Axel Meyer

Axel Meyer is Professor of Zoology and Evolutionary Biology at the University of Konstanz. He is one of the world's leading experts in the field of evolutionary biology. He established the insight that species can evolve without geographical barriers and discovered that evolutionary change is possible in just a few decades. He also pioneered the use of genetic data to substantiate the relationship of individual species. Axel Meyer has received an Advanced Grant from the European Research Council (ERC) and the Carus Medal from the German National Academy of Sciences (Leopoldina) for his work. The magazine CICERO included him in its list of Germany's most important intellectuals. He is a member of the German National Academy of Sciences (Leopoldina), the American Academy of Arts and Science, the Berlin-Brandenburg Academy of Sciences and Humanities (BBAW), the Academia Europaea and the European Molecular Biology Organization.

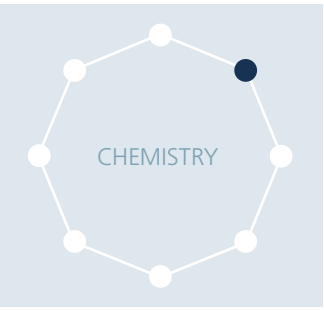
Hector Fellow since 2011



Prof. Dr. Dr. h.c. Nikolaus Pfanner

Nikolaus Pfanner is Director of the Institute of Biochemistry and Molecular Biology at the University of Freiburg. He is an expert in the field of mitochondria, the composition of which he and his team were the first to decipher. In addition to the organization of mitochondria, his research focuses on elucidating the transport mechanisms of proteins from the cytosol of the cell through the mitochondrial membranes to their destination inside the cellular power plants. Nikolaus Pfanner has been awarded the Gottfried Wilhelm Leibniz Prize of the German Research Foundation (DFG), the Schleiden Medal of the German National Academy of Sciences (Leopoldina), the Otto Warburg Medal of the Society for Biochemistry and Molecular Biology, the Wilhelm Feldberg Prize, the Stein and Moore Award of the Protein Society, and the Order of Merit of the Federal Republic of Germany. He is a member of the Leopoldina, the Heidelberg Academy of Sciences and Humanities, and the Academia Europaea.

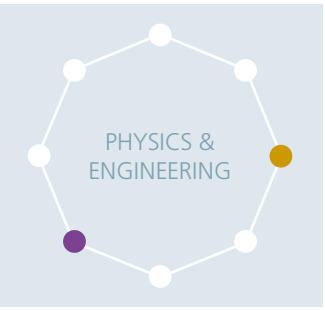
Hector Fellow since 2010



Prof. Dr. A. Stephen K. Hashmi

A. Stephen K. Hashmi is a professor at the Institute of Organic Chemistry at Heidelberg University. From 2013 to 2019 he was Vice Rector for Research and Transfer. He has gained worldwide recognition in the field of homogeneous gold catalysis. His research focuses on the production of new gold catalysts and the development of innovative synthesis methods as well as detailed mechanistic studies. Potential applications lie in the production of active ingredients for pharmaceuticals and compounds for materials science, e.g., in the field of organic electronics. A. Stephen K. Hashmi has been awarded a Lectureship at the Czech Academy of Sciences, the Tan Kah Kee Chemistry Lectureship at Xiamen University (China) and the Fred Pattison Senior Lectureship at the University of Western Ontario (Canada). He is a member of ChemPubSoc Europe, the Society of German Chemists, the American Chemical Society, honorary member of the Argentinean Society for Organic Chemistry, is a member of the Academia Europaea and is editor of the Springer/Nature Journal "Gold Bulletin".

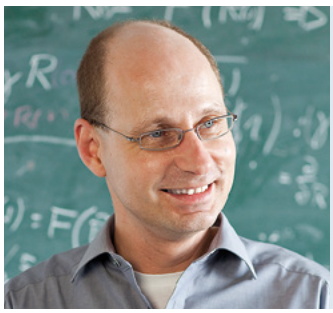
Hector Fellow since 2010

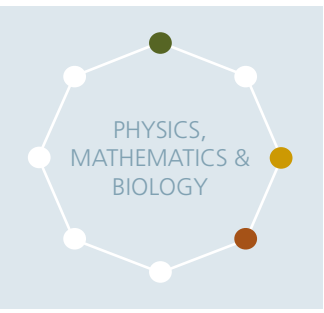


Prof. Dr. Jürg Leuthold

Jürg Leuthold is head of the Institute of Electromagnetic Fields at the Swiss Federal Institute of Technology (ETH) in Zurich. He holds a doctorate in physics and is working on new concepts and processes for optical signal processing at the highest data transmission rates. Among other things, his research aims to further increase the transmission rate of digital information, reduce energy consumption and miniaturize the components used. For example, his group is known for the smallest and fastest switches and detectors in the field of optical communication and mobile communication. Jürg Leuthold's work has been honored with an Advanced Grant from the European Research Council (ERC), the Baden-Württemberg State Research Prize, the Doron Prize and the Joseph Fraunhofer Award/Robert M. Burley Prize by Optica. He is a Fellow of the Institute of Electrical and Electronics Engineers, a Fellow of the Optical Society, a member of the Swiss Academy of Engineering Sciences, a corresponding member of the Heidelberg Academy of Sciences and was a member of the Board of Directors of the Optical Society of America until 2018.

Hector Fellow since 2010





Prof. Dr. Jens Timmer

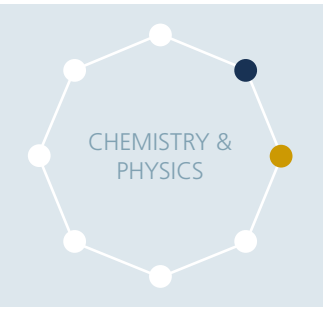
Jens Timmer is Professor of Theoretical Physics at the Institute of Physics at the University of Freiburg. He is one of the pioneers in the field of systems biology: with the help of data-based mathematical models from physics, he explains cell biological processes. His approach has made it possible, for example, to decipher signaling pathways that are of great importance in the of great importance in the development of cancer. He is co-founder of the medical technology companies seleon GmbH and TNI medical AG.

Hector Fellow since 2009

Prof. Dr. Thomas Elbert

Thomas Elbert is Professor Emeritus of Clinical Psychology and Behavioral Neuroscience at the University of Konstanz. He investigates the consequences of traumatic stress and the motivations for acts of violence and combat. In the laboratory and in war and crisis zones, he researches trauma-related changes in the psyche, body and gene expression and develops therapy options on this basis. Elbert is a member of the German National Academy of Sciences (Leopoldina), the Berlin-Brandenburg Academy of Sciences and Humanities (BBAW), the Academia Europaea and holds honorary professorships at the Université Lumière (Burundi), among others. He has been awarded the German Psychology Prize and, together with Maggie Schauer, the Carl Friedrich von Weizsäcker Prize. As founding president of the non-profit organization vivo international, Thomas Elbert is committed to overcoming the psychological and physical consequences of traumatic stress and preventing violence. For this, the International Society for Research on Aggression presented him with its highest award, the Scott Award, in 2024.

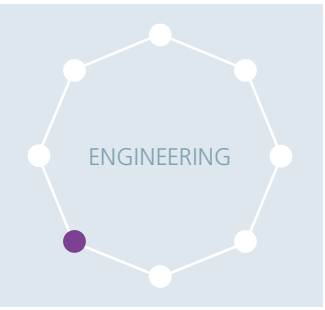
Hector Fellow since 2009



Prof. Dr. Manfred Kappes

Manfred Kappes is Professor at the Institute of Physical Chemistry and Director at the Institute of Nanotechnology and Group Leader at the Institute of Quantum Materials and Technologies at the Karlsruhe Institute of Technology (KIT). He deals with size-dependent properties of matter in the range of 0.5 to ten nanometers. Using ion beam and mass spectrometry methods that he developed himself, he investigates how optical, electronic, mechanical and chemical properties change with the atomic and charge number of particles. Among other things, his work aims to create new types of carbon materials with specific electronic and mechanical properties. Manfred Kappes has been awarded the Van't Hoff Prize of the German Bunsen Society for Physical Chemistry, the Xingda Lectureship of Peking University (China) and a Distinguished Professorship of IIT Madras (India). He is a member of the German National Academy of Sciences (Leopoldina), the Heidelberg Academy of Sciences and Humanities and the Berlin-Brandenburg Academy of Sciences and Humanities (BBAW).

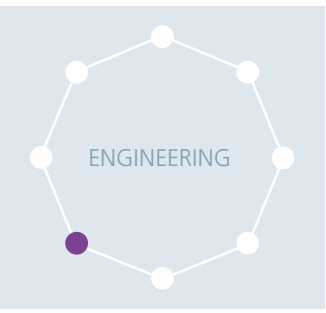
Hector Fellow since 2009



Prof. Dr.-Ing. Dr. h.c. mult. Franz Nestmann

Franz Nestmann was head of the Institute for Water and River Water Development at the Karlsruhe Institute of Technology (KIT) from 1994 until 202 and is President of the Baden-Württemberg Water Management Association. The expert in fluid mechanics and hydraulic engineering deals with solid matter transport processes, water and energy management, flood and bank protection as well as flowing waters in caves. He has already led numerous international joint projects from the planning and development phase through to the construction and operation of plants - currently a joint project on coastal and groundwater protection in the Mekong Delta. He is particularly interested in an interdisciplinary approach to the provision of water and energy in developing regions, which takes engineering and social science aspects into account. Franz Nestmann has received honorary doctorates from universities in Moscow and Nizhny Novgorod and is a member of the Russian Academy of Sciences. In 2019, he was made an honorary citizen of the Hang Giang region in northern Vietnam.

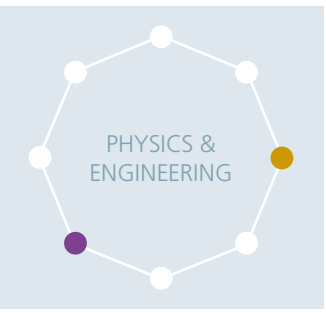
Hector Fellow since 2008



Prof. Dr. Peter Gumbsch

Peter Gumbsch heads the Chair of Mechanics of Materials at the Karlsruhe Institute of Technology (KIT) and the Fraunhofer Institute for Mechanics of Materials (IWM) in Freiburg. He conducts research into the behavior of materials under load and the limits of their load-bearing capacity. To this end, he investigates the structure and properties of materials from their atomic structure to their macroscopic behavior. His aim is to make materials and components safer, more reliable and more durable and to improve the material and energy efficiency of technical systems. Peter Gumbsch has received numerous awards and honors, including the Gottfried Wilhelm Leibniz Prize of the German Research Foundation (DFG) in 2007. He is a member of the German National Academy of Sciences (Leopoldina), the National Academy of Science and Engineering (acatech) and the US National Academy of Engineering (NAE). From 2017 to 2021, he was Chairman of the Scientific Commission of the German Council of Science and Humanities. He has been a member of the Executive Board of the Fraunhofer-Gesellschaft since 2019.

Hector Fellow since 2008



Prof. Dr. Martin Wegener

Martin Wegener is Professor at the Institute of Applied Physics at the Karlsruhe Institute of Technology (KIT), Scientific Director at the Institute of Nanotechnology at KIT and spokesperson for the Cluster of Excellence 3D Matter Made to Order at KIT and Heidelberg University. His research focuses on the high-precision 3D additive manufacturing of artificial materials, so-called metamaterials. The tailoring of "meta-atoms" on the nanometer or micrometer scale creates completely new properties. For example, his team succeeded in realizing cloaking caps in a wide variety of physical systems. He has received the Gottfried Wilhelm Leibniz Prize of the German Research Foundation (DFG), the Baden-Württemberg State Research Prize, the Carl Zeiss Research Prize and the René Descartes Prize of the EU, is a member of the German National Academy of Sciences (Leopoldina), the National Academy of Science and Engineering (acatech) and a Fellow of Optica. He is the initiator, co-founder and, until 2021, was a shareholder of Nanoscribe GmbH, a KIT start-up that brought innovative 3D laser lithography to marketability.

Hector Research Career Development Award

Since 2020, the Hector Fellow Academy has presented the Hector Research Career Development (RCD) Award once a year. This award supports outstanding young scientists in the natural and engineering sciences, medicine, and psychology as they pursue professorship positions. Award recipients receive research funding and the opportunity to hire a doctoral researcher for their research project.

The Hector Research Career Development Award actively promotes young researchers in Germany. The award recognizes outstanding scientific achievements and supports young scientists with a doctorate in the early stages of their research careers. The award gives W1 professors (with or without tenure track) and junior research group leaders in the natural or engineering sciences, medicine, or psychology the opportunity to conduct their own research project at the location of their choice. The award promotes their independence on the path to becoming a professor.

The award is endowed with €25,000. Researchers who receive the award are accepted as temporary members of the Hector Fellow Academy.

They also receive additional funding for a doctoral position, among other benefits. The membership entitles the winners to apply for additional funding, e.g., for organizing workshops or conferences, presenting a Speaker's Award, and interdisciplinary projects.

Three academics receive the prize each year. Family care periods throughout the academic career are also considered when selecting candidates. Scientists supported by the Hector Research Career Development Award expand the Academy of Science's network and create opportunities for new interdisciplinary collaborations between its members.

Three new Awardees

Hector Research Career Development Awardee 2024

Prof. Dr. Carolin Müller

Carolin Müller has been an Assistant Professor for the Theory of Electronically Excited States at the Computer Chemistry Center of Friedrich-Alexander University Erlangen-Nürnberg since November 2023.
As a theoretical chemist, she explores the fascinating world of light-induced processes. Her research focuses on unraveling the molecular mechanisms behind these phenomena. She follows a digital chemistry approach, combining quantum chemistry methods with data science. Her goal is to optimize light-driven processes to enhance reactivity and efficiency.
Carolin Müller has received several prestigious awards, including the Thuringian Research Award and the Albert Weller Award. She has also been awarded research fellowships such as the Feodor-Lynen and Kekulé Fellowship.

Hector Research Career Development Awardee 2024

Prof. Dr. med. Carolin Schneider

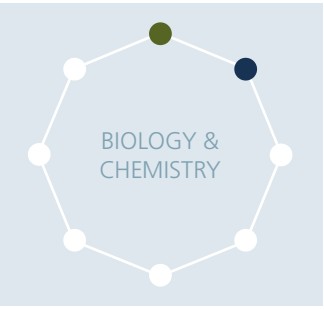
Carolin Schneider is a physician scientist and Professor specializing in digital medicine at RWTH Aachen. Her research focuses on integrating big data and multi-omics in precision medicine, as well as developing artificial intelligence models to advance internal medicine, especially hepatology.
She is a recipient of the prestigious Friedmund Neumann Prize and has been recognized on the Forbes 30 Under 30 Europe list. Carolin is also an active member of the Young Investigator Task Force of the European Association for the Study of the Liver (EASL).

Hector Research Career Development Awardee 2024

Dr. Sofie Valk

Max Planck Institute for Human Cognitive and Brain Sciences
Dr. Sofie Valk is leader of the Lise Meitner research group at the Max Planck Institute for Human Cognitive and Brain sciences, research group leader at the INM-7 (Brain and Behavior) at Forschungszentrum Jülich and Institute for Systems Neuroscience at Heinrich Heine Universität Düsseldorf.
She and her team study the interplay of genes and social environment upon the structure and function of the human brain across the lifespan and its consequence for health and disease. Here the researchers are particularly interested in the social environment, given the pivotal role of nurture and care as well as social interaction for human learning and wellbeing.
She was awarded the Otto Hahn Medal for her doctoral thesis. She also received the award of the German Society for Psychophysiology and its Application (DGPA) and is a scientific fellow of the Jacobs Research Foundation.

Hector Research Career Development Awardee 2023



Dr. Erik T. Frank

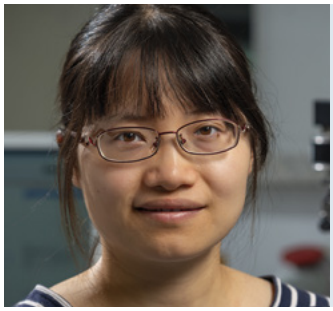
Erik T. Frank is an Emmy Noether Research Group Leader at the University of Würzburg and an expert in behavioral ecology and evolution. He researches how animals treat injuries - from ants that apply antimicrobial agents to their wounds to fight infections to chimpanzees that apply crushed flies to open wounds. To answer these questions, he uses behavioral experiments, microbiome analyses, chemical analyses, proteomic approaches and theoretical modeling. He is an advocate of science communication and has served as a scientific advisor for groundbreaking documentaries such as Life on Our Planet (Netflix), Sentient (National Geographic & Disney+) and Planet Insect (Curiosity Stream). He has also written a popular science book about his research that was nominated for the Science for All Award in France in 2022.

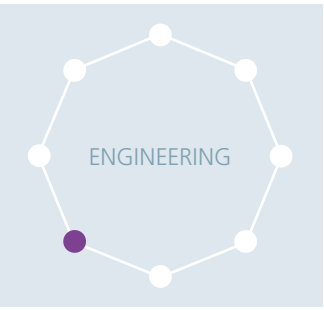
Hector Research Career Development Awardee 2023

Dr. Sebastian Frank

Dr. Sebastian Frank is an Emmy Noether research group leader at the Institute for Psychology within the Faculty of Human Sciences of the University of Regensburg. He was previously a postdoctoral researcher at Brown University (USA), after completing his PhD in Cognitive Neuroscience at Dartmouth College (USA). His group is interested in the biological mechanisms underlying learning and neuroplasticity in humans, with a focus on changes in these mechanisms across the lifespan. To this aim, they investigate learning and neuroplasticity in children, young and older adults, as well as older adults with dementia. They also develop training tools optimized for learning mechanisms in different age groups. Sebastian Frank's research is supported by the Deutsche Forschungsgemeinschaft, the Daimler und Benz Stiftung, and the Julitta und Richard Müller Stiftung. At "Brain Days" in elementary schools, he and his group share their enthusiasm for brain research with children.

Hector Research Career Development Awardee 2023





Dr. Jingyuan Xu

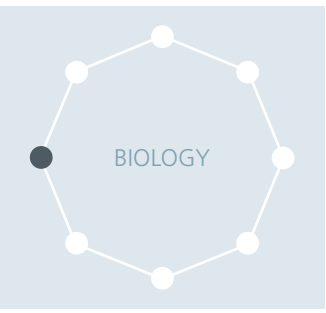
Jingyuan Xu is young investigator group leader of "Zero-emission and eco-friendly heating and cooling technologies" (ZEco Thermal Lab) at the Institute of Microstructure Technology at the Karlsruhe Institute of Technology (KIT). Her research focuses on the development of heating and cooling technologies for the energy transition. She and her group are working on elastocaloric cooling - a field of research that is attracting increasing attention. This involves using stress-induced thermal changes in layers resulting from shape memory alloys to develop environmentally friendly, highly efficient cooling solutions. Her team is currently working on the development of CO^2-neutral elastocaloric cooling devices that do not require electricity. For her research, Jingyuan Xu was awarded the Leopoldina Prize for Young Scientists of the German Academy of Sciences, the Sadi Carnot Young Researcher Award of the International Institute of Refrigeration and the George T. Mulholland Memorial Award. She is a member of the Global Young Academy.

Hector Research Career Development Awardee 2022

Prof. Dr. Sofia-Iris Bibli

Sofia-Iris Bibli is Head of the Department of Vascular Dysfunction at the Mannheim Medical Faculty of Heidelberg University since 2024. Her research is focusing on vascular fate decisions and molecular mechanisms that drive endothelial cell transitions. Sofia-Iris Bibli studied Pharmacy from 2006 - 2011 and received her Master of Science in Molecular Pharmacology from 2011 - 2013. She received her PhD in Pharmacology in 2016 from the University of Athens. Sofia-Iris Bibli joined the Institute for Vascular Signalling, in the Medical Faculty of the Goethe University Frankfurt as a post-doctoral fellow in 2016 after being granted the European Society of Cardiology research grant. In 2021, she received the Emmy Noether Research grant and was appointed a W1 Professor for Cardiovascular Surveillance within the Excellence Cluster Cardiopulmonary Institute at the Medical Faculty of the Goethe University Frankfurt.

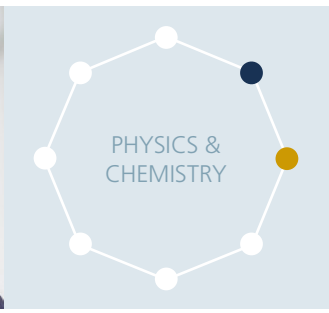
Hector Research Career Development Awardee 2022



Jun.-Prof. Dr. Anna Stöckl

Anna Stöckl is Junior Professor of Neuroethology and Emmy Noether Group Leader at the University of Konstanz. Anna Stöckl is an expert in sensory physiology. Her main research interest lies in how insects absorb and process information from their environment and use it to control their behavior. She uses a wide range of methods, from neuronal activity measurement, quantitative neuroanatomy, behavioral experiments to environmental imaging. She also works closely with robotics to use the insects' extraordinary abilities to develop autonomous robots. She has been honored with the Young Investigator Awards of the International Societies for Neuroethology and Experimental Biology as well as the KlarText! Prize for Science Communication from the Klaus Tschira Foundation. She is a fellow of the Zukunftskolleg Konstanz and a member of the Young Academy of the Bavarian Academy of Sciences and Humanities.

Hector Research Career Development Awardee 2022



TT-Prof. Dr. Philip Willke

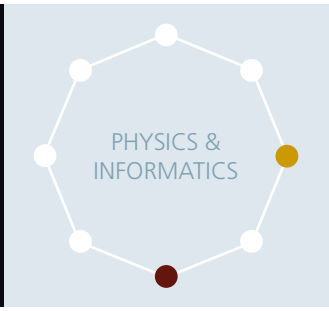
Philip Willke has been a W1 TenureTrack Professor at the Institute of Physics at the Karlsruhe Institute of Technology since 2022. Here, he has headed an Emmy Noether Research Group since 2020 and an ERC Starting Grant since 2024. His research focuses on the resolution and control of quantum systems on a microscopic scale and atom by atom. Using a scanning tunneling microscope, he and his group manipulate atoms and molecules. For example, his research has produced the world's smallest MRI scan, which images the magnetic field of a single atom, as well as the world's smallest magnetic data storage device. For his research, he was honored as "Young Scientist of the Year 2022" by the German Association of University Professors and Lecturers (DHV) and Academics.de. He received the Gaede Prize from the German Physical Society and the Gerhard Ertl Young Investigator Award 2022. He also took second place in the German Science Slam Championship in 2016.

Hector Research Career Development Awardee 2021

Prof. Dr. Kerstin Göpfrich

Kerstin Göpfrich is W3 Professor at the Center for Molecular Biology at Heidelberg University (ZMBH) and heads the Max Planck Research Group "Biophysical Engineering of Life" at the Max Planck Institute for Medical Research in Heidelberg. She is also Principal Investigator in the Cluster of Excellence 3D Matter Made to Order at KIT and Heidelberg University and a Fellow of the Max Planck School Matter to Life. Her research focuses on the construction of artificial cells from specially designed components. With the help of DNA/RNA nanotechnology, functional components are created that gradually endow lipid vesicles with the properties of living cells. For example, the team succeeded in producing artificial cytoskeletons or controlling the division of synthetic cells. Kerstin Göpfrich received the Women Interactive Materials Award for her work on materials with life-like properties. She was awarded an ERC Starting Grant and a Marie Skłodowska Curie Fellowship and received one of the prestigious Gates Cambridge Fellowships.

Hector Research Career Development Awardee 2021



Dr. Dylan Nelson

Dylan Nelson is Emmy Noether Research Group Leader at the Institute for Theoretical Astrophysics of the Center for Astronomy (ITA/ZAH) at Heidelberg University. His research group specializes in computational galaxy formation and evolution. It designs and performs numerical simulations to better understand how galaxies evolve over cosmic time. Dylan's research focuses on how gas flows: in, out and around galaxies. His interests include the cosmic baryon cycle, the circumgalactic medium and energetic feedback processes. Dylan is one of the leaders of the IllustrisTNG project, a new generation of cosmological magnetohydrodynamic simulations. He is a member of the DFG-funded research initiatives SFB881 The Milky Way System and the Cluster of Excellence STRUCTURES. After completing his PhD at Harvard University, he was a postdoctoral researcher at the Max Planck Institute for Astrophysics. In 2023, he was awarded the MERAC Prize of the European Astronomical Society.

Hector Research Career Development Awardee 2021

Jun.-Prof. Dr. Monika Schönauer

As a tenure-track professor, Monika Schönauer heads the Chair of Neuropsychology at the Institute of Psychology at the University of Freiburg, as well as the Emmy Noether Group The Development of the Engram. Monika Schönauer is an expert in the field of memory and sleep research. Her main research interest lies in how we form stable memories. To answer this question, she investigates functional activity and microstructural plasticity in the human brain using imaging techniques. She also uses machine learning approaches to track the development of memory representations - not only while awake, but also during sleep, where daytime experiences are processed covertly. Monika Schönauer was honored with the Leopoldina Early Career Award and the Heinz Maier-Leibnitz Prize of the DFG. She is a member of the Memory Disorders Research Society and the Wilhelm Wundt Society.

Hector Research Career Development Awardee 2020

Prof. Dr. Ana Rita Brochado

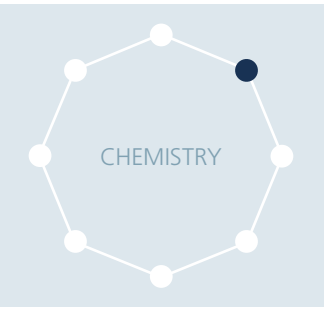
Ana Rita Brochado is an assistant professor working on systems microbiology at the University of Tübingen. She started an independent group leader at the University of Würzburg in 2019 with the aim of understanding how pathogenic bacteria respond to stress and how that shapes antimicrobial activity. The group combines microbiology, high-throughput screening and systems biology to gain insights into how bacteria operate. They especially focus on drug action beyond conventional targets to expose new druggable features in bacteria, thereby enabling better treatment design to overcome antibiotic resistance. Shortly after starting her research group, she was awarded an Emmy Noether Fellowship by the German Research Foundation (DFG). In 2021, she also received the Röntgen Prize of the University Association and the University of Würzburg. She is involved in several collaborative research initiates in Germany, including the SFB 1583 - Decision Points in Infections Diseases and the SPP 2330 New Concepts in Prokaryotic Virus-host Interactions – From Single Cells to Microbial Communities. In Tübingen, she is a member of the Cluster of Excellence Controlling Microbes to Fight Infections - CMFI.

Hector Research Career Development Awardee 2020

Dr. Dr. S. Leif Ludwig

Leif S. Ludwig is Emmy Noether Group Leader in the Research Focus on Single Cell Technologies for Personalized Medicine at the Berlin Institute of Health of Charité Universitätsmedizin and the Max Delbrück Center/Berlin Institute for Medical Systems Biology. His research focuses on the interface between hematology, human genetics and single cell genomics. His laboratory specializes in the development and application of single-cell multi-omics approaches to quantify, for example, stem cell activities and clonal dynamics in the context of human hematopoiesis. Another goal is to develop a deeper molecular understanding of how mitochondrial DNA mutations contribute to human disease. He has been awarded the Paul Ehrlich and Ludwig Darmstaedter Young Investigator Prize of the Paul Ehrlich Foundation and the Heinz Maier-Leibnitz Prize of the DFG, among others. He has been an EMBO Young Investigator since 2024.

Hector Research Career Development Awardee 2020



Prof. Dr. Agnieszka Nowak-Król

Agnieszka Nowak-Król is a Professor and an Emmy Noether group leader at the Institute of Inorganic Chemistry and the Institute for Sustainable Chemistry & Catalysis with Boron of the University of Würzburg. Her research lies at the interface of organic, inorganic and materials chemistry. Agnieszka Nowak-Król's activities focus on the development of helically chiral π-conjugated organoboron compounds, boron-containing polycyclic aromatic hydrocarbons, photoswitches, helicenes containing other main group elements and their applications in organic electronics and bioimaging. Her group also develops potential inhibitors for cancer therapy. Agnieszka is the recipient of several awards and honors including the Arnold Sommerfeld Prize, the Thieme Chemistry Journals Award, the Wojciech Swietoslawski Award, the Zonta Award, and the Humboldt Research Fellowship. She is a member of the Societas Humboldtiana Polonorum, Soltech, the German Chemical Society, and the Polish Chemical Society.

Hector Research Career Development Awardee 2020

PHYSICS, MATHEMATICS & INFORMATICS

Dr. Anna Pappa

Anna Pappa is Emmy Noether Junior Research Group Leader at the Department of Electrical Engineering and Computer Science at Technische Universität Berlin. Her field of research is quantum communication and cryptographic protocols. Her research aims to bridge the gap between theory and experiments to realize the full potential of quantum information processing. She has worked extensively on delegated quantum computation, quantum resource verification and quantum network routing as necessary processes for long-range quantum computation and is actively involved in the industrial application and utilization of quantum technologies. In addition to the six-year Emmy Noether fellowship from the German Research Foundation (DFG), Anna Pappa has received several other fellowships, including two Marie Skłodowska-Curie Individual Fellowships, an Alexander von Humboldt Research Fellowship and an Anita Borg Google Fellowship.

Hector Research Career Development Awardee 2020

BIOLOGY

Prof. Dr. Tessa Quax

Tessa Quax is Associate Professor at the Rijksuniversiteit Groningen. Her research focuses on the interaction between viruses and archaea. Archaea are present in many habitats, including those with extreme temperatures or salinities. She is interested in the molecular entry and exit mechanisms that viruses use to infect halophilic archaeal cells. Her goal is to gain insight into viral diversity, the viral impact on evolution and the arms race between viruses and cells. Tessa Quax has been awarded the EMBO Postdoctoral Fellowship, the Marie Curie Individual Fellowship and an ERC Starting Grant. She has also been awarded the Beijerinck Premium and the Early Career Award by the Royal Netherlands Academy of Sciences. She has recieved the Vidi grant from the Dutch research council (NWO), a HFSP young investigator grant and is coordinating a Marie Curie Doctoral network. Tessa is Chair of the Gordon Research Conference on archaea 2025 and member of the Scientific advisory board of the International Society for Viruses of Microbes.

Interdisciplinary Projects

One of the science academy´s primary focus is promoting interdisciplinary exchange among its members, who collaborate across research institution and disciplinary boundaries. To this end, the academy makes personnel and research funds available for innovative projects carried out jointly. Each Hector Fellow may apply with at least one other Hector Fellow or Hector RCD Awardee for an interdisciplinary project. If approved, postdoctoral and/or doctoral positions will be advertised at the respective institutes or filled with scientists from the respective networks.

HECTOR FELLOW BRIGITTE RÖDER
HECTOR RCD AWARDEE SEBASTIAN FRANK
HECTOR FELLOW EBERHART ZRENNER

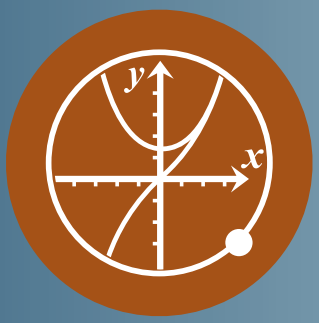
VISUAL PERCEPTUAL LEARNING AFTER A TRANSIENT PHASE OF CONGENITAL BLINDNESS: NEURAL MECHANISMS OF SIGHT RECOVERY

This project aims to elucidate the neural mechanisms underlying vision recovery through visual perceptual learning in patients treated for congenital blindness. Led by Dr. Sebastian Frank, Prof. Dr. Brigitte Röder and Prof. Dr. med. Dr. h.c. mult. Eberhart Zrenner, in collaboration with the LV Prasad Eye Institute, the study uses MRS and EEG to assess changes in excitation and inhibition. The goal is to bridge neuroscience, psychology, and ophthalmology to improve rehabilitation strategies, deepen a comprehensive understanding of visual plasticity, and advance treatments for visual impairments.


Biology


Chemistry


Physics



Mathematics


Informatics


Engineering

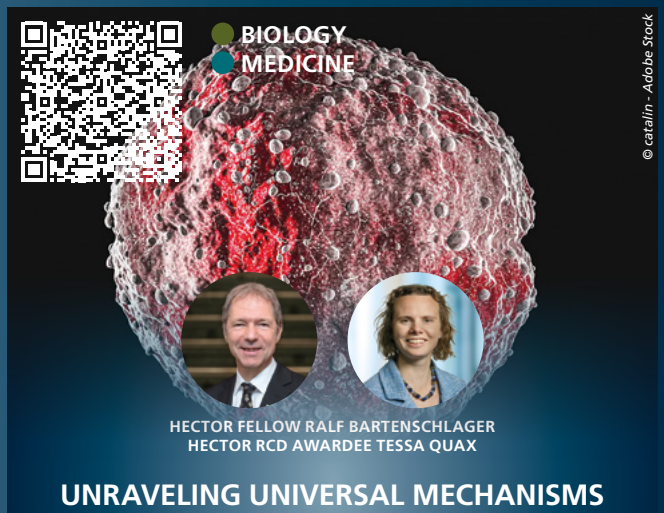

Psychology


Medicine

HECTOR RCD AWARDEE ANNA STÖCKL
HECTOR FELLOW AXEL MEYER

LIVING IN NIGHT AND DAY: GENOMICS OF LIGHT ADAPTATIONS IN MOTHS AS CATERPILLARS AND ADULTS

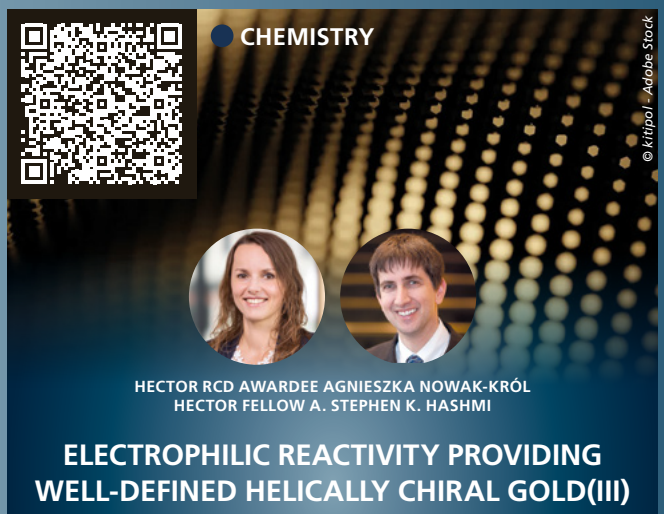
This project investigates how moths adapt to artificial light at night. By combining genomics, neuroanatomy and behavioral studies, the team aims to elucidate the mechanisms of sensory plasticity during metamorphosis. Using transcriptomics, epigenetics, and behavioral analysis, the research will investigate how caterpillar light exposure affects adult moths. The results will provide critical insights into animal adaptation to human-induced environmental change and shape future ecological and evolutionary studies.



HECTOR FELLOW RALF BARTENSCHLAGER
HECTOR RCD AWARDEE TESSA QUAX

UNRAVELING UNIVERSAL MECHANISMS OF VIRAL REPLICATION

This project investigates whether archaic viruses form specialized replication compartments, a strategy that has already been demonstrated in bacterial and eukaryotic viruses. By combining structural biology, cell biology, medicine, and chemistry, the goal is to identify universal mechanisms of viral replication. Using advanced imaging, genetic labeling, and lipid analysis, the viral replication process in archaea will be studied and compared to other life forms. The results will provide new insights into the evolution of viruses and identify potential approaches for antiviral therapies. In addition, young scientists will be trained in interdisciplinary virology to promote virus research in different biological areas.



HECTOR RCD AWARDEE AGNIESZKA NOWAK-KRÓL
HECTOR FELLOW A. STEPHEN K. HASHMI

ELECTROPHILIC REACTIVITY PROVIDING WELL-DEFINED HELICALLY CHIRAL GOLD(III) CATALYSTS FOR THE ASYMMETRIC SYNTHESIS OF BIOACTIVE COMPOUNDS

The aim of the project led by Hector RCD Awardee Agnieszka Nowak-Król (University of Würzburg) and Hector Fellow A. Stephen K. Hashmi (Heidelberg University) is to develop well-defined helically chiral gold(III) complexes, the first examples of helically chiral gold complexes with gold atoms on either an outer or an inner helicene rim. The catalytic potential of these unprecedented complexes and their practical utility will be demonstrated in the enantioselective synthesis of small organic compounds and biologically or pharmaceutically relevant targets, i.e. natural products and pharmaceutically active compounds.

DR. WADOOD HAQ, SHADI NASHASHIBI, MARINA HOMS,
HECTOR FELLOW JÜRG LEUTHOLD, HECTOR FELLOW EBERHART ZRENNER

RETINASENSOR: ENHANCED VISION RESTORATION IN BLIND PEOPLE

In this project the Hector Fellows Jürg Leuthold and Eberhart Zrenner are working together with the HFA Postdoc Dr. Wadood Haq (Eberhard Karls University, Tübingen) and doctoral researcher Shadi Nashashibi (ETH Zurich) and Marina Homs (ETH Zurich) towards the next generation of retinal implants. By combining highly sensitive photodetectors with a microelectrode array operating under a new stimulation paradigm, the RetinaSensor will enable previously unachieved spatial and temporal resolution in electric retinal implant technologies.

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Promoting Young Talent – Doctoral Projects

The Hector Fellow Academy promotes and trains outstanding young scientists. Each year, several doctoral positions in the working groups of Hector Fellows and Hector RDC Awardees are filled by exceptional candidates from around the globe. As a scientific academy, the Hector Fellow Academy provides aspiring top researchers with opportunities for growth and close collaboration with its members.

Doctoral projects

The Hector Fellow Academy offers graduates with excellent academic achievements and a very good master's degree the opportunity to complete a doctorate with their own research idea or apply for a doctoral position under a Hector Fellow or Hector RCD Awardee. During the application process, the applicant's academic qualifications, the maturity of their project outline, and how well their topic aligns with the Hector Fellow's or Hector RCD Awardee's research focus or the advertised position's requirements are all key factors. The application period usually occurs once a year.

Promising applicants are invited to an interview with members of the Hector Fellow Academy. Successful candidates conduct their research in the working group of the respective Hector Fellow or Hector RCD Awardee for up to four years. They are employed as research assistants and receive research funds at their disposal.

Additionally, a tailor-made training program is offered to doctoral candidates. During training days and networking meetings, young researchers can develop interdisciplinary and soft skills. Management skills are also taught and reinforced.

Young scientists & alumni at the Alumni Meeting 2023 in Berlin.

MEDICINE

Neuroimmune-Vascular Interplay in Alzheimer's Disease

Matteo Rovere & Hector Fellow Christian Haass


MEDICINE BIOLOGY

Defining Novel Resilience Pathways in Rare Monogenic Disorders

Daniel Petersheim & Hector Fellow Christoph Klein


MEDICINE BIOLOGY

High-Throughput Virus Discovery in Next Generation Sequencing Data

Franziska Klingler & Hector Fellow Ralf Bartenschlager


MEDICINE

High-Resolution 3D Mapping of the Human Hypothalamus in 10 Postmortem Brains

Alexey Chervonnyy & Hector Fellow Katrin Amunts


MEDICINE BIOLOGY

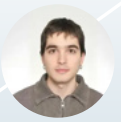
Mitochondrial DNA Mutational Landscape in Human T Cells

Yu-Hsin Hsieh & Hector RCD Awardee Leif Ludwig


MEDICINE BIOLOGY

tRNA Thioepitranscriptome: Regulation of Protein Synthesis in Vessel Development

Ioannis Theodorou & Hector RCD Awardee Sofia-Iris Bibli




PSYCHOLOGY BIOLOGY

The Algorithmic Basis of Pattern Recognition in an Insect Pollinator

Lochlan Walsh & Hector RCD Awardee Anna Stöckl


MEDICINE BIOLOGY

Systems Biology Approach for Elucidating Bacterial Revival After Antibiotic Treatment

Adewale Ogunleye & Hector RCD Awardee Ana Rita Brochado


MEDICINE BIOLOGY

Multidimensional Modeling of Inborn Errors of Hematopoiesis in a New Three-Dimensional Human Bone Marrow Organoid Model System

Megha Varghese Mukherjee & Hector Fellow Christoph Klein


PSYCHOLOGY BIOLOGY INFORMATICS

Neural Processes of Adaptive and Maladaptive Memory Consolidation

Tobias Debor & Hector RCD Awardee Monika Schönauer


MEDICINE BIOLOGY ENGINEERING

Inducible CRISPR Gene Editing Systems for Pathogenic USH2A Variants

Salome Spaag & Hector Fellow Eberhart Zrenner


MEDICINE BIOLOGY CHEMISTRY

Unveiling Circadian Function of Photoreceptors in Plants

Darius Rauch & Hector Fellow Peter Hegemann


PSYCHOLOGY

Adaptive Plasticity Development in Visual Perceptual Learning

Markus Becker & Hector RCD Sebastian Frank


PSYCHOLOGY BIOLOGY

The Role of Early Vision for Bidirectional Neural Communication

Tiago Lereno Mesquita & Hector Fellow Brigitte Röder


PHYSICS ENGINEERING

Photonic Neuromorphic Circuits for Artificial Neural Networks

Martin Stecher & Hector Fellow Jürg Leuthold


ENGINEERING

Land Subsidence & Groundwater Salinization in the Mekong Delta

Felix Dörr & Hector Fellow Franz Nestmann


PHYSICS ENGINEERING

Helicity Preserving Cavity for Circular Dichroism Enhancement

Philip Scott & Hector Fellow Martin Wegener


PHYSICS ENGINEERING

Design and Characterization of 3D-Printed Microstructures Using Deep Learning

Tim Alletzhäusser — Hector Fellow Martin Wegener


ENGINEERING

Electrically Free Thermal Actuator for Precision Control

Athira Kattiparambil Sivaprasad & Hector RCD Awardee Jingyuan Xu


PHYSICS ENGINEERING

Holographic 3D Laser Printing

Sebastian Koch & Hector Fellow Martin Wegener


PHYSICS MATHEMATICS INFORMATICS

Security and Anonymity in Quantum Networks

Ziad Chaoui & Hector RCD Awardee Anna Pappa


BIOLOGY

Deep-Sea Macrofauna in the Face of Arctic Change

Katharina Kohlenbach & Hector Fellow Antje Boetius


BIOLOGY

Strategies to Escape Viral Infection in Archaea

Zaloa Aguirre & Hector RCD Awardee Tessa Quax


BIOLOGY CHEMISTRY

Inter-Kingdom Wound Care Between Ants and Plants

Melina Kienitz & Hector RCD Awardee Erik T. Frank


BIOLOGY

The Investigation of the Formation and Purpose of Black Matter in Anaerobic Methane Oxidisers and Methanogens

Stian Torset & Hector Fellow Antje Boetius


BIOLOGY

Genetic Basis of Bilateral Asymmetry in a Scale-Eating Fish

Xiaomeng Tian & Hector Fellow Axel Meyer


CHEMISTRY

Investigation of the Influence of Sterically Challenging NHC Gold(I) Complexes in Di-Cyclizations

Matthias Scherr & Hector Fellow A. Stephen K. Hashmi


PHYSICS MATHEMATICS BIOLOGY

Using Mathematical Modeling to Facilitate the Translation of Research Findings

Katharina Lauk & Hector Fellow Jens Timmer


PHYSICS CHEMISTRY BIOLOGY ENGINEERING MEDICINE

Triggered Contraction of Self-Assembled DNA Nanotube Rings

Maja Illig & Hector RCD Awardee Kerstin Göpfrich


CHEMISTRY

Main Group Heterohelicenes for Applications in Organic Electronics & Catalysis

Jan Niedens & Hector RCD Awardee Agnieszka Nowak-Król


PHYSICS

Steps Towards Solving the Enigma of Multiple Populations in Star Clusters

Abhinna Sundar Samantaray & Hector Fellow Eva Grebel


PHYSICS

Quantum Simulation of Strong Interactions of Light and Matter

Valentin Klüsener & Hector Fellow Immanuel Bloch


CHEMISTRY PHYSICS

Molecular Spin Systems on Surfaces

Paul Greule & Hector RCD Awardee Philip Willke


PHYSICS INFORMATICS

Cloudy With a Chance of Rain: Simulating the Galactic Weather

Katrin Lehle & Hector RCD Awardee Dylan Nelson


PHYSICS

Realizing a Quantum Processor Based on Strontium Rydberg Atoms

Maximilian Ammenwerth & Hector Fellow Immanuel Bloch


PHYSICS

Realizing p-Wave Superfluidity in Ultracold Polar Molecules

Christine Frank & Hector Fellow Immanuel Bloch


PHYSICS MATHEMATICS INFORMATICS

Advancing Rare Disease Classification: Exploring Representation Learning in Low-Data and Hheavy Tail Settings

Laure Ciernik & Hector Fellow Klaus-Robert Müller


PHYSICS MATHEMATICS INFORMATICS

Representation Learning and Causality: Theory, Practice, and Implications for Mechanistic Interpretability

Florent Draye & Hector Fellow Bernhard Schölkopf


PHYSICS

Optical and Electronic Neuromorphic Systems

Richard Kantelberg & Hector Fellow Karl Leo


PHYSICS MATHEMATICS INFORMATICS

Machine Learning Methods for Gravitational-Wave Data Analysis

Maximilian Dax & Hector Fellow Bernhard Schölkopf


MATHEMATICS

Higher Rank Teichmüller Theory with a Focus on SO(P,Q)

Laura Lankers & Hector Fellow Anna Wienhard


Associated Young Researchers´ Projects

Networking and the transfer of interdisciplinary knowledge are essential to promoting research cooperation. The Hector Fellow Academy offers the opportunity to join the Associated Young Researchers program. Researchers within a Hector Fellow or HRCDA working group can participate in various training courses as well as networking events, symposia and conferences.

PSYCHOLOGY	Neuromodulatory Processes Involved in Learning and Brain Plasticity Across the Lifespan: Insights from Visual Perceptual Learning		Savanna Babu & Hector RCD Awardee Sebastian Frank
CHEMISTRY	Chiral Organoboron PAHs for Application in Organic Electronics		Felix Full & Hector RCD Awardee Agnieszka Nowak Król
BIOLOGY & MEDICINE	Dynamic Vision in Natural Low Light Environments – From Single Photons to Behaviour		Andrea Gonsek & Hector Fellow Awardee Anna Stöckl
CHEMISTRY	Access to Pi-Enhanced Carbazoles and Their Application		Henrik Habeck & Hector Fellow A. Stephen K. Hashmi
ENGINEERING	Heat Actuated Elastocaloric Cooling		Yi-Ting Hsiau & Hector RCD Awardee Jingyuan Xu
BIOLOGY & MEDICINE	From Mitochondrial Genotypes to Phenotypes with Single-Cell Multi-Omics		Pauline Kautz & Hector RCD Awardee Leif Ludwig
PSYCHOLOGY, MEDICINE & INFORMATICS	Cognitive and neural mechanisms underlying memory generalization during wakefulness and sleep		Katja Kleespies & Hector RCD Awardee Monika Schönauer
BIOLOGY & CHEMISTRY	Evolution of Wound Care and Rescue Behaviour in Army Ants		Juan José Lagos-Oviedo & Hector RCD Awardee Erik T. Frank
BIOLOGY, CHEMISTRY & MEDICINE	On the Potential Implication of Rhodopsins in Avian Magnetosensitivity		Arno Munhoven & Hector Fellow Peter Hegemann
BIOLOGY & MEDICINE	Inferences of Clonal Dynamics in Human Hematopoiesis		Lena Nitsch & Hector RCD Awardee Leif Ludwig
CHEMISTRY	Expanded Boron-Embedded Helicenes as Novel Organic Materials		Klaudia Szkodzinska & Hector RCD Awardee Agnieszka Nowak-Król
BIOLOGY	Mechanisms of Superinfection Exclusion in Archaea		Emine Rabia Sensevdi & Hector RCD Awardee Tessa Quax
BIOLOGY, CHEMISTRY, PHYSICS, ENGINEERING & MEDICINE	DNA Origami for Synthetic Immunology		Mai Tran & Hector RCD Awardee Kerstin Göpfrich

SCIENCE EVENING

What Children Teach Us

The Future of Personalized Medicine

May 21, 2026 | 6 pm | Munich & Online

Hector Fellow Academy

In Cooperation with

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Free Entry Registration:

Completed projects

The Hector Fellow Academy maintains an active alumni network to promote ongoing dialogue and preserve expertise beyond project periods. Regularly exchanging and transferring research results, as well as having the opportunity for long-term, interdisciplinary collaboration, makes the HFA a vibrant scientific academy.

COMPLETED... INTERDISCIPLINARY PROJECTS DOCTORAL PROJECTS ASSOCIATED YOUNG RESEARCHERS PROJECTS

CHEMISTRY, PHYSICS, ENGINEERING & MEDICINE	CarboChip: High Performance Micro-Electrodes for Retinal Implants	Wadood Haq & Hector Fellow Eberhart Zrenner Franz Selzer & Hector Fellow Karl Leo Hector Fellows Manfred Kappes & Martin Wegener
CHEMISTRY & PHYSICS	Fundamentals of Gold Catalysis	Sarah Bay & Hector Fellow A. Stephen K. Hashmi Jean-Francois Greisch & Hector Fellow Manfred Kappes
BIOLOGY, CHEMISTRY, PHYSICS & MEDICINE	High-Resolution Optogenetics with Organic Light-Emitting Diodes (OLEDs)	Giuseppe Ciccone & Hector Fellow Karl Leo Rodrigo Fernandez Lahore & Hector Fellow Peter Hegemann
PHYSICS & ENGINEERING	Mechanical Metamaterials	Claudio Findeisen & Hector Fellow Peter Gumbsch Muamer Kadic & Hector Fellow Martin Wegener
BIOLOGY	Stress & Epigenetics: Epigenetic Effects of Parental Stress in Offspring	Amber Makowicz & Hector Fellow Axel Meyer
BIOLOGY & PSYCHOLOGY	Towards Understanding the Genetic Basis of Appetitive Aggressive Behavior	Jan Gerwin & Hector Fellows Axel Meyer & Thomas Elbert
CHEMISTRY	1,3-Diketon Based Ligands for Transition Metal Catalysis	Jonas Wunsch & Hector Fellow A. Stephen K. Hashmi
BIOLOGY, ENGINEERING & MEDICINE	Accommodation Behavior and Ciliary Muscle Activity in Myopia	Sandra Wagner & Hector Fellow Eberhart Zrenner
BIOLOGY & ENGINEERING	Applications of Non-Invasive Ocular Signal Measurements	Margaret Deibel & Hector Fellow Eberhart Zrenner

ENGINEERING	Bank Structuring in Urban Environments through Micro Groins	Andreas Müller & Hector Fellow Franz Nestmann
ENGINEERING	Continuum Damage Models for Reliability Assessment of Structural Composites	Zalikha Murni Abdul Hamid & Hector Fellow Peter Gumbsch
PSYCHOLOGY	Epigenetic Underlying of Appetitive Aggression	Anja Rukundo-Zeller & Hector Fellow Thomas Elbert
PHYSICS	Fermionic Quantum Gas Microscope	Joannis Koepsell & Hector Fellow Immanuel Bloch
BIOLOGY	Genetic and Developmental Basis of Color in Cichlid Fish	Margaret Sefton & Hector Fellow Axel Meyer
PSYCHOLOGY	Genetics and Epigenetics of Posttraumatic Stress Disorder and its Treatment	Daniela Conrad & Hector Fellow Thomas Elbert
CHEMISTRY	Gold-Catalyzed Functionalization of 1,3-Diyne Derivatives	Philipp Stein & Hector Fellow A. Stephen K. Hashmi
ENGINEERING	Influence of River Basin Morphology and Climate Change on Water Partitioning in Semi-Arid River Basins	Phoebe Pauline Onjira & Hector Fellow Franz Nestmann
PHYSICS	Magnetism in Perovskite Manganites and Cobaltites at the Nano Scale	Cornelia Hintze & Hector Fellow Hilbert von Löhneysen
CHEMISTRY & PHYSICS	Manipulation of Molecular Spins Using Electronic Ciruits with Carbon Nanotubes	Tim Althuon - Hector Fellow Wolfgang Wernsdorfer
BIOLOGY	Mechanisms of Reproductive Isolation During Rapid Speciation	Sina Rometsch & Hector Fellow Axel Meyer

BIOLOGY & MEDICINE	Mechanisms Underlying Pathogenesis of SARS-CoV-2 Infections	Yannick Stahl & Hector Fellow Ralf Bartenschlager
CHEMISTRY	Photocatalysis and Transition-Metal-Catalyzed Reactions of Furane-Derivatives	Daniel Eppel & Hector Fellow A. Stephen K. Hashmi
PHYSICS	RR Lyrae Stars as Tracers of Substructure and Galactic Archaeology	Zdenek Prudil & Hector Fellow Eva Grebel
PSYCHOLOGY & MEDICINE	Sensitive Period Plasticity and Functional Recovery After Sight Restoration	Rashi Pant & Hector Fellow Brigitte Röder
BIOLOGY	Temporal and Spatial Microbial Dynamics in the Arctic Ocean	Magda Cardozo Mino & Hector Fellow Antje Boetius
PHYSICS & ENGINEERING	Three-Dimensional Chiral Metamaterials	Julian Köpfler & Hector Fellow Martin Wegener
PHYSICS	Towards Topological Many-Body Physics Using State-Dependent Optical Lattices	Hendrik von Raven & Hector Fellow Immanuel Bloch
PHYSICS	Unveiling the Galactic History with Pulsating Variable Stars	Gustavo Medina Toledo & Hector Fellow Eva Grebel
PHYSICS & INFORMATICS	Circumgalactic Medium and the Cosmic Web	Chris Byrohl & Hector RCD Awardee Dylan Nelson
PHYSICS & ENGINEERING	Modular Synthesis of Nitrogen-Stabilized Carbene Complexes	Vanessa Vethacke & Hector Fellow A. Stephen K. Hashmi
PHYSICS	Novel Applications With Organic Thermoelectric Modules	Shu-Jen Wang & Hector Fellow Karl Leo

Publications

2025

De Angeli, P., **Spaag, S.**, Shliaga, S., Flores-Tufiño, A., Ritter, M., Nasri, M., Stingl, K., Kühlewein, L., Wissinger, B., & Kohl, S. (2025). Single-guide RNA Cas9 and enhanced-deletion Cas9 rescue a recurrent USH2A-related splicing defect. Molecular Therapy Nucleic Acids, 36(2), 102523. https://doi.org/10.1016/j.omtn.2025.102523

Laporte, M., Jochmans, D., Bardiot, D., Desmarets, L., Debski-Antoniak, O. J., Mizzon, G., Abdelnabi, R., Leyssen, P., Chiu, W., Zhang, Z., Nomura, N., Boland, S., Ohto, U., **Stahl, Y.**, Wuyts, J., De Jonghe, S., Stevaert, A., van Hemert, M. J., Bontes, B. W., … Neyts, J. (2025). A coronavirus assembly inhibitor that targets the viral membrane protein. Nature, 1–10. https://doi.org/10.1038/s41586-025-08773-x

De Angeli, P., **Spaag, S.**, Shliaga, S., Tufiño, A. F., Ritter, M., Nasri, M., Stingl, K., Kühlewein, L., Wissinger, B., & Kohl, S. (2025). Single gRNA Cas9 and Enhanced-Deletion Cas9 rescue a recurrent USH2A-related splicing defect. Molecular Therapy Nucleic Acids, 102523. https://doi.org/10.1016/j.omtn.2025.102523

Tran, M. P., Chakraborty, T., Poppleton, E., Monari, L., **Illig, M.**, Giessler, F., & **Göpfrich, K.** (2025). Genetic encoding and expression of RNA origami cytoskeletons in synthetic cells. Nature Nanotechnology, 1–8. https://doi.org/10.1038/s41565-025-01879-3

The Ligo Scientific Collaboration, [...] Abac, A. G., Abbott, R., Abouelfettouh, I., Acernese, F., Ackley, K., Adhicary, S., Adhikari, N., Adhikari, R., **Dax M.**, … Zubieta, E. (2025). Search for continuous gravitational waves from known pulsars in the first part of the fourth LIGO-Virgo-KAGRA observing run (No. arXiv:2501.01495). arXiv. https://doi.org/10.48550/arXiv.2501.01495

2024

Althuon, T., Cubaynes, T., Auer, A., Sürgers, C., & **Wernsdorfer, W.** (2024). Nano-assembled open quantum dot nanotube devices. Communications Materials, 5(1). doi.org/10.1038/s43246-023-00439-3

Brenzinger, S., Airoldi, M., **Ogunleye, A. J.**, Jugovic, K., Amstalden, M. K., & **Brochado, A. R.** (2024). The vibrio cholerae CBASS phage defence system modulates resistance and killing by antifolate antibiotics. Nature Microbiology, 9(1), 251–262. doi.org/10.1038/s41564-023-01556-y

Chen, Y., Schneider, J. L. G., Groß, M. F., Wang, K., Kalt, **S., Scott, P.**, **Kadic, M.**, & **Wegener, M.** (2024). Observation of Chirality-Induced Roton-Like Dispersion in a 3D Micropolar Elastic Metamaterial. Advanced Functional Materials, 34(20), 2302699. https://doi.org/10.1002/adfm.202302699

Chen, Y., Schneider, J. L. G., Wang, **K., Scott**, P., Kalt, S., **Kadic, M.**, & **Wegener, M.** (2024). Anomalous frozen evanescent phonons. Nature Communications, 15(1), 8882. https://doi.org/10.1038/s41467-024-52956-5

Crombach, A., **Rukundo-Zeller, A. C.**, Vukojevic, V., Nandi, C., Bambonye, M., de Quervain, D. J.-F., Papassotiropoulos, A., & **Elbert, T.** (2024). Differential methylation of linoleic acid pathway genes is associated with PTSD symptoms – a longitudinal study with Burundian soldiers returning from a war zone. Translational Psychiatry, 14(1). doi.org/10.1038/s41398-024-02757-7

Gebhard, T. D., Wildberger, J., **Dax, M.**, Angerhausen, D., Quanz, S. P., & **Schölkopf, B.** (2024, February). Inferring Atmospheric Properties of Exoplanets with Flow Matching and Neural Importance Sampling. Max Planck Institute for Intelligent Systems. https://is.mpg.de

Gyger, F., **Ammenwerth, M.**, Tao, R., Timme, H., Snigirev, S., **Bloch, I.**, & Zeiher, J. (2024). Continuous operation of large-scale atom arrays in optical lattices. Physical Review Research, 6(3), 033104. https://doi.org/10.1103/PhysRevResearch.6.033104

Illig, M., & **Göpfrich, K.** (2024). Triggered contraction of self-assembled micron-scale DNA nanotube rings. Nature Communications. https://www.nature.com/articles/s41467-024-46339-z

Illig, M., Jahnke, K., Weise, L. P., Scheffold, M., Mersdorf, U., Drechsler, H., Zhang, Y., Diez, S., Kierfeld, J., & **Göpfrich, K.** (2024). Triggered contraction of self-assembled micron-scale DNA nanotube rings. Nature Communications, 15(1). doi.org/10.1038/s41467-024-46339-z

Lehle, K., **Nelson, D.**, Pillepich, A., Truong, N., & Rohr, E. (2024). The heart of galaxy clusters: Demographics and physical properties of cool-core and non-cool-core halos in the TNG-Cluster simulation. Astronomy & Astrophysics, 687, A129. https://doi.org/10.1051/0004-6361/202348609

Jahnke, K., **Illig, M.**, Scheffold, M., **Tran, M. P.**, Mersdorf, U., & **Göpfrich, K.** (2024). DNA Origami Signaling Units Transduce Chemical and Mechanical Signals in Synthetic Cells. Advanced Functional Materials, 34(20), 2301176. https://doi.org/10.1002/adfm.202301176

Nelson, D., Pillepich, A., Ayromlou, M., Lee, W., **Lehle, K.**, Rohr, E., & Truong, N. (2024). Introducing the TNG-Cluster Simulation: overview and physical properties of the gaseous intracluster medium. Astronomy & Astrophysics. doi.org/10.48550/arXiv.2311.06338

Nowak-Król, A. (2024). Dual nature of thiophene harnessed in the design of near-infrared emitters via antiaromaticity relief. Angewandte Chemie International Edition, 63(10). doi.org/10.1002/anie.202317060

Nowak-Król, A., Geppert, P. T., & Naveen, K. R. (2024). Boron-containing helicenes as new generation of chiral materials: Opportunities and challenges of leaving the Flatland. Chemical Science. pubs.rsc.org/en/content/articlelanding/2024/sc/d4sc01083c

Nyman, M., Garcia-Santiago, X., Krstic, M., Materne, L., Fernandez-Corbaton, I., Holzer, C., **Scott, P.**, **Wegener, M.**, Klopper, W., & Rockstuhl, C. (2024). A Digital Twin for a Chiral Sensing Platform. Laser & Photonics Reviews, 18(6), 2300967. https://doi.org/10.1002/lpor.202300967

Samantaray, A. S., Jassal, H. K., Singh, K. P., Dewangan G. C. (2024). AstroSat observations of interacting galaxies NGC 7469 and IC 5283. A&A, 686 A241. doi.org/10.1051/0004-6361/202348981

Sensevdi, E. R., Sourrouille, Z. A., & **Quax, T. E.** (2024). Host range and cell recognition of archaeal viruses. Current Opinion in Microbiology, 77, 102423. https://doi.org/10.1016/j.mib.2023.102423

Somers, P., **Koch, S.**, Kiefer, P., Meretska, M. L., & **Wegener, M.** (2024). Holographic multi-photon 3D laser nanoprinting – at the speed of light: opinion. Optical Materials Express, 14(10), 2370–2376. https://doi.org/10.1364/OME.538751

Stürmer, S., Bolz, S., **Zrenner, E.**, Ueffing, M., & **Haq, W.** (2024). Sustained extracellular electrical stimulation modulates the permeability of gap junctions in RD1 mouse retina with photoreceptor degeneration. International Journal of Molecular Sciences, 25(3), 1616. doi.org/10.3390/ijms25031616

Tao, R., **Ammenwerth, M.**, Gyger, F., **Bloch, I.**, & Zeiher, J. (2024). High-Fidelity Detection of Large-Scale Atom Arrays in an Optical Lattice. Physical Review Letters, 133(1), 013401. https://doi.org/10.1103/PhysRevLett.133.013401

Truong, N., Pillepich, A., **Nelson, D.**, Zhuravleva, I., Lee, W., Ayromlou, M., & **Lehle, K.** (2024). X-ray-inferred kinematics of the core intracluster medium in perseus-like clusters: Insights from the TNG-cluster simulation. Astronomy & Astrophysics, 686. doi.org/10.1051/0004-6361/202348562

A complete list of all publications can be found here: https://hector-fellow-academy.de/en/research/publications

10 Years Hector Fellow Academy

The Hector Fellow Academy was established in 2013 to strengthen the network among recipients of the Hector Science Award. In 2024, we celebrated its 10th anniversary at the HFA Symposium in Hamburg. The following pictures convey some of the festivities' highlights.

"The award and support from the Hector Foundation is not only a great honor and support for my research. The membership in the Hector Fellow Academy is also extraordinarily inspiring, as the Foundation's meetings and public symposia facilitate an exchange with excellent colleagues from other disciplines."

Prof. Dr. Katrin Amunts

"10 years of the Hector Fellow Academy means a decade of promoting, challenging and celebrating deep, surprising and innovative scientific knowledge. The Hector Fellows come from such different disciplines that there is always something new to learn. For me, the promotion of young researchers with their very own ideas for projects with us Fellows is a particular highlight of the Academy."

Prof. Dr. Antje Boetius

"The Hector Fellow Academy offers a unique framework for interdisciplinary exchange and getting to know completely new scientific fields at the highest level. The promotion of young scientists is a particularly important aspect that helps to carry this knowledge into the future and develop it further."

Prof. Dr. Immanuel Bloch

"The HFA facilitates the realization of the potential of exceptional thinkers and researchers through mutual inspiration. It thus transcends the boundaries of contemporary knowledge and establishes a novel dimension of research and education that is inextricably linked with the pursuit of sustainable ethical reflection."

Prof. Dr. Thomas Elbert

"It is a pleasure and an honor to be part of the Hector Fellow Academy. With its focus on excellence and interdisciplinarity, the HFA has been very successful in enabling new, innovative research projects that would otherwise not have been possible. A special highlight are the HFA's valuable and very successful career support measures for outstanding young researchers. The enormous interest in the HFA's outreach events underlines the high quality of the Academy's very effective science communication with the general public."

Prof. Dr. Eva Grebel

"The Hector Fellow Academy combines cutting-edge research with the promotion of early career scientists in an outstanding way. The unbureaucratic support of exciting scientific ideas and the interdisciplinary networking of researchers at different career levels are particularly noteworthy."

Prof. Dr. Dr. h.c. Nikolaus Pfanner

"Lively, interdisciplinary and inspiring - the Hector Fellow Academy is a great gift for our research landscape."

Prof. Dr. Bernhard Schölkopf

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